Poster Presentation

# Abdominal Vascular Disease

## PP-001

### Therapeutic Results and Surgical Skills of Chronic Infrarenal Aortic Occlusion

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**Aim:** To conclude the therapeutic results of chronic infrarenal aortic occlusion and main points of surgical procedure.
**Material-Methods:** 36 cases of chronic infrarenal aortic occlusion underwent surgery in 1st hospital of China Medical University from 2004 to 2011. The clinical data were analyzed retrospectively. All the cases were diagnosed by CT-A.
**Results:** The range of ABI was 0–0.6. 35 cases underwent aortoiliac or aortofemoral bypass while 1 case underwent axillofemoral bypass. The patency rates of 1 year, 2 years, 3 years 4 years and 5 years were 100%, 100%, 90%, 80% and 65% by follow-up.
**Conclusions:** Aortoiliac or aortofemoral bypass was the main therapy of infrarenal aortic occlusion of type II and III, and that CT-A and ABI measurement are the main methods for therapy selecting and prognosis judgement. We also concluded our experience of surgical skills and main points during surgical therapy.

**Keywords:** infrarenal aortic occlusion, leriche syndrome, prosthetic graft bypass, ankle-brachial index, ischemia-reperfusion injury

## PP-002

### Single Use of Endurant Stent Graft Aortic Extensions for the Treatment of Abdominal Aortic Aneurysms

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**Aim:** To describe an alternative method for endovascular treatment of abdominal aortic aneurysms with adequate length of distal neck, with aortic extension cuffs of the Endurant stent graft using if necessary the telescope technique.
**Material and Methods:** From July 2010 since July 2013, 7 patients, 5 male and 2 female with a mean age of 78, were treated with endovascular tube grafts, using only aortic cuff extensions of the Endurant stent graft system. Saccular abdominal aortic aneurysms were present in 4 of them. One had an aortic dissection, one suffered juxtarenal rupture and one patient presented with anastomotic pseudoaneurysm of previous open repair. All aneurysms were located in the abdominal aorta and had a mean diameter of 40 mm. Average length of proximal and distal neck was 19.2 mm and 41.5 mm respectively. All patients were operated under local anesthesia with unilateral femoral exposure. 4 cases were treated with a single 70 mm long Endurant aortic extension cuffs while in the remaining 3 cases, 2 cuffs were used with the telescopic technique overlapping approximately 40–30 mm.
**Results:** All grafts were deployed successfully. There were no intraoperative or post operative complications. There was no intra-op endoleak, however in one case there was a small endoleak type IIb present in the 30 day follow up CT scan which was dissolved 10 months after the procedure. Finally one patient was diagnosed with an endoleak type II and stable diameter 26 months post-op, while up to date there were no cases of graft migration.
**Conclusions:** The use of Endurant aortic extensions in aneurysms with long distal length is a safe, simple, customizable and cost effective method witch presents similar early results with standard EVAR technique.

**Keywords:** endurant, tube graft, abdomnal aortic aneurysm

## PP-003

### Complex Anatomy, Difficult Aortic Stent Grafts: Troubleshooting Strategies During Aortic Stenting

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Aortic stent grafting has become, in many world centres, the new standard of care for patients with aoric aneurysmal disease. Increasingly, many patients with complex anatomies that were once deemed unsuitable for stent grafting are now being treated with modified or custom-made aortic devices. These complex procedures require deliberate planning and technical competence in surgery. Frequently, unforeseen technical difficulties and complications develop during the procedures. We share our experience in complex stent grafting procedures and the difficulties encountered. In particular, we will discuss our thought processes and the various methods used to troubleshoot the technical difficulties and complications

**Keywords:** aorta, aneurysms, stenting, complications, troubleshooting

## PP-004

### Our Initial Experience for the Treatment of Abdominal Aortic Aneurysms with EVAR Method

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**Introduction:** Primer therapy of Abdominal aorta aneurism

(AAA) is surgery. In patients who are aged and have co-morbidity like COPD, endovascular aorta repair (EVAR) can be considered as an alternative therapy. Present, EVAR is using frequently. Also in emergency cases like ruptures and iatrogenic traumas EVAR should be use successfully.

**Results:** Fifteen patients are evaluated. Mean age is 54.6 ± 10.81. Eleven of them (73.33%) are male, 3 (20%) patients are in emergency status. 5 of them (33.3%) have coronary artery disease and 2 (13%) have abdominal operation before. None of the patients died in hospital and 30 day after discharged. During three years follow up 2 patients died because of non aneurism events.

**Conclusion:** We believe that the initial results of endovascular repair of AAA maybe equal with surgery on behalf of the increase of experience.

**Keywords:** abdominal aorta aneursm, EVAR, surgery

## PP-005

## The Value of Spontaneous Isolated Superior Mesenteric Artery Dissection Imaging

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**Objective:** To explore the value of imaging in spontaneous isolated superior mesenteric artery dissection (SISMAD) treatment.

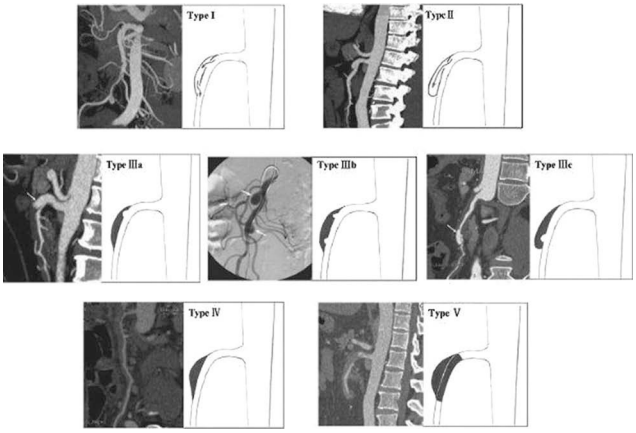
**Methods:** A retrospective analysis was performed on clinical data from 28 patients with SISMAD (symptometic 27, asymptometic 1) from January 2009 to December 2011. All SISMAD patients received anticoagulants and conservative therapy, and those with severe intestinal ischemia or conservative treatment failed underwent surgery or stenting. Upon discharge, all patients received antiplatelets for six months and follow-up with computed tomography angiography (CTA). Based on previous SISMAD classifications, a new imaging classification studied the relationship between SISMAD imaging and treatment of patients. Finally, we retrospectively reviewed of the literatures, and evaluated SISMAD features in patients who were treated with surgery or stenting.

**Result:** Of 28 patients, six patients (21.4%) had aortic or branch artery abnormalities; 21 patients (75%) showed prior intestinal ischemia; and four patients (14.3%) with intestinal ischemia underwent surgery or stenting. The new SISMAD imaging was classified into five types (I, II, III, IV and V), of which type III was divided into three subtypes (IIIa, IIIb and IIIc). Types Ia and IV were dominant in patients studied, accounting for 32.1% and 25%. Of the retrospectively reviewed 26 cases of SISMAD that received surgery or stenting, the most prevalent were types IIIa and IV, accounting for 38.5% and 26.9%, respectively.

**Conclusions:** SISMAD may be related to medial degeneration. Anticoagulation and conservative therapy are preferred for symptomatic SISMAD patients. Types IIIa and IV SISMADs are more likely to need surgery or stenting. The SISMAD imaging of long-term follow-up is of value in choosing the treatment strategy for SISMAD. Stent implantation obtains satisfactory results of superior mesenteric artery blood supply and dissection reconstruction.

**Keywords:** superior mesenteric artery, dissection, isolated, imaging features, treatment strategy

**SISMAD classification based on imaging features**




*The arrows show proximal and distal ULPs in SISMAD*

**Imaging features of various types of SISMAD using the new classification method**

| Type | Imaging features |
|---|---|
| I | Patent true and false lumens, with entry and re-entry |
| II | Patent true lumen, cul-de-sac-shaped false lumen, without re-entry |
| III | Patent true lumen, and thrombosed false lumen with ulcer like projection |
| IIIa | Ulcerous entry with antegrade dissection |
| IIIb | Ulcerous entry and re-entry |
| IIIc | Ulcerous entry with retrograde dissection |
| IV | Patent true lumen, and thrombosed false lumen |
| V | Occluded true and false lumens |

## PP-006

## Abdominal Vascular Injuries Due to Missile Wounds

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**Objective:** Although abdominal vascular injuries due to missile bullets are less common compared to other injuries, they are of great importance because of the high mortality rate. The aim of this study is to assess the mortality rate of abdominal vascular injury caused by the bullets of rifles when visceral organs injury is associated with vascular injury.

**Methods:** Between 1993–2008, surgical hospital registries were scanned and 27 abdominal vascular injuries of a total of 212

abdominal wound cases were detected. The mean age was 24 ± 12 years. The cause of injury was a mine explosion and firearm in one patient, and firearms in the others. All cases had vascular injuries. 16 cases had major venous injuries, 6 had major arterial injuries and the remaining 5 cases have major arterial and venous injuries.
**Results:** Fifty-four abdominal organ injuries were determined. Twenty-seven patients had abdominal vascular injuries. Only one patient's systolic blood pressure was higher than 50 mmHg in the preoperative period. The remaining patients had lower systolic blood pressures. In addition, the blood pressure of ten patients could not be determined during admission to the emergency department. Major venous injuries had the worst preoperative hemodynamics. Eight patients underwent vascular ligation, primary repair was done in 12 patients and graft interposition was done in 7 patients. However, 5 cases died before surgical intervention. Out of 5 deaths, one patient died because of sepsis (postoperative 2nd day), one patient died from VCI laceration, sepsis occurred in one, 1 died from renal venous trauma, 1 from vena porta injury and one from cerebral hemorrhage associated with abdominal vascular injury.
**Conclusion:** Abdominal aortic injuries have a higher fatality rate than venous injuries. Outcomes in abdominal vascular injuries due to missile wounds still depend on transportation time and coincident inferiorcaval vein and abdominal organ injuries.

**Keywords:** abdominal, vascular injuries, missile wounds

## PP-007

### Anatomical Characteristics of an Infra-Renal Abdominal Aortic Aneurysm: Can an Aneurysm that is Prone to Enlargement After Endovascular Aneurysmal Repair be Predicted?

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**Purpose:** As the rate of EVAR usage increases and as the life expectancy of patients who had undergone EVAR for an AAA is getting longer, the long-term result of EVAR is becoming more important. Late AAA rupture and continued AAA sac expansion after EVAR are the significant risk factors after EVAR and the major limiting factors in the long-term result of EVAR. This study was conducted to identify the anatomical characteristics of an infra-renal abdominal aortic aneurysm (AAA) that may cause a poor result of endovascular aneurysmal repair.
**Methods:** The baseline anatomical parameters of an infra-renal AAA, which were obtained during pre-EVAR evaluation, are analyzed. By comparing such anatomical parameters of patients who showed various EVAR results, an attempt was made to identify the morphological determinants of an infra-renal AAA, which could result in aneurysmal sac expansion after EVAR. A retrospective review of 60 AAA patients who have follow up more than a year, was performed.
**Results:** The proximal neck length was significantly shorter in patients with AAA sac expansion after EVAR. Longitudinal aneurysmal length, maximal aneurysmal diameter and cross-sectional area were significantly larger in patients with AAA sac expansion after EVAR than the other patients. The results of this study showed statistically significant differences in the proximal neck lengths, longitudinal aneurysmal lengths, maximal diameters, and areas of the aneurysm lumens of the groups. With a shorter proximal neck, a longer longitudinal aneurysm, and a larger aneurysm, the sac could expand even after a successful EVAR. This result could imply that a type 1a endoleak and endotension may play key roles in the development of post-EVAR AAA sac expansion.
**Conclusion:** An AAA with a shorter proximal aortic neck and a larger lumen diameter/area could result in AAA sac expansion after EVAR.

**Keywords:** abdominal aortic aneurysm, aneurysm shrinkage, aneurysm expansion

## PP-008

### Embolization of Internal Iliac Aneurysm Under Image Guided Direct Puncture

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**Background:** Some reports have demonstrated the feasibility, safety and efficacy of embolization of internal iliac artery aneurysm (IIAA) through the percutaneous technique, an access needle is directly advanced into the aneurysm sac under computed tomography (CT) guidance. This study was performed to evaluate the feasibility and efficacy of the use of the embolization of type II endoleak with transretroperitoneal approach.
**Methods:** Using retospectively constructed data of 3 patients were identified who underwent endovascular aneurysm repair (EVAR) or open surgical repair of an abdominal aortic aneurysm (AAA) at a single institution. Internal iliac artery aneurysm (IIAA) sac has occurred in these three patients at more than one year of follow up. Three patients were performed direct puncture and embolization of the IIAA under CT guidance.
**Results:** Approach to the IIAA sac was successful in these three patients. In all patients, several feeding artery could be selectively catheterized with the microcatheter. And then, selected several divisions were embolized using microcoils and glue (Histoacryl). No complications were occurred. On follow-up CT, on opacification of the aneurysm sac was seen. The size of IIAA was not increased at follow-up.
**Conclusions:** Embolization of IIAA after direct retroperitoneal puncture under CT guidance appears to be feasible and effective results in good short-term outcome.

**Keywords:** internal iliac artery aneurysm, embilization, direct puncture

## PP-009

### Endovascular Aneurysmal Repair with Intentional Covering of Unilateral Main Renal Artery in a High Risk Patient: Case Report

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Hostile neck remains still a significant anatomical limitation for endovascular stent-graft for abdominal aortic aneurysms (AAA). The Chimney technique, fenestrated and branched endografts made the so-called 'endovascular era' more abundant in those situations. However, such procedures are highly skillful and time-consuming which are usually unavailable in urgent situations. We report on a successful case of endovascular aneurysmal repair (EVAR) sacrificing the left renal artery for AAA with extremely short proximal neck. An 89-year-old woman with multiple co-morbidities was admitted to the emergency room with severe periumbilical pain. CT angiography revealed juxtarenal AAA with a maximum diameter of 5 cm; the aneurysm extended from 6 mm below the left renal artery. Urgent management was needed because she complained of persistent severe pain, suspicious for impending rupture. But there was no available adequate equipments to proceed with EVAR that can save the patient's renal flow. Therefore, we decided to perform EVAR with intentional left renal artery covered endograft under local anesthesia. After the procedure, her symptom subsequently was relieved and adequate exclusion of aneurysmal sac was successfully achieved. The postoperative course was uneventful and the patient was discharged after 10 days. During the 2 months of follow up, any renal function impairment or serum creatinine elevation was not observed.

**Keywords:** hostile neck, abdominal aortic aneurysm, EVAR

## PP-010

### Transarterial Embolization for Intraabdominal Hemorrhage After Blunt Abdominal Trauma

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**Introduction:** Angiographic embolization has been known to be an effective nonsurgical treatment for the selected patients with intraabdominal hemorrhage. There have been several reports describing the efficacy of transarterial embolization in patients with intraabdominal hemorrhage following blunt abdominal trauma. The goal was to evaluate the efficacy, safety, and clinical outcome of transarterial embolization for hemorrhage after blunt abdominal trauma. Urgent angiography and transarterial embolization was performed in all 10 patients. The clinical and angiographic features were retrospectively reviwed. Angiography revealed a discrete bleeding focus in ten patients. Transarterial embolization was technically successful in 100%. There was no procedure-related complication during follow-up period. Angiography has a high detection rate of bleeding site in patients with hemorrhage after blunt abdominal surgery. Transarterial embolization is considered to be an effective and safe means in the management of intraabdomina hemorrhage.

**Keywords:** abdomen blunt trauma, hemorrhage, embolization

## PP-011

### Factors Affecting the Endoleaks of Endovascular Aneurysm Repair in Infrarenal Abdominal Aortic Aneurysms

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**Purpose:** The purpose of this study was to evaluate the factors affecting the endoleaks of endovascular aneurysm repair (EVAR) in infrarenal abdominal aortic aneurysms (AAA).

**Methods:** On a retrospective basis, we analyzed 122 patients who underwent EVAR for infrarenal AAA between March, 2006 and June, 2011. According to the endoleak, the patients were divided 2 groups: Endoleak group, Non-endoleak group. We compared following variables between the 2 groups: patient clinical characteristics (age, gender, BMI, history of smoking, hypertension, diabetes mellitus and coronary artery disease) and anatomical features of the aneurysms.

**Results:** A total of 111 male and 11 female patients were included. Fifty-nine patients had hostile neck anatomy. The preprocedural mean sac-diameter was 52.4 mm. Postprocedural sac-diameter was decreased or stable in 110 patients (90.2%) and increased in 8 patients (6.6%). Fifty-two patients showed endoleak (42.6%) during follow up periods (median; 4.6 years) and 15 patients (12.3%) underwent secondary intervention due to type I endoleak (n = 4), type II endoleak (n = 4) and stent-graft thrombosis (n = 7). We found no significant difference in number of incidence between endoleak group and non-endoleak group according to patient clinical characteristics. However, there were significant differences between two groups according to the factors of anatomical features of the aneurysm, such as, the morphology and size of the aneurysm and the size and angle of the neck of the aneurysm.

**Conclusion:** Endoleak, which is a major complication of EVAR, showed high frequency of occurrence when the size of the aneurysm itself is large, the neck of the aneurysm is large, and when the angle of neck is more than 60 degrees. Thus, patients with more than one of the above three characteristics may need more attentive and cautious procedure as well as a closer follow-up.

**Keywords:** endoleak, endovascular repair, abdominal aortic aneurysms

## PP-012

# Predictors of Outcome Within 30 Days After Abdominal Aortic Aneurysm (AAA) Repair and a New Prediction Model

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**Aim:** We assessed the predictors of decreased 30-day survival after abdominal aortic aneurysm (AAA) repair at a single university hospital and developed a multivariable risk prediction model for 30-day mortality after AAA repair.

**Material-Methods:** We retrospectively reviewed the findings of 488 consecutive patients who underwent open or endovascular AAA repair from January 2000 to December 2010 at the Seoul Asan Medical Center. The primary outcome was 30-day mortality. The effects of preoperative, intraoperative, and postoperative factors on outcomes were assessed using univariate and multivariate analyses, and a logistic regression analysis was used to identify risk factors for 30-day mortality.

**Results:** The mean age of the 488 patients who underwent AAA repair was 68.7 years, and most (84%) were male. Twenty-eight patients (5.7%) died within 30 days, including 8 (28.5%) in the hospital following a myocardial infarction and 9 (32.1%) from multiorgan failure. A univariate analysis showed that the following factors were associated with high mortality rates: increased age; suprarenal or juxtarenal location of the AAA; emergency operation; ruptured AAA; larger AAA diameter; increased serum creatinine, CK, and lactic acid concentrations; low hemoglobin and albumin concentrations; and a mean intraoperative blood pressure <65 mmHg. In addition, mortality was affected by ischemic bowel disease and a cardiac event within 30 days (myocardial infarction, atrial fibrillation, or ventricular arrhythmia). A multivariate analysis using a logistic regression model showed that pulmonary dysfunction (P = 0.0005), a suprarenal or juxtarenal location of the AAA (P = 0.0033), and emergency operation (P <0.0001) were independent factors associated with 30-day mortality.

**Conclusion:** AAA repair has an acceptable mortality rate. Preoperative optimization and care are required for patients with renal dysfunction, COPD, cardiovascular disease and hypovolemia. Our findings suggest a new predictive model for mortality using independent variables.

**Keywords:** abdominal aortic aneurysm, prediction model, mortlaity

**Observed and expected 30-day mortality rates for scores of increasing mortality risk**

| Total risk score | Predicted mortality rate | Observed risk | Observed alive (n) | Observed death (n) |
|---|---|---|---|---|
| 0 | 0.0137 | 0.0162 | 247 | 4 |
| 1 | 0.0514 | 0.0579 | 190 | 11 |
| 2 | 0.1742 | 0.2245 | 49 | 11 |
| 3 | 0.4511 | 0.5 | 2 | 2 |

*Score of risk factor Location of AAA: INFRARENAL(0) SUPRARENAL, JUXTARENAL(1) Timing of repair: Elective (0) Emergency(1) Pulmonary dysfunction:No(0) Yes(1)*

## PP-013

# Endovascular Aneurysm Repair under Local Anaesthesia

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Endovascular aneurysm repair (EVAR) was first introduced in 1990 as a minimally invasive procedure alternative to the conventional open surgical repair, with the aim to reduce mortality and morbidity (1). Various anaesthetic techniques have been used for EVAR which include general anaesthesia (GA), regional (epidural and spinal anaesthesia) and local anaesthesia (LA) with or without monitored anaesthesia care.

This is our first report on 6 cases of 4 infra-renal abdominal aortic aneurysm and 2 thoracic aort aneursym undergoing Endovascular Aneurysm Repair with local anaesthesia, controlled sedation and monitoring by an anaesthetist. three patients were males with a mean age of 62.6 years. No one required ICU stay. No mortality or major post operative morbidity was recorded and the mean hospital stay post procedure was 3.5 days (range 2–5 days). The use of local anaesthesia avoids mechanical ventilation and allows spontaneous ventilation therefore reducing the patient's exposure to factors that increase the risk of post operative respiratory failure and reduces the risk of pulmonary morbidity.This retrospective study showed EVAR for abdominal and thoracic aort aneursym with Local Anaesthesia has showed a very encouraging outcome in terms of safety, reduced length of post-operative stay, reduced ICU admission, reduced postoperative monitoring and postoperative morbidity in our local setting.

**Keywords:** aort aneursym, endovascular aneurysm repair, local anaesthesia

**REFERENCE**

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Aneurysm (AAA) under Local Anaesthesia—Initial Experience in Hospital Kuala Lumpur. Med J Malaysia. 2012;**67**(6): 610-2.

## PP-014

### Simultaneous Endovascular Repair of Descending Thoracic and Infrarenal Abdominal Aortic Aneurysms: Case Report

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Patients with multilevel aortic disease represent a small subgroup with the need for extensive surgical treatment at considerable risk. We present our experience of endovascular repair for simultaneous descending thoracic and infrarenal abdominal aortic aneurysm in a patient. A 70-year-old choronic renal failure and operated coronary artery bypass man patient was admitted to have concomitant descending thoracic and infrarenal abdominal aortic aneurysms. Both of the aneurysms were treated successfully in single-stage procedure using endovascular stent-grafts. Grafts deployment were successful and there was no endoleak. Paraplegia or another complications were not observed postoperative period. The patient was discharged on postoperative day 5 without any problem. As a result, simultaneous endovascular treatment of descending thoracic and infrarenal abdominal aortic aneurysms may represent a viable alternative for therapy in high risk patients.

**Keywords:** simultaneous endovascular repair, descending thoracic aneurysm, infrarenal abdominal aortic aneurysm

## PP-015

### Congenital Absence of Inferior Vena Cava with Azygous Continuation in a Young Woman

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Congenital anomalies and variations of the inferior vena cava (IVC) are rare vascular defects. Interrupted IVC results from aberrant development of the IVC segments. Collateral circulation most commonly via the azygos-hemiazygos system may accompany to continuity defects of IVC.

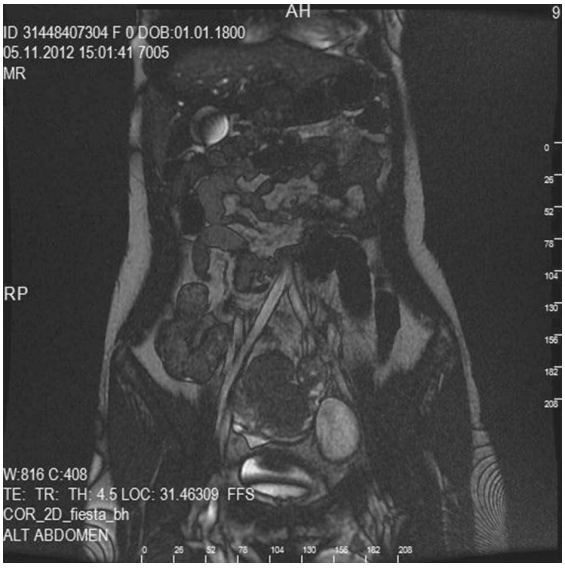
In this report, we present clinical and radiologic findings of a patient with interrupted IVC. A 32-year-old female was referred to our clinic by a nephrologist. She had been followed up because of renal agenesis and an IVC anomaly was detected incidentally in a routine radiologic screening. She had no symptoms and was complaining of nothing. In physical examination there was no evidence of pretibial edema, varicosities and Homan's sign was negative. Color Doppler was performed and there was minimal venous reflux in great saphenous vein and no evidence of deep vein thrombosis. MR venography with 1.5 TMR imager demonstrated interruption of the IVC with azygous/hemiazygous continuation and agenesis of the left kidney and adrenal (Figure 1). An extensive collateral venous circulation was accompanying to azygos system.

Recent studies have revealed that some patients with interrupted IVC commonly presented with recurrent DVT and thrombo-embolic attacks relatively young persons. Interrupted lesions of the IVC were mostly symptomatic with leg swelling, leg pain and varices of lower extremities. If interrupted IVC was associated with well-developed azygos or hemiazygos continuation, as was the case, the variant was identified incidentally and patients might be asymptomatic. Associated findings should be evaluated when interruption of the IVC is identified in a patient. If well-developed collaterals present, patient may be asymptomatic and knowledge of this variation is not important except before surgical or interventional procedures.

As a conclusion, interruption of the IVC are lesions that may cause different clinical findings depending on the various collaterals and should be considered carefully at the time of a surgery or intervention.

**Keywords:** inferior vena cava, interruption, renal agenesis

**Figure 1**




*Coronal view of magnetic resonance angiography revealed absence of inferior vena cava.*

## PP-016

# Acute Embolism of Mesenteric Arterioles After Intra-Aortic Balloon Pump

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IABP (Intra-aortic balloon pump) is applied when the heart shows left ventricular dysfunction in cardiogenic shock such as myocardial infarction. Aortic damage, lower limb ischemia are known as complications caused after IABP. However, acute embolism of meseteric arterioles is very rare. A 45-year-old healthy man with intermittent chest pain a week ago, receiving no special treatment for it, presented to our hospital after sudden onset of hypotension and coma. He had no risk factors. Under the diagnosis of acute myocardial infarction with cardiogenic shock base on the electrocardiography, cardiopulmonary resuscitation was initiated. Then, IABP and transient cardiac pacemaker were inserted, and the patient was intubated and mechanicallly ventilated in the intensive care unit. On the third day of hospitalization, bowel sounds was reduced, with abdominal distension and rigidity. Then underwent an emergency laparotomy for peritonitis. Operative findings revealed about 20 cm of necrotic small bowel with perforation about 270 cm proximal to the ileocecal valve due to acute embolus in mesenteric arteriole, the necrotic bowel wes resected, and a side-to-side anastomosis was performed. Although complications such as acute respiratory failure, wound infection were reported, the patients was discharged after 3 months. The small bowel necrosis due to acute embolus in mesenteric arteriole, have almost died as th diagnosis is delayed by several causes in many cases. Therefore, I considered the need for the treatment and close observation with the possibility of necrosis of the small intestine due to acute embolus in mesenteric arteriole after interventional cardiology procedure.

**Keywords:** IABP (intra-aortic balloon pump), acute embolism of mesenteric arterioles

## PP-017

# Surgical Management of Aorto-Enteric Fistula After Endovascular Abdominal Aortic Aneurysm Repair

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**Objective**: To report a case and to review previous publications regarding the rare complication of aorto-enteric fistula following endovascular aortic aneurysm repair.

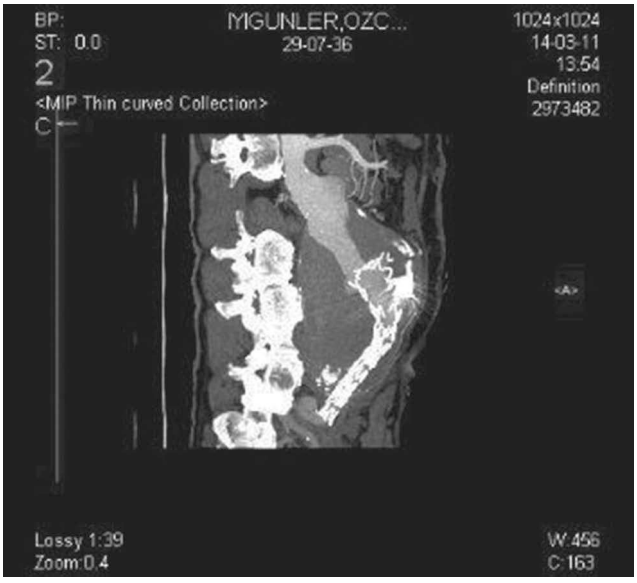
**Methods:** We report the case of a aorto-enteric fistula after endovascular repair of an infra-renal aortic aneurysm.

**Results:** The surgical treatment involved the removal of the infected graft and right aorta-iliac and left aorta-femoral continuity was provided by a 20 × 10 mm bifurcation graft (PTFE graft) from proximal healthy native aorta to the native distal vessels. There have been no major complications noted during the 1-month follow-up after surgery.

**Conclusions:** An aorto-enteric fistula is likely to be rare and a possible long-term complication of endovascular repair of abdominal aortic aneurysm. These complications present diagnostic and surgical challenges, with the potential for significant perioperative morbidity and mortality.

**Keywords:** endovascular repair of abdominal aortic aneurysm, aorto-enteric fistula, enlargment of abdominal aortic aneurysm

**Preoperative sagittal CT scane**




## PP-018

# Our Clinical Experiment of EVAR in Abdominal Aortic Aneurysms

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**Objective:** In this study, patients who underwent abdominal aortic aneurysms with endovascular stent graft treatment has been evaluated.

**Method:** In our clinic, between January 2010-July 2013, endovascular stent graft treatment was applied to 18 patients with aortic abdominal aneurism. 13 patients were male and 5 were female. Ages ranged from 58-83. Our study group consisted of non-spesific degenerative aneurism cases, carrying risk if treated surgically.

**Result:** Endovascular interventions were applied to the patients under local anesthesia and made in elective conditions. All processes success rate was 89% with out any complication. During the process, there were no death, major complications or did not require open surgery. In two patients who underwent the aorta bi-iliac stent graft procedure developed complications. One patient developed acute graft thrombosis on postoperative 18th hour, thrombolytic (TPA) was applied and blood flow supplied. Other patient underwent surgery on postoperative 15th day, between the left femoral artery and the right femoral artery cross femoral bypass was made with 7 mm vascular graft. No graft infection or death due to aneurysm rupture was observed.
**Conclusion:** Besides the fact that mortality and morbidity rates in early stage is lower and duration of hospital stay is less and there have advantages of limited anesthesia, due to having a high technical success method, endovascular treatment of aortic aneurismatic lesions in abdominal region by using stent graft become a preferable application. If it is made in appropriate indications that will be less traumatic to the patient and easier to open surgery in terms of physicians and believe that a low-risk method of treatment. In our clinic, checks are still carried out on a regular basis and follow-up patients after discharge.

**Keywords:** aortic aneurism, endovascular graft, stent graft

## PP-019

### Segmental Arterial Mediolysis: Clinical Feature and Imaging Findings at Presentation and Follow-Up

***Suh Min Kim,*** *Seung Kee Min, Young Suk Park, Ahram Han, Sang Il Min, Jongwon Ha*

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**Introduction:** Segmental arterial mediolysis is a rare noninflammatory vascular disease of the abdominal splanchnic arteires. The purpose of our study was to provide clinical features and CT angiography (CTA) findings at presentation and during follow-up of patients with a suspected diagnosis of segmental arterial mediolysis (SAM).
**Methods:** All cases of SAM diagnosed at a single institution from 2000 to 2012 were included. Diagnosis was based on characteristic radiologic features in the absence of other plausible diagnoses. Medical records were reviewed for demographics, clinical symptoms, and laboratory and imaging findings at presentation and during follow-up.
**Results:** A total of ten patients (six men; mean age, 57.9 y ± 11.2) were diagnosed with SAM. Initial presentation was abdominal or flank pain in all patients. Imaging at presentation revealed involvement of superior mesenteric (n = 5), celiac (n = 2), hepatic (n = 3), left gastric (n = 1), splenic (n = 1), middle colic (n = 1), renal (n = 2), gastroduodenal (n = 1), pancreaticoduodenal (n = 1), ileocolic (n = 1), right gastroepiploic (n = 1), jejunal (n = 2), and marginal arteries (n = 1). Imaging demonstrated arterial dissection (n = 13), aneurysm (n = 3), occlusion (n = 4), irregular arterial lumen (n = 1), and pseudoaneurysm (n = 1). Symptoms resolved in all patients, and three patients experienced new symptoms caused by new arterial lesions. Follow-up imaging was available in 8 patients at a median of 9.5 months (range; 1–57 months) demonstrated that imaging findings remained stable in all patients and new arterial lesion developed in three patients.
**Conclusion:** SAM shows multiple lesions of the splanchnic arteries at different times, and requires careful long-term observation.

**Keywords:** segmental arterial mediolysis, splanchnic artery, aneurysm

## PP-020

### Factors Affecting Long-Term Outcomes of Abdominal Aortic Aneurysm: A 12-Year Single Center Experience

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**Background:** Though there have been several studies about perioperative or mid-term mortality after abdominal aortic aneurysm (AAA) repair, long-term mortality and its risk factors are not well known. In this study, we analyzed long-term survival of AAA patients who had received open surgical repair or endovascular aneurismal repair (EVAR) and evaluated their risk factors affecting the mortality, as the largest single center.
**Materials-Methods:** From January 2001 to December 2012, 681 patients with AAA underwent open repair (n = 417, 61.2%) or EVAR (n = 264, 38.8%) in Department of Vascular Surgery, Asan Medical center. Patients' demographics, commorbidities, and survival were analyzed for the follow-up periods. The patients were classified early death group who died within 30 days after treatment or during the admission, and late death group who died after discharge. To evaluate long-term outcome and risk factor affecting them, we analyzed the late deaths groups excepting the early death group.
**Results:** Mean follow-up periods were 40.12 ± 32.02 (0-149.93) months. Overall mortality rates were 21.29% (145/681). Among them, early mortality rates were 5.29% (36/681) and late mortality rates were 16.01% (109/681). In early death group, the patients showed higher rates of rupture and myocardial ischemia after treatment (HR 3.611, 95% CI 1.569-8.310, p = 0.003 and HR 7.393, 95% CI 1.973–27.703, p = 0.003) and underwent less EVAR (HR 0.289, 95% CI 0.104–0.805) compared to those in late death group. Factors associated with late death after AAA repair were age = 75years (HR 3.188, 95% CI 1.78–5.71, p = 0.000), female (HR 3.33, 95% CI 1.27–8.76, p = 0.015), end stage of renal disease (ESRD) (HR 3.573, 95% CI 2.26–5.65, p = 0.000), cardiac

complication after treatment (HR 2.47, 95% CI 1.54–3.96, p = 0.000). 3-year, 5-year, and 10 year survival were 86.3%, 79.9%, and 55.7%, respectively.
**Conclusions:** Excluding the early death group, patients' age, gender, ESRD, and cardiac complications were related with long-term survival rather than treatment modality.

**Keywords:** abdominal aortic aneurysm, long-term outcomes

## PP-021

### Superselective Embolization in the Treatment of Massive Lower Gastrointestinal Bleeding from Jejunal Angiodysplasia

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**Aim:** Massive lower gastrointestinal (LGI) bleeding is a severe clinical picture associated with high mortality in hospitalized patients with comorbidities. A multidisciplinary approach is needed in such cases. The role of radiologist is to find the bleeding vessel and if possible stop the bleeding with embolization.
**Material and Methods**: A patient with LGI was admitted to our hospital and his endoscopy was normal. At colonoscopy the coming bleeding from an unknown area was seen. DSA imaging was planned to the patient.
**Results:** Selective superior mesenteric artery angiogram demonstrated a contrast enhanced area and extravasation at distal jejunal segments. A microcathater was put into the bleeding vessel and embolisation was made with PVA micro bubbles. The procedure was very safe and rapid. At the control imaging no extravasation was found. After the procedure the patient was well and no bleeding was seen.
**Conclusions:** Most frequent causes of LGI are diverticular disease, tumors, inflammatory disease and benign anorectal lesions. Angiodisplasias are mostly seen at right colon but rarely at jejunum. Scintigraphy, endoscopy, CT angiography and DSA are needed for diagnosis.Super selective embolization of the massive LGI bleeding is safe and effective. Embolization is recommended as the treatment of choice to stop massive LGI bleeding in the centers having the appropriate human and technological resources.

**Keywords:** angiodysplasia, embolization, jejunal, lower gastrointestinal bleeding

## PP-022

### Stent Migration in the Treatment of Nutcracker Syndrome

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**Aim:** The nutcracker syndrome is a rare clinic condition associated with severe hematuria and left flank pain due to the entrapment of the left renal vein between the superior mesenteric artery and the aorta. Its diagnostic criteria are not well defined, often causing delayed or misdiagnosis. In recent years endovascular stenting of the renal vein has been described. We report a 19 years old man having nut cracker syndrome and treated with stent placement. After 24 hours in the control CT angiography the migrated stent was seen.
**Material and Methods:** A 19 years old man suffering from hematuria admitted to our hospital. A CT angiography was performed and compressed left renal vein was seen between aorta and SMA. We calculated the vein diameter as 10 mm. The diagnosis was confirmed at DSA. Than a 12 mm stent was placed to left renal vein.
**Results:** No compression was seen at left renal vein. The patient has no history of hematuria during the next day. At the control CT angiogram we demonstrated the migrated half part of stent in the cava. We remove the stent with snare to the right femoral vein.
**Conclusions:** Endovascular therapy provides an alternative therapy with satisfactory clinical and imaging results for symptomatic patients with nutcracker syndrome. But the stent size must be at least 14 mm diameter in our opinion.

**Keywords:** endovascular treatment, nutcracker, renal vein, stent migration

## PP-023

### The Clinical Outcomes of Early Relaparotomy After Elective Open Repair of Abdominal Aortic Aneurysm (AAA)

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**Aim:** Early relaparotomy following the elective AAA operation is a significant event. However, its causes, clinical features and outcomes is still unclear.
**Methods:** This retrospective study included 292 patients performed elective open repair for AAA between January 2001 and December 2010 in single center. The mean age of Patients was 67.1 years old. The mean follow-up was 59 months for all patients.
**Results:** The incidence of early relaparotomy after elective open repair of AAA was 4.1% (n = 12) during the initial hospital stay.

The causes of relaparotomy were bowel ischemia (n = 5, 41.7%), postoperative bleeding (n = 2, 16.7%), evisceration (n = 2, 16.7%), bowel obstruction (n = 1, 8.3%), bladder rupture (n = 1, 8.3%) and graft limb thromboembolism (n = 1, 8.3%). First relaparotomy occurred at a median postoperative time of 7 days. In comparison with non-relaparotomy, early relaparotomy patients were older (mean age, 71.7 years vs 66.9 years; P = 0.025), had more chronic obstructive pulmonary disease (63.6% vs 25.3%; P = 0.010). Patients with early relaparotomy received more red blood cells transfusion (7.5U vs 3.8U; P = 0.022), had more mean operation times (346.7 min vs 296.1 min; P = 0.038) than others during open repair surgery of AAA. They had longer intensive care unit (21.1 days vs 2.6 days; P <0.001) and hospital stays(51.6 days vs 10.2 days) than others after open repair surgery of AAA. The perioperative mortality rates in the early relaparotomy and non-relaparotomy groups were 16.7% and 2.5% (P = 0.048), the hospital mortality rates were 41.7% and 2.5% (P = 0.001), the 5-years overall survival rate were 30.0% and 81.1% (P <0.001).

**Conclusion:** Early relaparotomy following the elective AAA operation is significantly associated with poor prognosis. Old age, COPD, massive intraoperative blood loss and long operation time were associated with early relaparotomy.

**Keywords:** relaparotomy, abdominal aortic aneurysm (AAA), open repair

## PP-024

### Seven Cases of Venous Anomalies Associated with Abdominal Aortic Aneurysm Surgery

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Abdominal Aortic Surgery is performed regularly with acceptable rates of morbidity and mortality. Major venous anomalies are rare, but these can seriously complicate aortic procedures. Injury to veins is responsible for most unexpected intraoperative bleeding. Since 1993, 7 of 706 patients undergoing abdominal aortic surgery at our institution were found to have a major venous anomaly, including a left-sided inferior vena cava(), a double inferior vena cava(), retroaortic left renal vein(). The 6 male and 1 female had a mean age of 70.0 years (range, 61–82). All 7 patients underwent graft replacement for an abdominal aortic aneurysm. Preoperative imaging revealed all of the venous anomalies except for the ruptured abdominal aortic aneurysm.

Postoperative recovery was uneventful. Major venous anomalies are rarely encountered in patients undergoing aortic sugery. Preoperative assessment and intraoperative awareness are important to prevent unexpected venous injuries.

**Keywords:** left-sided inferior vena cava, a double inferior vena cava, retroaortic left renal vein, abdominal aortic aneurysm

## PP-025

### Staged Hybrid Treatment of Combined Celiac and Pancreatico-Duodenal Arterial Aneurysm

***Kyung Yun Kim,*** *Seung Jae Byun, Chang Sik Lee, Byung Jun So*

Wonkwang University Hospital

Visceral artery aneurysm (VVA) is a rare pathology, but is a potentially lethal one. In order of decreasing frequency of VVA, the arteries involved are splenic (60%), hepatic (20%), superior mesenteric (5.5%), celiac (4%), pancreatoduodenal and pancreatic (2%). There is general consensus in the literature for the treatment of asymptomatic VAA of size >2 cm and symptomatic ones, regardless of size. The therapeutic strategies include surgical treatment(revadcularization, vessel ligature, aneurismal sac exclusion), or endovascular treatment (coil embolization, stent placement).

67 year old female patient suffering from epigastric discomfort for several days was hospitalized. She had mild fever but easy controlled. On abdominal CT angiogram: there was a 4.3 cmx2.8 cm sized aneurysm at the orifice of celiac axis, distal portion of the celiac aneurysm was near completely occluded, inferior pancreatico-duodenal arcade was enlarged as collateral channel and a 3.7 cm sized aneurysm was revealed at its mid-portion. We did coil embolization of pancreatoduodenal aneurysm successfully at # 9 HD. And two days later, we did hybrid procedure successfully, which included devascularization of celiac axis and superior mesenteric artery with tube graft and revascularization of superior mesenteric artery with bypass between aorta and superior mesenteric artery.

The cure for this complex disease emphasizes the need for a planned staged hybrid approach.

**Keywords:** staged hybrid treatment, celiac aneurysm, pancreatico-duodenal arterial aneurysm

## PP-026

### Endovascular Treatment Outcomes of Acute Superior Mesenteric Artery Occlusion

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The purpose of this study was to characterize the outcome of attempted endovascular intervention in patients with acute embolic or thrombotic superior mesenteric artery (SMA) occlusion.

The records of 12 patients during a 3-year period between April 2009 and June 2012 were retrieved from the in-hospital registry. The first group included 6 patients (4 men and 2 women; mean age 70.7 years) with acute embolic occlusion of the SMA. The mean duration of symptoms from symptom onset to angiography was 7.7 ± 1.5 hours (range, 5–14). The second group included 6 patients (4 women and 2 men; mean age 74.2 ± 6.9 years) with

atherosclerotic acute SMA occlusions. The mean time of symptom duration before intervention was 53.8 ± 48.7 hours (range 7 to 120).

Embolus aspiration was performed in 2 patients, and 1 of these had partial satisfactory result. Complementary local thrombolysis was successful in 5 of 5 patients. Residual emboli of SMA trunk were not present at completion angiography in all 6 patients, and bowel resection was necessary in only 1 of these patients. Post procedure myocardial infarction was developed in only 1 patient, Mean time of ICU stay was 3.5 ± 1.2 days (range 1 to 7). The in-hospital survival rate was 83.3% (5 of 6 patients). SMA stenting was performed through a brachial (n = 4) and femoral (n = 2) approach. Bowel resection was needed in 2 patients. Major complications were mesenteric bleeding due to guide wire injury in one case which led to bowel resection, and SMA dissection in one case treated by stent insertion. Mean time of ICU stay was 12.2 ± 12.7 days (range 1 to 34). The in-hospital survival rate was 100% (6 of 6 patients).

Endovascular therapy of acute SMA occlusion could be a good alternative to open surgery.

**Keywords:** aspiration embolectomy, stenting, superior mesenteric artery occlusion, thrombolysis

## PP-027

## Midterm Outcomes of Laparoscopic Aorta Surgery in a Low-Volume Center

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**Aim:** Laparoscopic aorta surgery has been proposed as an alternative to overcome the disadvantages of open surgery and endovascular intervention. We present our midterm results to determine its feasibility when performed by less experienced surgeons in low-volume centers.

**Material-Methods:** Between 2004–2011, laparoscopic aorta surgery was performed in 23 patients for TASC C/D aortoiliac occlusive disease (20) and abdominal aortic aneurysm (3). Robot-assisted procedure was performed in 3 patients and 7 patients had simultaneous distal revascularization. A retrocolic, retrorenal approach was used, and total laparoscopic intracorporeal anastomosis was performed in 11 patients, while 9 patients underwent laparoscopic-assisted anastomosis through a mini incision. There were 3 cases of open conversion due to bleeding and small bowel injury.

**Results:** The mean age was 67.8 ± 9.2 years and M:F ratio was 21:2. Most patients were mild-moderate surgical risk candidates (ASA class 2) and mean ejection fraction was 63.2%. Mean operative time was 520 ± 116 min, estimated blood loss was 1072 ± 623 mL and transfused blood volume was 918 ± 803 mL. Mean follow-up duration was 47.3 ± 32.9 months and 5-yr graft patency rate was 91.7%. There were one early (<30 d) mortality (sepsis due to sacral burn) and 5 late mortalities (only one was related to the laparoscopic procedure). There were 4 postoperative complications (pneumonia, renal infarction, compartment syndrome and wound dehiscence) and most morbidities/mortalities (including open conversion) originated from the first 7 cases.

**Conclusions:** Being the first report of laparoscopic aorta surgery in Asia, our midterm results are comparable to previous studies performed by dedicated surgeons in terms of patency and mortality/morbidity. Considering the learning curve was not achieved and that most complications occurred during the initial cases, this operation is a good option that can be adopted by less-experienced surgeons.

**Keywords:** laparoscopy, aorta, arterial occlusive disease, aneurysm

## PP-028

## Endoscopic Assisted Robotic Aortic Thrombectomy and Aorto-Biiliac Bypass

*Cem Alhan[1], Tayfun Karahasanoglu[2], Ilknur Erguner[2], Sahin Senay[1], Hakan Kaya[2], Ahmet Umit Gullu[1],* ***Letisya Melengic[1],*** *Muharrem Kocyigit[3]*

[1]Acibadem University School of Medicine, Department of Cardiovascular Surgery

[2]Acibadem University School of Medicine, Department of General Surgery

[3]Acibadem Maslak Hospital, Department of Anesthesiology

Laparoscopy was introduced into vascular surgery much later than other areas and was approached with far greater apprehension, as

**Figure 1/a, b, c, d**

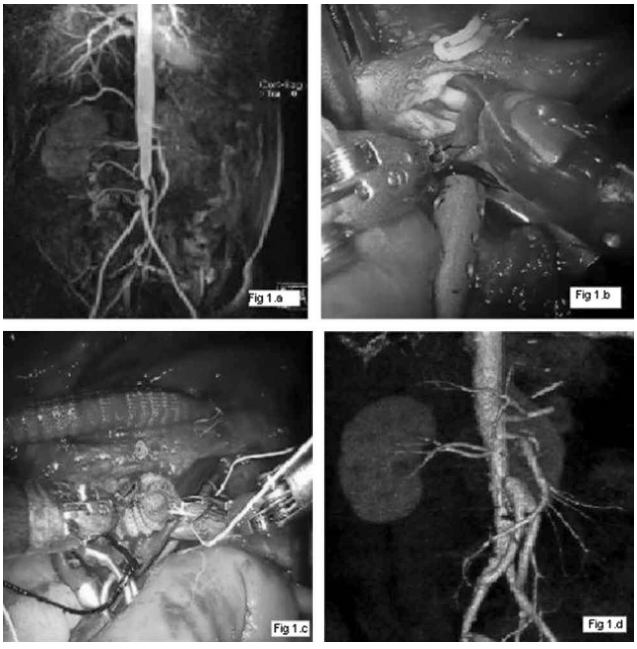


*Fig1. (a) Preoperative MR Angiography Scanning (b) Robotic Thromboendarterectomy at Infrarenal Aorta (c) Iliac Artery Anastomosis (d) Postoperative CT Angiography Scanning*

well as with limited interest. In this report not only our experience with laparoscopy assisted robotic aortic thrombectomy and aorto-biiliac bypass procedure was presented but also current status of vascular interventions via endoscopically was discussed.

**Keywords:** laparoscopy, robotic surgery, vascular surgery

## PP-029

### Treatment of Iliac Artery Aneurysm with Covered Stent and Coils

***Salih Hamcan*[1],** *Bulent Karaman*[2], *Sebahattin Sari*[2], *Emrah Özcan*[2]

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[2]Department of Radiology, Gulhane Military Medical Faculty, Ankara, Turkey

**Aim:** With the increasing usage of radiologic imaging modalities, it has been understood that the incidence of iliac artery aneurysm is more then expected. Although open surgery can be the treatment of choice, endovascular treatment is alternative in such cases. Covered stents and and coil embolization can be used in many of the aneurysms. The aim of this report is to present our treatment technique in a right iliac aneurysm.
**Material and Methods:** A 68-year-old man, who was examined with Doppler ultrasonography, was found an aneurysm at distal part of right iliac artery. The diagnosis was confirmed with CT angiography. The patient was referred to interventional radiology unit.
**Results:** At digital subtraction angiography, the CT angiography findings were confirmed and endovascular treatment was planned. A 10 mm self expendable covered stent was inserted to iliac artery. In control DSA the extravasated contrast material was seen in the aneurysm sac. Then a micro catheter was inserted via the left femoral artery into the aneurysm sac. The aneurysm was embolized with detachable coils. At the control run no contrast enhancement was seen in the aneurysm sac.
**Conclusions:** Compared to the surgery endovascular treatment is less invasive and successful technique for iliac artery aneurysm. Covered stents can be the first choice in such cases. But if an endoleak occurs, coil embolization can be used for aneurysm repair.

**Keywords:** aneurysm, coil, iliac, coverd stent

## PP-030

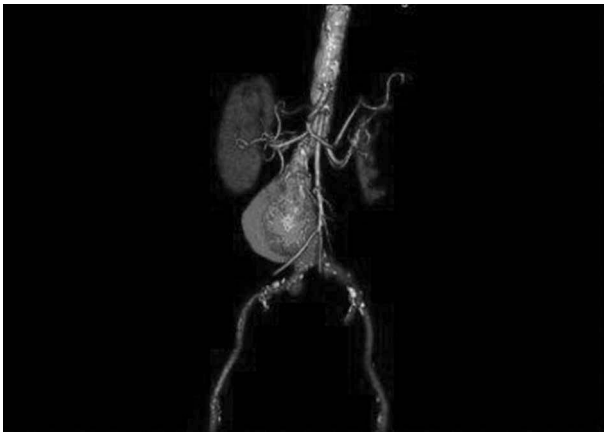
### Emergent Endovascular Treatment of Abdominal Aortic Aneurysm May Save Lives: Case Report

***Ömer Tanyeli,*** *Yüksel Dereli, Özgür Altınbas, Ilyas Selim Yılmaz, Kadir Durgut, Niyazi Görmüş*

Necmettin Erbakan University, Meram Medicine Faculty, Department of Cardiovascular Surgery, Konya, Turkey

**Introduction:** Ruptured abdominal aortic aneurysms (AAA) are of high importance because of their high mortality and morbidity. In this article, we report a case of ruptured AAA treated with endovascular stent graft implantation.
**Case:** A 77 years-old-man, submitted to our clinic with complaints of abdominal pain had pulsatile mass in his abdominal region. He had uncontrolled hypertension for the last 5 years and atrial fibrillation. He had a history of 75 pack.years smoking. He had been urgently taken into CT angiography and aneurysmal dilatation of the infrarenal abdominal aorta with maximal diameters of 68 mm in a 90 mm length was detected (Figure 1). Also the patient had thrombi around the aortic wall. While waiting for the endovascular procedure, the patient's pain in the abdominal region increased and hematocrit levels gradually started to decrease from 35 mg/dL to 32 mg/dL. Upon his control on CT angiography, a retroperitoneal hematoma was detected. Suddenly thereafter, the patients had hypotension and tension in the abdominal region increased. He was entubated and with massive intravenous fluid infusion, his femoral arteries were explored bedside until the patient was admitted to catheterisation laboratory. Under general anesthesia, a bifurcated endovascular stent graft (Endurant® II AAA Stent Graft, Medtronic) implantation was performed. He postoperative period was uneventfull and the patient was taken ot of the intensive care unit on postoperative day 2 and discharged from the hospital on day 5.
**Conclusion:** In ruptured AAA, classical surgery carries high risk of mortality and morbidity. In experienced centers, if the surgical

**Figure 1**



*CT angiogram showing aneurysmal dilatation of the abdominal aorta*

team acts urgently, the endovascular stent graft implantation may save many lives with less mortality and morbidity.

**Keywords:** abdominal aortic aneurysm, endovascular stent, EVAR

## PP-031

### Natural Course of Spontaneous Isolated Superior Mesenteric Artery Dissection in the Shape of Dissection

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[2]Department of Radiology, Ulsan University, Ulsan, South Korea

**Purpose:** The aim of this study is to find out the natural course of spontaneous superior mesenteric artery dissection (SISMAD) according to the shape of dissection on the computed tomography (CT) scan.

**Method:** From single institution. Patients with spontaneous isolated SMA dissection who diagnosd by Abdominal CT scan between January 2004 and January 2013 were included in our study. The clinical and imaging follow up using CT scan was performed at 3 and 6 months and yearly. We categorized SISMAD into four types based on the classification described by Yun et al.

**Results:** Enrolled 25 patient. Type I 1 patient (3%), Type IIa 4 patients (19%), Type IIb 15 patients (59%), Type III 5 patients (19%). Acute abdominal pain was the most common clinical manifestation, Twenty-two (85%) patients presented with acute abdominal pain in our study. Mean follow up duration 22 months( 3–97). Of the 25 patients, 18 patients were available for follow up with clinical manifestation and Abdominal CT scan. 2 patients had surgical or endovascular intervention, others had conservative management. All patients had no symptom recurrence.

**Conclusion:** In SISMAD patients. Some type IIa or III patients need to surgical or endovascular intervention in our stuydy. But most of the SISMAD patients given conservative treatment favorable natural course.

**Keywords:** SMA, dissection of SMA, spontaneous isolated SMA dissection

## PP-032

### Chimney Grafts for Juxtarenal Aneurysm in an Octogenerian Patient with Left Main Coronary Artery Disease and Symptomatic Carotid Stenosis

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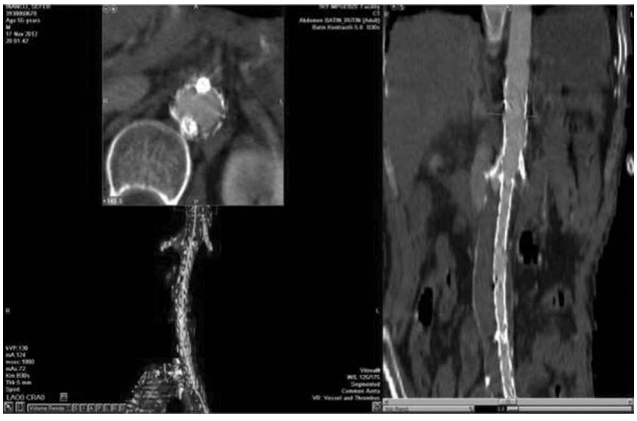
Patients with juxtarenal aneurysms require complex surgical open repair, which is associated with increased mortality and morbidity. The chimney procedure has evolved as a readily available. We present an octogenarian patient with a juxtarenal aneurysm, unstable angina with severe stenosis of the left main coronary artery, left iliac artery occlusion and symptomatic carotid artery stenosis. He was treated with staged chimney grafts and aorto-uni-iliac stent-grafting in addition to axillofemoral bypass following an urgent combined coronary and carotid procedure. He was discharged from hospital on day 10 without complications.

Chimney grafts present as an attractive alternative in complex situations due to flexibility of this technique, much shorter procedural durations and lack of requirement for custom-built devices.

**Keywords:** juxtarenal aneurysm, chimney grafts, octogenarian

**Postoperative CT scan with 3D reconstruction**



## PP-033

# Effects of Cilostazol on Oxidative Stress, Systemic Cytokine Release and Spinal Cord Injury in a Rat Model of Transient Aortic Occlusion

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**Aim:** Cilostazol is a phosphodiesterase inhibitor which has anti-inflammatory potential in addition to vasodilator and anti-platelet effects. The aim of this study is to determine the influence of cilostazol on biochemical markers of oxidative damage, pro-inflammatory cytokine release and spinal cord injury following transient aortic occlusion in rats.

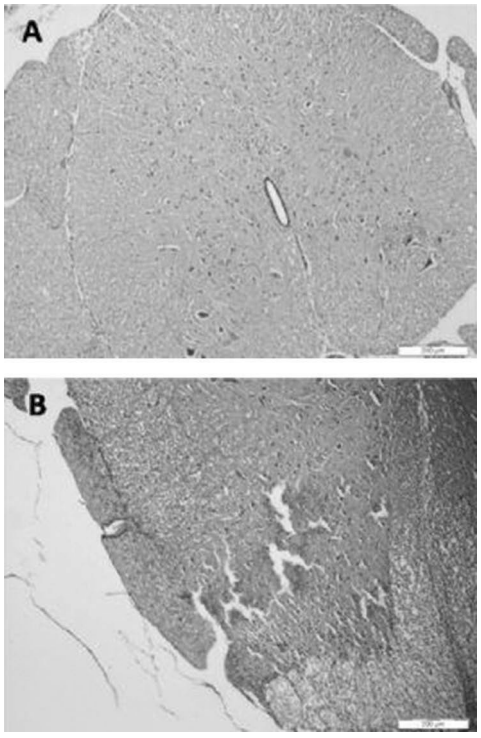
**Material and Methods:** Animals were randomized into three groups. Sham group rats were subjected to laparotomy without aortic occlusion. Control group rats were pretreated with intraperitoneal (i.p.) dimethyl sulfoxide and cilostazol group rats received i.p. cilostazol (20 mg/kg/day) for three days before the induction of ischemia. Ischemia was induced by clamping of the infrarenal aorta and 48 hours after reperfusion Tarlov grades were assessed and spinal cord conduction velocities (SCCV) were measured by epidural electrical stimulation. Erythrocyte superoxide dismutase (SOD) and catalase activities and plasma malondialdehyde, serum tumor necrosis factor-a, interleukin-1ß and interleukin-6 levels were analyzed. Spinal cord histopathology was examined to determine neuronal damage and tissue inflammation.

**Results:** Aortic occlusion caused significant increment in SOD, catalase activities and malondialdehyde and cytokine levels accompanied by spinal cord injury. Cilostazol significantly reduced malondialdehyde level but did not significantly alter the activations of antioxidant enzymes and levels of proinflammatory cytokines and histological severity of inflammation. The differences regarding the results of Tarlov grading, SCCV and neuronal viability between the ischemic and cilostazol pre-treated groups were statistically non-significant.

**Conclusions:** The present experimental study indicated that cilostazol pre-treatment prior to aortic occlusion used in this study decreased lipid peroxidation which may be related with the reduction of ROS. Cilostazol did not significantly suppress systemic cytokine release and prevent spinal cord inflammation and injury, however exhibited some benefits. Further investigation might be needed to determine a critical dose of cilostazol for clarifying the protective role of this drug in spinal cord I/R.

**Keywords:** cilostazol, reactive oxygen species (ROS), cytokines, spinal cord injury

**Histopathologic samples**




*Representative histological samples from sham (A) and control (B) groups. A: Normal spinal cord section B: Intraparenchymal hemorrhage with infiltration of inflammatory cells.*

## PP-034

# Occlusion of Infrarenal Abdominal Aorta in a Heavy Smoker and Alcholic Patient

***Serkan Yazman*, *Kazim Ergunes, Nihan Karakaş, Yüksel Besir, Tayfun Goktogan, Ali Gurbuz***

Izmir Katip Çelebi University Atatürk Training and Research Hospital

**Aim:** The occlusion of the infrarenal abdominal aorta is a rare event, which is potentially life threatening. We present a case with occlusion of infrarenal abdominal aorta that is a heavy smoker and alcholic having chronic obstructive pulmonary disease.

**Material-Methods:** A 59-year old men was referred to the emergency department of our hospital because of abdominal pain and exertional dyspnea.

**Results:** Computed tomography angiography diagnosed the occlusion of infrarenal abdominal aorta. The diameter of the abdominal aorta was 40 mm below renal arteries. Her renal function was normal. He had sinus rithm in electrocardiography. The lower extremities pulses were detectable with hand Doppler. He

had no severe ischemic manifestation in the lower extremities. He had bilateral intermittan claudication. He complained of walking distance <300 m. He was at high risk for surgery. He accepted no operation. He was discharged with medical treatment (antiplatelet and vasodilatator drogs).

**Conclusions:** In the case of patients who are not suitable or decline any operation, risk factor control is essential in minimizing the progression of the disease. Rehabilitation, exercise programmes, quitting smoking and alchol, medical treatment are mandatory for increasing survival.

**Keywords:** abdominal aorta, occlusion, smoker

## PP-035

### Our Strategy in the Rupture Internal Iliac Artery Aneurysm

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**Aim:** Isolated rupture aneurysms of the internal iliac artery are reletively uncommon. Mortality rate is high in these aneurysms. We presented a patient with rupture aneurysms of the internal iliac artery.

**Material-Methods:** A 65-year old men was referred to the emergency department of our hospital because of pain in the left lower region of abdomen.

**Results:** Computed tomograpy showed a ruptured aneurysm in 9.5 cm diameter and a retroperitoneal hematoma in 15 cm diameter. Electrocardiograpy showed sinus rhythm. Her serum creatinin level was 3.5 mg/dl. The lower extremity pulses were palpable. Operation was performed with transperitoneal approach. Hematoma was evacuated. Clamping of the origin of the common iliak artery and external iliac artery close to the origin of the internal iliac artery was first carried out. The internal iliac artery distal to aneurysm was clamped. Complete resection of aneurysm was performed. The proximal and distal ends of internal iliac artery was sutured. Postoperative period was uneventful. Patient was discharged in 8 days with medical treatment.

**Conclusions:** Surgical treatment is a safe and effective treatment option for rupture iliac artery aneurysm.

**Keywords:** iliac artery, rupture, aneurysm

## PP-036

### Open Repair of Abdominal Aortic Aneurysm: 10 Years Observation

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**Aim:** Open repair of abdominal aortic aneurysm (AAA) produced superior durability has been challenged by advocates of EVAR. However, open repair treatment may not be substituted for EVAR because of the similar long-term survival and the lower cost. This study will analyze the short-term and long-term outcome of AAA with open repair among 10 years.

**Material and Methods:** From January 2003 to April 2013, 206 patients underwent elective open repair in the vascular center of the West China Hospital. Patients were followed for perioperative mortality and complications, long-term survival, graft-related complications until the end of July 2013. Predictive factors of the mortality were determined by multivariate analysis.

**Results:** There were 116 males and 90 females, with a mean age of 57.8 ± 13.4 years. The 47.8% of patients were less than 60 years. The mean follow-up of patients was 50.2 months. The aortic cross-clamp and operation duration was 60.5 ± 27.0 min and 206.3 ± 61.6 min, respectively. The median length of hospital stay was 10 days and the median of hospitalization expenses was RMB 46 ± 7 thousands. Perioperative mortality (30 days) was 7.3%, and 5-years survival was 86.8%. Six cases (2.9%) with graft-related complications were reinterventions in long-term follow-up. Forty-nine patients with rupture AAA were emergency operation, in which the perioperative survival rate was 79.6%. Rupture of aneurysm wall was the independent risk factor of perioperative mortality (OR = 11.1, P = 0.000). Furthermore, the intramural thrombus was the protective factor for RAAA (OR = 4.2, P = 0.001).

**Conclusion:** Open repair remains a safe and durable option for the management of AAA. Specially, the advantage of the lower expenses and the long-term survival will be more durable in Chinese patients. In addition, the graft-related reintervention is superior to that of EVAR. Finally, open repair is still the effective treatment for rupture AAA before the identified outcome of EVAR for rupture AAA.

**Keywords:** abdominal aortic aneurysm, open repair, rupture, long-term, risk factor

## PP-037

# Kissing Stent-Greft Implantation in Abdominal Aortic Bifurcation Stenosis-Case Report

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Surgical therapy of the abdominal aort diseases has high morbidity and mortality, Endovascular and stent-graft aortic procedures has same risks but early discharging from hospital and early returning to normal life are advantage.

A patient who is 56 years old and female, admitted to our hospital with bilaterally resting leg pain as a complain. She has a non insuline depended diabetes mellutus (NIDDM) and smoking in her history. She has no pulse on bilaterally femoral arteries and no other pathological findins in her physical examination.

We planned directly computerized tomography (CT) aortobifemoropopliteal angiography because of no pulse on her bilaterally femoral arteries in her physical examination. High grade stenosis of the proximal of the bilaterally main ilac arteries found in her CT aortobifemoropopliteal angiography as a result.

Before the peripheric angioplasty procedure, coronery artery angiography applied via right radial artery for cornery artery disease. Coronery artery angiography was normal. A patient admitted to our hospital for aortic greft-stent implantation procedure. The abdominal aort catheterized via bilaterally femoral arteries with seldinger technique and peripheric angiography was done first. 7 × 38 mm and 8 × 38 mm baloon expansible greft-stent were implanted bilaterally from proximal main iliac arteries to distal main iliac arteries. Exchange amplatz wire was used for carry stent-greft in main iliac arteries. Right 7 mm stent-greft was dilated to 8 mm diameter for postdilatation procedure. After this procedure, right stent-greft was dilated 100%.

A patient was discharged from hospital in first day with no morbidity and with asetyl salisilic acid 300 mg and klopidogrel 75 mg. No morbidity and mortality were seen postoperatively during two month.

**Keywords:** abdominal aort, stent-graft

## PP-038

# Vertebral Invasion of Chronic Ruptured Abdominal Aortic Aneurysm Presented with Lower Back Pain and Inability to Flex Leg

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**Introduction:** Chronic contained ruptured abdominal aortic aneurysms (AAA) rarely cause vertebral body erosion (1). Although it was reported to be associated with mycotic aneurysms (2, 3), erosion of vertebral body was reported to occur during the development of culture-negative aneurysms (4). Lower back pain is the common presentation and may be severe and intractable to medications (5).

**Case:** A 70-year old-male presented with lower back pain and fatigue. He had difficulty in flexing his leg when climbing stairs and symptoms did not show any improvement despite medications. The difficulty of flexing his left leg gradually increased in months.

CT scan revealed the presence of a fusiform shaped infra-renal AAA which was 76 mm in its maximum diameter and 31.1 mm in luminal diameter. Vertebral body erosion was apparent at the levels of L4–L5 vertebrae. The surrounding border of the aneurysm sac was found irregular and contrast enhanced lumen was surrounded with self-contained thrombus which was extending through adjacent retroperitoneum and invading the body of corresponding L4–L5 vertebral bodies at the level it reaches its maximum diameter.

In the operation, the posterior wall of the aneurysm sac was found deeply invaded through the bodies of the adjacent L4–L5 vertebrae. A 26 mm Dacron interposition graft was anastomosed to the proximal and distal ends of the aneurysm. Because the vertebral stability was intact any further reconstruction was not performed for the vertebral bodies. The postoperative course was uneventful.

**Keywords:** vertebral invasion, abdominal aortic aneurysm

**Figure I**

*White arrow shows vertebral invasion of abdominal aortic aneurysm.*

## PP-039

### Above Ten Years of Surgical Experience in Ruptured Abdominal Aortic Aneurysm

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**Purpose:** Patients diagnosed with ruptured abdominal aortic aneurysm and operated upon in our hospital were evaluated and the factors associated with increased mortality were identified.
**Methods:** Data of 121 patients operated upon following a diagnosis of ruptured abdominal aortic aneurysm between January 1997– June 2013 was collated retrospectively.
**Results:** 108 (89.3%) male and 13 (10.7%) female patients were studied with an average age of 68.9 ± 10.5. In-hospital mortality occured in 50 patients (41.3%). Factors associated with mortality were: hematocrit levels on hospital arrival ($p = 0.001$), presence of preoperative shock ($p > 0.001$), presence of free blood within the abdomen ($p < 0.001$), use of inotropic support ($p < 0.001$), ventilation period ($p < 0.001$), ES transfusion ($p < 0.001$), FFP transfusion ($p < 0.001$), longevity of intensive care unit stay ($p = 0.025$).
**Conclusion:** Our study has shown that preoperative clinical findings affect the mortality associated with ruptured aortic aneurysm. Correct postoperative management is crucial. Eventhough mortality rates for this condition still remain high, careful consideration and management of preoperative and postoperative factors will help further reduce mortality and morbidity rates.

**Keywords:** ruptured abdominal aortic aneurysm, emergency, surgery, mortality

## PP-040

### Acute Mesenteric Ischemia—Surgical Management and Outcomes

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**Introduction:** Despite surgical research and progress, the high mortality of acute intestinal ischemia (AMI) seems to be improved insignificantly over the past fifty years. Patient survival is dependent on prompt recognition and revascularization before ischemia progresses to intestinal gangrene. In this study we analyzed our experience over the past 4 years in terms of the procedure performed and the short-term outcomes in order to improve further management of AMI.
**Material-Methods:** We did a retrospective analysis of medical and surgical records of patients who underwent any vascular intervention for AMI at our institution from January 2009 until March 2013. Patients were followed by clinical examination and duplex ultrasonography for 6 months and reported in terms of recurrence, persistent short gut syndrome and death.
**Results:** 16 patients between 46 and 64 years(9 males, 7 females) were operated during this period.12 (75%) of them were treated with thrombectomy, 2 (12.5%) with stenting of SMA and 2 (12.5%)with an ileo-SMA bypass(prosthetic graft).Gangrenous portion of bowel was resected in 12 (75%) patients, four of which were massive resections while 4 (25%) did not need resection, as the bowel was viable.Gut continuity was restored in 6 patients with primary anastomosis and in 6 cases, proximal stoma was created.All 16 patients were followed for 6 months, out of which 2 (12.5%) had recurrence, 4 (25%) died and 4 (25%) had symptoms of short bowel syndrome.
**Conclusion:** contemporary management of AMI requires a high index of clinical suspicion that will prompt rapid surgical intervention followed by aggressive postoperative care to prevent multiorgan failure, and rapidly recognize the development of recurrent mesenteric ischemia. Although our series is small we can conclude that until the development of more sophisticated diagnostic methods allow for easier identification of patients with AMI, rapid intervention in order to decrease the time of ischemia prior to reperfusion remains one of the most important determinants of favorable outcome and should be performed as promptly as possible once the diagnosis of AMI is made.

**Keywords:** mesenteric ischemia, surgical management, outcomes

## PP-041

### Evar Technique on Aortolliac Aneurisme Concepts and Management

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Aortic aneurysm is a major morbidity and often goes undetected. Rupture of aortic aneurysm can be fatal. In the last 20 years there is a major development in the treatment of aneurysms of the blood vessels. The aneurysm treatment options including Endovascular approach by inserting the graft into the aneurysm in order to limit the aneurysm sac separated from the blood stream. This technique is now the top choice in the treatment of aortic aneurysms, both abdominal and thoracic, especially in patients with high-risk patients.

This paper discussed three cases of AAA were treated with EVAR. The first case is a male–male, 53 years old, diagnosed with AAA when undergoing a CT scan abomen. On CT scans found as high abdominal aortic dilatation L3-4/about 3.75 cm from a right renal arteries, aneurysms along about 3:31, about 2.61x3.07 cm caliber. The second patient was a male–male 72 years came with complaints of pain in the left thigh sehak 3 months SMRs. On CT angiography was found adanyanya dilaatasi abdominal aorta starts from a high

infrarenalis to the left renal aortic bifurcation accompanied by a thrombus inside the aortic lumen width (transverse) 2.99 cm and a width of thrombus (transversal) 3.07 cm, length 8 cm aneurysm. The third patient, male–male 60 years with complaints of recurrent constipation without other complaints. CT angiography were found on the left iliac artery aneurysm with a diameter of approximately 58 × 73 × 65 mm with a massive circular intramural hematoma.

Third of our patients met the criteria for EVAR and EVAR performed with satisfactory results. Handling AAA with EVAR is preferred because the procedure is less invasive than open repair and the lack of action on patient morbidity. Bleeding is also less on intra operative and long stay hospital patients is also reduced. Complications that can be encountered in the EVAR is the fourth kind Endoleak. However, in our patient until the patient is not currently found any endoleak.

**Keywords:** aortic aneurisme, EVAR

# Carotid Disease

## PP-042

### Selective Carotid Endarterectomy Brings About the Advantages of Conventional and Eversion Endarterectomy

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**Background:** Selective Carotid endarterectomy (SCE) is described as extraction of atheromatous plaque through an arteriotomy made starting from common carotid artery (CCA) and extending to external carotid artery (ECA). The aim of this study was to report the initial experience SCE technique at our department.

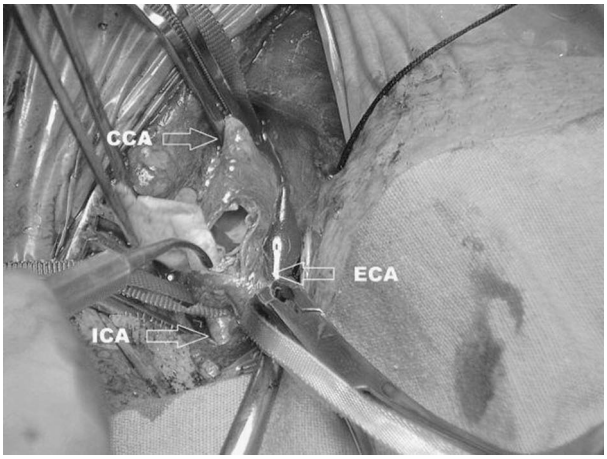
**Methods**: Collected data on all SCE were retrospectively analyzed. The study period started in May 2010 and ended at the end of April 2013. A total of 30 had SCE. The arteriotomy was done starting from the CCA and extended to the ECA. The plaque was encircled and cut in the CCA side. The plaque was then separated from the cleavage plane up to ECA. The plaque was either taken out up to end point in the ECA or cut circumferentially if it is thought to end very distally. After freeing the CCA and ECA sides of the plaque, the ICA endarterectomy was done by everting the ICA to the arteriotomy. The patients were operated under general anesthesia.

**Results:** Mean age of the patients was 70.7 ± 6.0 years. The risk factors were coronary artery disease in 9 patients, hypertension in 18 patients, smoking in 9 patients, hypercholesterolemia in 17 patients, diabetes in 14 patients, peripheral arterial occlusive disease in 3 patient and family history of coronary artery disease in 6 patients. One patient had simultaneous coronary artery bypass surgery for severe left main coronary artery disease. No hospital deaths were seen. Two patients had cervical hematoma which regressed without intervention. The mean carotid artery clamping time was 13.5 ± 3.4 minutes (range 8–25 minutes). Mean postoperative hospitalization time was 3.2 ± 1.2 days.

**Conclusion:** SCE is a safe and simple procedure which eliminates patching.

**Keywords:** carotid artery, vascular surgery, surgery/endarterectomy

**Selective carotid endarterectomy**




*The plaque is endarterectomized and transected from CCA and ECA, ICA is everted as the plaque is pulled caudally and extracted.*

## PP-043

### Carotid Endarterectomy with Cervical Plexus Blockage; Our Clinical Experience and One Year's Follow Up

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**Aim:** In this study, early and mid-term results of carotid endarterectomy operations performed with deep cervical blockage were evaluated.

**Study Plan:** Nineteen patients (12 male with an average age of 64.4 years) were operated carotid endarterectomy in our clinic between January 2011 and February 2013. Preoperative variables and postoperative controls of follow up in 3rd, 6th and 12th months were recorded; findings of residual stenose, new onset stenose or pseudoaneurysm formation with Doppler ultrasound and magnetic resonance angiography were sought.

**Findings:** The most frequent clinical finding was transient ischaemic attack in the patients' history. Among the 19 patients, 14 patients had coronary arterial disease (73.6%), 8 patients had peripheral

vascular disease (42.1%). 12 patients had a stenose more than 50% in their counterlateral carotid arteries (63.1%). 4 patients had a history of coronary arterial bypass grafting operation (15.7%).

Carotid shunt was used in one patient during operation. Carotid arterial cross clamp duration was 19 ± 7 minutes in average. Following endarterectomy, primary closure was done in 1 patient and patch plasty with saphenous graft was done in the rest. The patients were mobilized in the day of operation. The aspirative drains were taken out on the first postoperative day. There were not any postoperative mortality or morbidity. During postoperative follow up, no adverse neurologic incident, formation of a new stenose, occlusion or aneurysm were detected. The average postoperative hospitalization duration was 2 days.

**Conclusion:** Experience of the surgeon and anaesthesiologist and compatiblity of the patient play a great role on the success of this surgical method. Carotid endarterectomy with cervical plexus blockage is preferable for much easier monitorization of cerebral ischaemia, therefore less need for usage of a carotid shunt, no need for mechanical ventilation which reduces hospitalization duration in the intensive care unit and inpatient room.

**Keywords:** carotid endarterectomy, deep cervical blockage, patch plasty

## PP-044

## Bilateral Carotid Body Tumours

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Glomus tumours arising from the carotid body at the carotid bifurcation are called carotid body tumours (CBT) and not infrequent lesions for vascular surgeons. However, bilateral involvement and hereditary forms are rare.

In this report, we present bilateral CBT in a father and his girl with an another patient having also concomittant pheochromocytoma.All patients with mass effect symptoms had angiography and contrast enhanced CT to reveal that father and the male patient with pheochromocytoma had Shamblin class II and the young girl class III lesions. CBT's in male patients were totally and bilaterally excised without any complication.Unfortunately, the CBT on the right side of the young girl could be resected with replacement of a bifurcated dacron graft and she had left hemiplegia. At three years follow_up all patients were free of symptoms and recurrence. By the way the girl's hemiplegia regressed to minimal hemiparesia.

**Keywords:** bilateral carotid body tumours, hereditary, surgery, pheochromocytoma

## PP-045

## Comparative Results of Conventional and Eversion Carotid Endarterectomy

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**Aim:** Comparative results of conventional carotid endarterectomy (cCEA) and eversion carotid endarterectomy (eCEA) have been reported in many studies. But in Korea, there was no report to compare the outcome of two techniques. So we investigated the results of the eCEA compared to cCEA in our hospital.

**Material-Methods:** A total of 120 subjects were included in this study. Of them, cCEAs were perfomed in 63 patients and eCEAs were perfomed in 57 patients. We analyzed the results divided into the early (within 30 days after surgery), mid-term (from 30 days up to 1 year after surgery) and late (over 1 year after surgery). Early complications were examined about the frequency of postoperative stroke/transient ischemic attack, myocardial infarction, cerebral hyperperfusion syndrome, postoperative intracranial hemorrhage, wound complication, cranial nerve palsy, new brain lesions on diffusion-weighted MRI and mortality. Mid-term and late complications included restenosis, stroke and mortality.

**Results:** Mean age of the patients was 65.9 ± 7.1 in cCEA group and 66.8 ± 7.7 years in eCEA group (P = 0.523). Carotid shunt frequency was higher in the cCEA group (39.7% versus 19.3%, P = 0.015). There were no statistical differences in the early complications with the exception of a significantly higher risk for new brain lesions in the cCEA group (34.9% versus 14.0%, P = 0.008). The frequency of complication was same between cCEA group and eCEA group in the mid-term. Although there was no statistical significance, the frequency of late complications was higher in the cCEA group compared to eCEA group. Mean follow-up duration was 29.4 ± 23.5 months.

**Conclusions:** These data showed that eCEA was acceptable procedure and had some advantage compared to eCEA in aspect of the early and late complication. But further large study and long-term follow-up is mandatory.

**Keywords:** carotid endarterectomy, eversion endarterectomy, conventional endarterectomy, carotid stenosis

## PP-046

# The Prevalence of Carotid Disease in Kazakh Patients with Chronic Lower Limb Ischemia

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**Aim:** To evaluate the frequency of significant lesions of the internal carotid artery (ICA) in patients with peripheral artery disease.

**Material-Methods:** During the period from 2011 to 2012 we treated 232 patients at the mean age of 62.4 years (minimal 41, maximal 83) with chronic lower limb ischemia. One hundred and nine patients were screened for carotid artery lesion: 42 patients underwent only duplex ultrasound (ESCT-method), 32 patients underwent only catheter angiography of the branches of the aortic arch, and 35 patients underwent both methods. Duplex ultrasound was made in 77 patients, and catheter angiography was made in 67 patients.

**Results:** The significance of carotid lesion was assessed according to the diameter of the lumen of the ICA of any side. We used the same selection criteria as in American Stroke Association Guideline (2011). The duplex US showed following data: 20 patients (26.0%) had a stenosis of ≥ 70%; 4 patients' (5.2%) ICA was completely occluded; and 53 patients (68.8%) didn't show critical stenosis (<70%). The catheter angiography showed following data: significant ICA stenosis (≥50%) found in 27 (40.3%) patients; occluded ICA was in 2 (3.0%); in 38 (56.7%) patient stenosis was less than 50%.

Thirty-nine (35.8%) patients out of 109 had a significant stenosis or total occlusion of ICA.

Concomitant risk factors as lower limb ischemia stage, arterial hypertension, and smoking did not impact on the significance of carotid lesion (Table 1). In patients with hemodynamically significant carotid lesion (severe stenosis or occlusion) of any side such conditions as diabetes mellitus and CAD were more often than in patients without significant lesion.

**Conclusions:** In Kazakh patients with chronic ischemia of the lower limbs we revealed high frequency of carotid disease. In patients with diabetes mellitus and CAD hemodinamically significant carotid lesion has the tendency to be more frequent.

**Keywords:** carotid disease, peripheral artery disease

**Concomitant risk factors and the frequency of carotid disease**

| Variables | Hemodynamically significant lesion of ICA N = 39 (%) | Hemodynamically non-significant lesion of ICA N = 70 (%) |
|---|---|---|
| Mean age, years (range) | 65.5 (51–82) | 63.0 (50–80) |
| Gender, male | 38 (97.4%) | 65 (92.9%) |
| II a grade (Fontaine) | 3 (7.7%) | 6 (8.6%) |
| II b grade | 16 (41.0%) | 32 (45.7%) |
| III grade | 12 (30.8%) | 21 (30.0%) |
| IV grade | 8 (20.5%) | 11 (15.7%) |
| Diabetes mellitus | 8 (20.5%) | 8 (11.4%) |
| Hypertension | 34 (87.2%) | 45 (64.3%) |
| CAD | 30 (76.9%) | 35 (50.0%) |
| Smoking | 30 (76.9%) | 56 (80.0%) |
| Ischemic stroke more than 1 year (any side) | 6 (15.4%) | 15 (21.4%) |
| Ischemic stroke within 1 year (any side) | 3 (7.7%) | 2 (2.9%) |
| Previous carotid endarterectomy (any side) | 2 (5.1%) | 7 (10.0%) |

## PP-047

# Bilateral Extracranial Internal Carotid Artery Aneurysm: A Case Report

***Aydemir Koçarslan,*** *Mehmet Salih Aydın, Mert Ürküp, Abdussemet Hazar, Mustafa Göz*

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**Objective:** Extracranial internal carotid artery (ECA) aneurysms are rare vascular pathologies and usually unilateral. They may be asymptomatic but neurologic manifestations are the most frequent symptoms. We aimed to present a bilateral internal carotid aneurysm case with dizziness.

**Case:** We report the case of an 63 years old woman with bilateral internal carotid artery aneurysm. She admitted to our clinic complaining of dizziness. The patient was taken Doppler ultrasound and angio-CT scan and bilateral fusiform internal carotid artery aneurysm was diagnosed. Endovascular stent grafting was planned. Patient refused operation and received medical treatment.

**Conclusions:** The most frequent localization is common carotid artery bifurcation. It is followed by the internal carotid artery. It is usually unilateral (1). Spontaneous progression of ECA aneurysms is associated with a higher risk of mainly thrombo-embolic neurological complications; other adverse events may be rupture, with massive haemorrhage, and nevre compression (2). Whereas antiplatelet and anti-coagulant drugs are considered by many authors as the first-line approach for asymptomatic aneurysmal lesion, open surgery still remains the most valid option to prevent the most probable, severe and life-threatening complications, in particular embolisms (3).

**Results:** Differential diagnosis of patients admitted to hospital with a complaint of dizziness considered extracranial vascular

pathologies. Medical treatment option can be offered to patients who do not want surgery and endovascular intervention.

**Keywords:** carotid arter aneurysm, medical treatment

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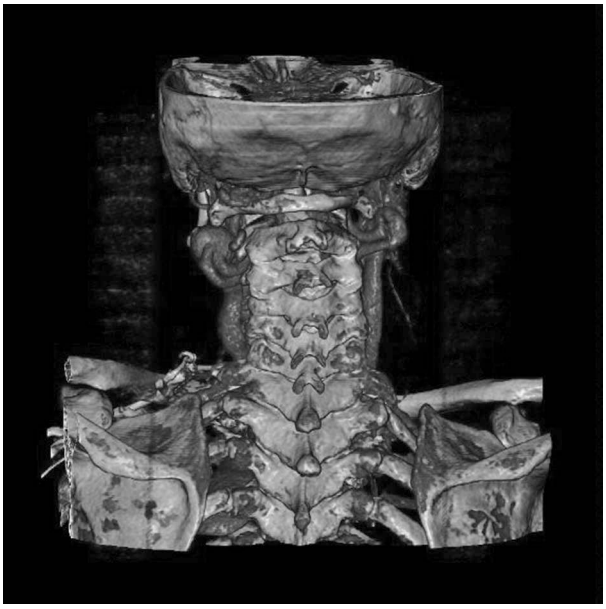
**Bilateral extracranial internal carotid artery aneurysm**



*Fusiform aneurysm of the left internal carotid artery diameter of 21 mm. Fusiform aneurysm of the right internal carotid artery diameter of 11 mm.*

## PP-048

## Can Radial Artery be Used for Carotid Artery Patch Angioplasty?

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Carotid artery atherosclerosis is a significant cause of stroke. Endarterectomy has been shown to considerable reduce the risk of stroke and transient ischemic attack. The standard surgery of this disease a longitudinal arteriotomy followed by removal of the atherosclerotic plaque than patch angioplasty performing. Autologous vein such as great saphenous vein and cervical vein and a number of xenogeneic and synthetic patches are now used such as bovine pericardium (BP), while synthetic patches are made mostly of polytetrafluoroethylene (PTFE) or Dacron [1]. We propose radial artery graft for patch angioplasty in carotid artery disease.

Two patients underwent carotid endarterectomy and patch angioplasty. One patient isolated carotid artery disease and other with coronary artery disease. Our choice of patch material was radial artery in two patients. Radial artery prepared standard procedure in left upper extremity. The graft was wait in diltiazem solution in 37 °C. Patients followed every 6 months for 1 years. There was no stroke or transient ischaemic attack.

Restenosis and thrombogeneity of patch material is most important problem to patch angioplasty in carotid artery disease today. Therefore, many researchers have experimented with many patch materials in this area. Most known materaials are vein, synthetic patches, and Xenogeneic patches. In litarature there is not used any arterial patch. We proposed that radial artery can bu used in this procedure.

In conclusion, the radial artery is usuable for carotid patch angioplasty. In recent years this conduit used in coronary artery bypass surgery. Radial artery is an arterial graft may be considered to be advantageous. Further studies including a larger number of patients are needed to the long term patency of this graft.

**Keywords:** carotid artery, patch angioplasty, radial artery

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## PP-049

## Early Comparative Results for the Carotis Artery Stenting versus Carotis Artery Endarterectomy with Regional Anesthesia

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Baskent University Konya Research and Application Hospital Konya

**Introduction:** Carotid artery endarterectomy is already accepted to be the standart method for management of extracranial carotid artery stenosis. In the last 2 decades, minimally invasive endovascular techniques started with angioplasty and increased with the development of stent applications and they are becoming more and more popular.

**Method:** We performed a retrospective analysis of 41 patients who underwent carotid stent placement and carotis endarterectomy between January 2001 to January 2012 and from whom data were collected prospectively. Patients were divided into group 1

(surgery, n = 20) and group 2 (stent, n = 21). Postoperative complications, major cerebrovascular occlusion rates, minor cerebrovascular occlusion rates, lenghts of intensive care unit stay, anticoagulation management strategies and costs were compared.
**Results:** The mean age was 68, 35 ± 8, 21 in group 1 and 66, 76 ± 9, 16 in group 2. The average cost was 1853, 37 ± 533, 94 TL in group 1, and 5502, 62 ± 2101, 08 in group 2. The average length of hospital stay was 2, 50 ± 1, 40 in group 1, and 1, 62 ± 1, 77 in group 2. There was no statistically significant difference as to age, gender, diabetes mellitus, restenosis, average length of hospital stay, and mortality ($p > 0.05$). On the other hand, there was a statistically significant difference between the two groups as to hypertension and hyperlipidemia ($p < 0.05$). Also, tha average cost was lower in group 1 than in group 2 ($p < 0.05$).
**Discussion:** Lately with the industrial development new stent and filter types can be prefered especially in patients with recurrent internal carotid artery stenosis and those who received radiotherapy on the neck. However, when carotid endarterectomy without using a shunt under regional anesthesia is compared to stenting, it is still much more safe and cheap. As a result; when modern and competent managent of symptomatic and asymptomatic internal carotid artery stenosis is the subject of interest, carotid endarterectomy fulfills the demand considering safety, efficacy, and cost.

**Keywords:** stent, endarterectomy, carotis, regional

## PP-050

## Surgical Treatment of Carotid Artery Stenosis; Experience of a Cardiovascular Surgery Department

***Orkut Güçlü,*** *Abdurrahman Muratoğlu, Oğuz Karahan, Celal Yavuz, Süleyman Yazıcı, Ahmet Çalışkan, Sinan Demirtaş, Binali Mavitaş*

Medical School of Dicle University

**Objective:** Previous studies have shown that beneficial effect of carotid endarterectomy (CE) is the best medical therapy alone for symptomatic and asymptomatic patients with a significant stenosis of the internal carotid artery (ICA). The aim of this study is to evaluate the short term results of carotid endarterectomy patients.
**Methods:** Between May 2012 and June 2013, 20 consecutive patients underwent carotid surgery at our institution. We retrospectively analysed our database for demographic data, risk factors, procedural information and postoperative complications.
**Results:** The patients median age was 69.1 ± 8.2 years; 12 (60%) were male, 14 (70%) hypertensive, 10 (50%) current smokers and eight (40%) had diabetes. Bilateral carotid stenosis was present in two (10%) patients, peripheral arterial occlusions in four (20%) and ischemic cardiopathy in eight (40%). All patients had had angiography and duplex-scan of neck arteries.

General anesthesia was performed in all patients. Carotid endarterectomy was associated with coronary artery bypass graft operations in eight cases. Nine arteriotomies (45%) were closed primarily, whereas the remaining 11 (55%) were repaired using vein patch angioplasty. There was two post-operative death (10%) caused by low cardiac output in whom had simultaneous combined surgery and one early stroke (5%). In three (15%) cases we observed permanent or transient lesions of cranial nerves in the postoperative period.
**Conclusion:** Carotid endarterectomy operation can be done at reduced rate of perioperative complications. The low complication rate is related to improved preoperative patients evaluation, surgeons' increasing experience and to surgical and anesthesiological techniques.

**Keywords:** carotid endarterectomy, surgery, complications

## PP-051

## Right Common Carotis and Left Internal Carotis Artery Stenosis

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In this image, we present coronary artery disease patient with Right Common Carotis and Left internal Carotis Artery Stenosis.
**Case:** A 61-year-old male patient was admitted with chest pain and dispnea of two-days history. On physical examination his blood pressure, heart rate, and axillary temperature were 135/80 mmHg, 96 beats/min, and 37.4 °C, respectively. Cardiac auscultation showed reduced heart sounds without any murmur but carotid artery murmur was heard. A 12-lead electrocardiogram revealed reduced QRS amplitude (<10 mm) in both extremity and precordial leads, Coronary angiography revealed critical coronary artery stenosis. Then carotid and vertebral ultrasound fallowing MRI (Magnetic Resonans İmagining) angiography showed that total occlusion of Right Common Carotis and Left İnternal Carotis Artery (Figure 1). Carotid artery disease has been found in half of patients of coronary artery disease (1). Therefore, any system with symptoms due to atherosclerosis patients atherosclerosis in other locations must be checked and noninvasive methods for this purpose as the more common used (2). The intersting point of this case patient hasn't any cerebrovascular events with these lesions. In conclusion carotid artery disease in elder patients with coronary artery disease should not be forgotten.

**Keywords:** carotid artery, stenosis

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**Figure 1**

*Total occlusion of right common and left internal carotid artery stenosis*

## PP-052

### Prevalence of Vascular Injury in Traumatic Accidents for Drives of Motorized in Road Traffic Accident in Shiraz-Iran in 2013

***Samira Esfandyari*[1]**, *Mohammad Kalantari Meibodi*[2], *Vahid Siabi*[2], *Ameni Aghajani*[2], *Abdolkhalegh Keshavarzi*[1]

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**Background:** Because, drivers of Motorcycles and inter-civil means comprise majority of applicants to Trauma emergencies in hospitals, so it is important to consider conditions of vascular injury in accidents caused by drivers of motor vehicle accident.

In these research, accomplished a foresighted consideration in this field over 100 patients injured on year 2013 in shiraz-iran and hospitalized in nemazi hospital, emergency part in east of shiraz.

**Methods:** In this research, we considered 100 patients drives of motorized went to Traumatic emergency of nemazi Hospital on year 2013, hospitalized because of bone fracture or vast laceration of skin or dislocation of organs, they disregard to sex, age and vehicle type. Stabilized first vital signs and then we get follow up the patients and we get urinary and blood sampling.

It is mentioned that these actions accomplished by the consent of the patient and his/her companions and we convinced them that it is important to determine the type and rate of injury in this time we considered 109 patients nondrives motorized with non traumatic problem(for example infectious disease, surgery, chest pain, cerebro vascular accident, psychology, gynecology) went to internis emergency of emam hossien hospital.

**Results:** Final findings showed that these 100 patients including 19 women, none of them have any vascular injury, but from 81 men, only 35 person or 43% were healthy from vascular injury while 39 people of them, 48%, had vascular injury.from 39 patients injured 15 patients had peripheral extremity injury and 18 patients had carotid injury and 6 patients had massive hemothorcic and aortic injury.

**Conclusion:** It is necessary for practitioners working at emergencies of hospitals in Trauma part to prepare operating room due to vascular injury and there are high prevalence of vascular diseases in traumatic accidents.

**Keywords:** accident, vascular, injury

## PP-053

### Surgical Treatment and Long Term Results of Glomus Caroticum Tumours

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**Aim:** Glomus caroticum tumours are rare benign tumours that originate from the embryological neural crest. A glomus caroticum tumour commonly presents as an asypmtomatic cervical mass. Surgical excision may be difficult due to their proximity to arterial and neural structures. We evaluated the long term outcomes of ten patients who underwent glomus caroticum excision in our clinic.

**Material and Methods:** 10 patients underwent surgical excision of a glomus caroticum tumour between 1997–2003 in our hospital. 4 were male and 6 were female with a mean age of 49 ± 9.8 years (range 36 to 63 years). The main symptoms were cervical mass in the neck and drowsiness. None of the patients had major neurological sypmtoms preoperatively.

**Results:** The tumour was excised competely in all cases. 4 cases required ligation of the external carotid artery. Reconstruction of the arterial structures using grafts was not required in any of the cases. The internal carotid artery was reanastomosed to the common carotid artery in one patient. Postoperatively, left-sided deviation of the tongue developed in one patient which later partially recovered. Hoarseness and difficulty in swallowing, which still continues to date, developed in 1 patient. Ptosis of the right eye occured in one patient and hoarseness which resolved after 2 months postoperatively occured in one patient. The mean follow-up time was 44.1 ± 34.6 months (range 2 to 98 months). Two patients (20%) underwent a second surgical procedure due to recurrence of the tumour.

**Conclusion:** Surgical excision is the best treatment option for glomus caroticum tumours. The most important issues are the

maintanace of arterial continuity and avoidance of damage to the adjacent vascular and neural structures, particularly in severe cases, by careful dissection.

**Keywords:** glomus caroticum tumours, paraganglioma, carotid artery

## PP-054

### Carotid Endarterectomy: Results During a 10-Year Period with a Focus on Elderly Patients

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[2]Department of Surgery, Asan Medical Center, Seoul, Korea

**Objectives:** The purpose of this study was to evaluate the results following surgery for carotid artery stenosis in a single institution during 10-year period and to evaluate the relevance of the aging and the surgery.

**Method:** In a retrospective study, from January 2001 to December 2010, 649 CEAs (Carotid Endarterectomies) in 596 patients were performed for internal carotid artery occlusive disease in our institution: 596 patients received unilateral CEA and 53 patients received bilateral CEAs. Data was obtained from review of medical records. Elderly and high-risk patients comprise a significant proportion of the CEAs, so we analyzed whether the difference in co-morbidity and mortality according to age, and divided into three groups of 60, 70, 80-year-old.

**Result:** The mean age was 67.5 years (range 30–89 years), and 88% were men. 65.7% had symptomatic carotid stenosis. Within 30 days of surgery, ipsilateral stoke occurred in 7 patients (4 were symptomatic and 3 were asymptomatic stoke). Postoperative death occurred in 2 patients within 30 days of surgery. The total stroke and mortality rate was 1.17%. Restenosis was developed in 11 cases(1.69%), but no patients developed symptoms. Median follow-up period was 48 months, and 104 patients died during the follow-up period (17.4%). There were no significant differences among the three groups with comorbid conditions, except for the diabetes. The 70, 80-year-old group patients have high overall mortality compared to the 60s, but there was no significant difference in stroke-related mortality among the three groups.

**Conclusion:** CEA over a 10-year period has given acceptable results in terms of stoke and mortality. And the results are in agreement with those presented in large international trials. CEA is safe and effective strategy, so, even though the patient is elderly, CEA should be performed as long as one has a life expectancy.

**Keywords:** carotid endarterectomy, carotid stenosis, stroke

## PP-055

### Our Surgical Procedure in a Patient with Left Subclavian and Right Internal Carotid Artery Occlusion, Left Internal Carotid Artery Stenosis

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Izmir Katip Çelebi University Atatürk Training and Research Hospital

**Aim:** Occlusion and stenosis of aortic arch branch vessels are important causes of morbidity and mortality. We presented a patient with left subclavian and right internal carotid artery occlusion, left internal carotid artery stenosis

**Material-Method:** The patient was 59-years old. One month ago, he experienced transient ischemic attack. He had comorbidities as hypertension, diabetes, and hiperlipidemia.

**Results:** Digital subtraction angiografi (DSA) showed that left subclavian and right internal carotid artery were occlude and left internal carotid artery was >70% stenosed. First, we performed subclavian-subclavian bypass to avoid from morbidity and mortality. 15 days after from first operation, we performed left internal carotid endarterectomy with technique of evesion. Postoperative period was uneventful. He was discharged with antiplatelet drug.

**Conclusions:** Operations performed at two different sessions are safe and effective treatment method to avoid morbidity and mortality in patients with carotid artery stenosis and subclavian artery occlusion.

**Keywords:** carotid artery, stenosis, technique of eversion

## PP-056

### Our Surgical Approache in a Patient with Carotid Body Tumor

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İzmir Katip Çelebi University Atatürk Training and Research Hospital

**Aim:** Carotid body tumor (CBT) is rare tumor. The procedure is technically challange for surgeons due to the tumors's adjacent to great vessels and cranial nevres. We presented a patient with highly vascularise CBT splaying the internal and external carotid arteries.

**Material-Methods:** The patient was 58-years old. She had a movabile mass at the angle of the left mandible in the left anterior cervical triangle. In physical examination, she had a pulsatile, hard mass on left carotid arterial path.

**Results:** Digital subtraction angiography (DSA) showed the splaying of the internal and external branches of left common carotid artery and dense revascularisation of the tumor mass. The size of tumor was 5x3x3 cm. The patient was operated under general anaesthesia. Vagus and hypoglossus nerves were identified and preserved. The tumor was dissected completely from the common and internal carotid artery. Adhered segment to tumor of external

carotid artery was excised en bloc with the CBT. Proximal end distal end of external carotid artery was ligatured. Internal carotid artery was elongated due to compression of tumor. 3 cm of distal portion of elongated internal carotid artery was excised. Proximal end distal end of internal carotid artery was anastomosed in end-to-end fashion. Operative and postoperative period were event-free. She was discharged 4 days after operation with antiplatelet drug.
**Conclusions:** Surgical treatment is safe and effective treatment method in patient with carotid body tumor.

**Keywords:** carotid body tumor, surgery, ligation of external carotid artery

## PP-057

## Case Report: Our Left Subclavian-Internal Carotid Artery Bypass Experience

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**Aim:** In this paper we planned to present a 68 year-old male patient who underwent left subclavian artery- left internal carotid artery bypass grafting with 8 mm dacron graft for critical stenosis in his left common carotid artery.
**Case:** 68 year-old female with diabetes mellitus, hypertension and cerebrovascular attack history (2 years ago) presented with headache. He was consulted to our clinic following diagnostic tests for coronary artery disease and carotid artery disease. Left external carotid arterial occlusion and 95% stenosis of common carotid artery was detected in bilateral carotid anjiography. In the light of his anamnesis, physical examination and anjiography images, we aggreed on medical theraphy for coronary artery disease. Left common carotid artery and internal carotid artery was explored under general anesthesia. Carotid endarterectomy procedure was cancelled as common carotid artery was diffuse atherosclerotic and fragile. Left subclavian artery was explored. 8 mm dacron greft was used for left subclavian artery—left internal carotid artery bypass grafting (Figure 1). There was no complication in postoperative period. Hemodynamically stabile patient was discharged on postoperative 5 day.
**Discussion:** Extraanatomic bypass procedure was used as an alternative surgical approach with low mortality and morbidity rates. As his common carotid artery was diffuse atherosclerotic and fragile, vascular clemping was not secure, thus as an alternative approach subclavian-internal carotid bypass grafting was preferred. In this procedure, synthetic graft patency ratios are considered to be higher than saphenous grafts because of diameter correlation. Thus, we preffered 8 mm dacron graft in this case. In patients with common carotid stenosis, especially when vascular clemping is unsuitable, subclavian-internal carotid bypass can be performed safely.

**Figure 1**

*subclavian artery – left internal carotid artery bypass grafting*

**Keywords:** extraanatomic bypass, subclavian artery, internal carotid artery

## PP-058

## Treatment of Carotid Artery Stenosis—A Single Centre Experience in 5 Years

***Carmen, Chik Wah Chu*[1]**, *Skyi, Yin Chun Pang*[1], *Renny, Ling Chu Yien*[1], *Edward, Kin Leung Hui*[2]

[1]Pamela Youde Nethersole Eastern Hospital, Hong Kong SAR

[2]Ruttonjee Hospital, Hong Kong SAR

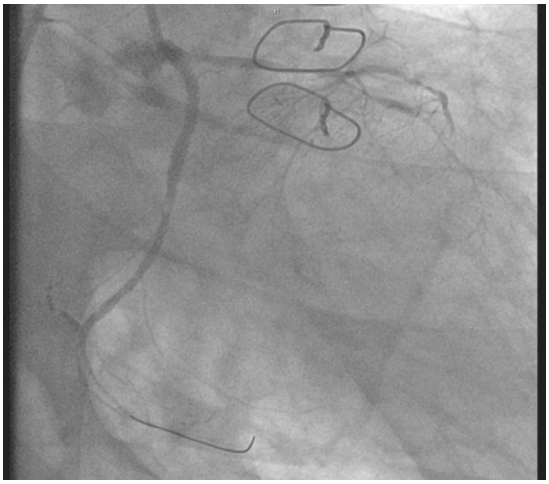
**Background:** Carotid endarterectomy has been established as an effective treatment for carotid artery stenosis, while carotid stenting provides an alternative, both short and long-term results were conflicting. We retrospectively reviewed the results of both procedures in our centre.
**Methods:** From January 2008 through December 2012, all patients undergoing carotid endarterectomy and stenting for carotid artery stenosis at Pamela Youde Nethersole Eastern Hospital, HKSAR were included. The primary endpoint was stroke, myocardial infarction or death during the periprocedural period.
**Results:** Over a five-year period, 75 patients were treated for carotid stenosis. 57 patients received carotid endarterectomy. Most patients (87.7%) have symptomatic disease. The median time from presentation to intervention was 33 ± 14.8 weeks. Majority of the procedures (89.1%) were performed under regional anaesthesia. The median stump pressure was 45.3 ± 23.6 mmHg, routine shunting with our homemade shunt were adopted since July 2011 and overall shunting was performed in 24 patients (42.1%). Carotid stents were inserted in 18 patients with most procedures (83.3%) performed under local anaesthesia. The median time from presentation to procedure was 23.5 ± 14.3 weeks.

Overall, there is no significant difference in terms of primary end-points among both endarterectomy and stenting group. For the endarterectomy group, the 30-day mortality, stroke and myocardial infarction were 3.5%, 1.8% and 1.8% respectively. For carotid stenting group, 30-day mortality, stroke and myocardial infarction were 0%, 5.6% and 5.6% respectively. After this, the incidence of ipsilateral stroke for endarterectomy and stenting were 5.3% and 11.1% ($p = 0.588$) with mean follow-up $108 \pm 65$ weeks.

**Conclusion:** In our series, primary outcomes in terms of periprocedural stroke, myocardial infarction and mortality did not differ significantly among patients undergoing carotid endarterectomy or stenting. Potential benefits of carotid intervention maybe jeopardized by long waiting time for intervention, therefore better collaboration among different disciplines maybe warranted maximizing the benefits of vascular intervention.

**Keywords:** carotic artery stenosis, carotid endarterectomy, carotid artery stenting

**Figure I**



*Circumflex artery revascularization on 4th day after the operation*

## PP-059

## Hybrid Coronary Revascularization in Presence of Bilateral Internal Carotid Stenosis and Abnormally Originating Vertebral Artery

***Eray Aksoy,*** *Ekin Can Celik, Deniz Gunay, Murat Bulent Rabus*

Kartal Kosuyolu Education and Research Hospital

**Introduction:** Annual rate for major vascular events was reported as 5.3% in the presence of bilateral internal carotid artery occlusion and medical therapy was advocated with regard to long term survival (1). It was established that collateral flow and auto regulation mechanisms are crucial for maintenance of cerebral hemodynamics (2). Although use of cardiopulmonary bypass during coronary artery bypass surgery has been advocated in rare case series, it is safety has not been well established (3). The common belief is that vertebral artery flow should be adequate during the surgery to prevent ischemic brain injury.

**Case:** A 46 year-old male presented with typical chest pain and intermittent vertigo and syncope attacks. He was smoking 20 packages x years and denied consuming alcohol. Cardiac and lung auscultation was normal. Electrocardiogram showed normal sinus rhythm with pathological Q waves on inferior leads. Coronary angiography revealed critical proximal lesions in both LAD and circumflex artery. Echocardiography showed that left ventricular systolic function globally decreased. Duplex scan revealed that there was no flow in internal carotid arteries bilaterally. Contrasted CT scan of carotid arteries showed that internal carotid arteries were bilaterally occluded and left vertebral artery was abnormally originating from aortic arch and poorly enhanced with contrast. The patient underwent off-pump coronary artery bypass grafting and an ascending aorta-saphenous venous graft-LAD artery anastomosis was made. Postoperative course was uneventful. On 4th postoperative day, the patient was taken to the angiography theatre and the proximal circumflex artery was revascularized by stent implantation. The patient was discharged on 7th postoperative day.

**Keywords:** internal carotid occlusion, coronary artery bypass grafting

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## PP-060

## Horner Syndrome Secondary to Spontaneous Internal Carotid Artery Dissection: A Rare Case Report

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[2]Tekirdag State Hospital

**Backround:** Spontaneous internal carotid artery dissection is a rare cause of lower cranial nerve palsy, which often leads to horner syndrome (HS). Spontaneus internal carotid artery dissection is characterized by the formation of mural hematoma and the incidence of ICA dissection ranges from 2.5 to 3 per 100.000. (1) The first reported case of spontaneous ICA dissection was in 1959 (2).

Here we report a 46-year-old male patient with Horner syndrome related to spontaneus internal carotid artery (ICA) dissection.

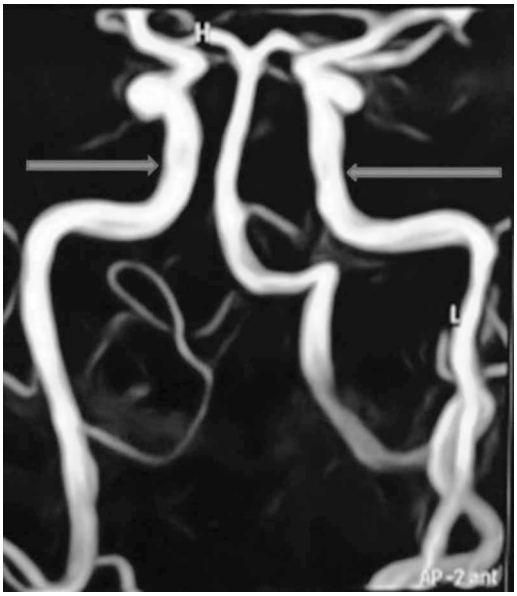
**Case:** A 46-year-old male patient was admitted to the hospital because of a sudden onset of pain localized on behind his left eye and subsequent development of ptosis of his left eyelid. He was smoking 2 pack per day and arterial hypertension for 15 years. Physical examination was normal. In neurologic examination, semiptosis, enophthalmus, and myosis were observed on the left side. The patient was diagnosed as ICA and vertebral artery dissection with cranial magnetic resonance imaging (Figure 1) and anticoagulant and antiagregans therapy was initiated. First subcutaneus low molecular weight heparin (LMWH) was given, and then warfarin was started. After medical therapy patient's symptoms was gradually disappeared. And his clinical findings was noted during two months of followup period.

**Discussion:** Horner syndrome manifests itself with signs of ptosis, myosis, enophthalmus, and facial anhidrosis. HS is a rare manifestation of ICA dissection and is found in 20% of cases. There is no clear data about treatment of spontaneus internal carotid artery dissection and horner syndrome. HS and ICA dissection medical treatment has include anticoagulant or antiplatelet therapy without recurren ischemia and surgical treatments include balloon angioplasty, distal thrombectomy, ligation of the distal carotid artery, and from external to internal carotid bypass.

**Conclusion:** Patients without recurrent ischemia can be treated with LMWH and warfarine

**Keywords:** spontaneus carotid dissection, horner syndrome, anticoagulan treatment

**Figure 1**




*Vertebral and carotid artery dissection*

## PP-061

## Case Report: Bilateral Carotid Body Tumor Resection and Management of Barareceptor Failure Syndrome

*Kemal Korkmaz[1], Hikmet Selçuk Gedik[1],*
***Serhat Bahadır Genç[1],*** *Ali Baran Budak[1],*
*Ali Ümit Yener[2], Kerim Çağlı[1]*

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Carotid body tumors (CBT's) are rare neoplasms originating from paraganglionic cells of carotid bifurcation. Baroreceptor failure syndrome (BFS) is also a rare but severe complication of surgical removal of these tumors.

We present a 37 year old woman who had a staged surgical removal of these tumors in 2 months apart. Postoperative severe hypertensive attacks appeared after first removal of right side tumor, and had been controlled by intravenous nitroglycerin infusion and diltiazem infusion. Hoarseness was detected after extubation and treated with steroid treatment. 1 week after the course, blood pressure stabilized with oral diltiazem. No neurologic complication and no hypertensive crisis were seen latter. Postoperative period was same after left side tumor removal. Hypertensive period was controlled with same drugs successfully and patient discharged with oral diltiazem. At 1 year follow up no metastatic tumor or hypertensive crises occured.

Surgical treatment of bilateral CBT's is a safe procedure with aggressive and intensive medical management of postoperative conditions.

**Keywords:** carotid body tumor, baroreceptor failure syndrome, bilateral resection, medical management

## PP-062

## Carotid Body Tumor's; Experience of 7 Cases

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**Background:** Carotid body tumors (CBT's) are rare neoplasms but mainly benign tumors with very slow growth rates. Involvement of the carotid vessels and the close anatomical relationship with the cranial nerves make these tumors present with local mass affect on vascular and neural structures.

**Methods:** Retrospective data collected of 7 patients who were operated after being diagnosed with CBT's. Dublex ultrasound

scanning was primary intervention. Digital subtraction angiography (DSA), computer tomography angiography (CTA) and magnetic resonance angiography (MRA) used to confirm tumors.

**Results:** 5 (71%) of the patients were male and 2 (28%) of the patients were female. The average age was 40 ranges between 37 and 62. All the cases presented as neck lump with pressure symptoms. 4 patient suffered from odynofagia, 5 patient had hoarseness and one patient had slight facial nerve palsy. Only one patient had bilateral CBT's.

8 procedures performed with complete resection of tumors.All of the procedures were performed same vascular team. 5 of procedures completed with subadvential resection (to Shamblin type 1 and 2 CBT's). 3 of procedures completed with external carotid artery ligation and one of these procedures ended by patch plasty to internal carotid artery with saphenous vein graft (to Shamblin type 3 CBT's).

Neither death nor any major neurologic event occurred in all the cases. Only one patient was developed baroreceptor failure syndrome. There was no tumor recurrence during follow up to 1 year.

**Conclusion:** Because of less knowledge about these tumors and their relation to cranial nerves surgical management is a challenging but only adequate option. Preoperative detailed examination with imaging techniques makes surgical resection safer without pre-embolization.

**Keywords:** carotid body tumor, paraganglioma, surgical resection, shamblin classification

# Case Presentation

## PP-063

### Concurrent Treatment of Lerishe Syndrome and Renal Artery Occlusion

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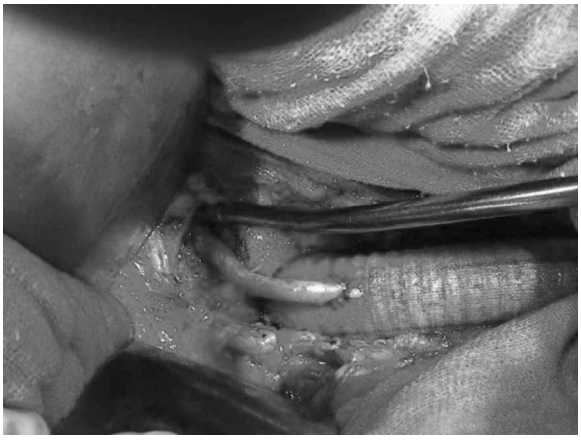
**Aim:** Renal artery stenosis typically occurs in high risk patients with coexistent vascular disease elsewhere. Revascularization should be performed in these patients with resistant hypertension. We report the treatment management of coexistent renal artery stenosis, Lerishe Syndrome and coronary artery disease.

**Methods:** We operated on a 45-year-old male with coronary artery disease, lerishe syndrome and renal artery stenosis with renovascular hypertension. His blood pressure was high although he was taking antihypertensive medications. The left renal artery was 95% occluded at its near the ostium. After aorto-bifemoral bypass he underwent aortorenal bypass surgery with saphenous vein graft in the same session. (Figure 1) At the end he was applied a coronary bypass surgery.

**Figure 1**



*The image of saphen ven graft anastomosed to renal arteryt*

**Results:** Postoperative period of aorta-renal bypass surgery was uneventfully. The blood pressure was normalized without administration of antihypertensive medication. Afterwards, he underwent a coronary artery bypass surgery three month later. He continues his life with no problem.

**Conclusions:** In the recent years, gold standard for treatment of resistant hypertension caused by renal artery stenosis was surgical revascularization. However by the introduction of endovascular applications in current years, endovascular stent and angioplasty have become the first choices for atherosclerotic renal artery disease patients. Our patient was not suitable for percutaneus transluminal renal angioplasty because of the closure of the stenotic segment of renal artery to the ostium. The patient was undertaken an operation of aorto-bifemoral bypass with PTFE graft and we applied an aorto-renal bypass with saphenous vein graft in the same session. The coronary bypass surgery was performed three month later of the first operation. In this report, we want to present that, those surgical operations of Lerishe Syndrome and renal artery stenosis can be performed safely in the same session with no complication. And operation priority is so vital in the patients with multiple atherosclerotic artery diseases.

**Keywords:** coronary artery disease, hypertension, lerishe syndrome, renal artery stenosis

## PP-064

### An Atypical Arrhythmia in Vascular Surgery

***Gokhan Arslan**, Bilgehan Savas Oz, Mehmet Ali Sahin, Celalettin Gunay, Faruk Cingoz*

Department of Cardiovascular Surgery, Gulhane Military Medicine Academy, Ankara, Turkey

Bradyarrhythmia as a vagal reflex is frequently encountered during abdominal surgery in connection with surgical maneuvers,

**Figure 1**

*On opening the abdomen, the photograph shows severe distension of small bowel*

such as abdominal wall retraction or manipulation of the small bowel. We present a case of a 66-year-old male patient who is planned aortabifemoral bypass graft surgery for bilateral iliac arterial occlusive disease also partially different experience of the manifestation of severe bradycardia as a cardioautonomic responses associated with severe bowel distension (Figure 1) during surgery and the strategy of surgical approach.

**Keywords:** bradycardia, reflex, surgical procedures

## PP-065

## An Unusual Cause of Peripheral Artery Embolism: Non-Floating Thrombus of the Descending Aorta

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***Murat Tavlasoglu*[3],** *Fahri Gurkan Yesil[1]*

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**Aim:** Intraluminal mobile thrombus of the descending aorta is rare disorder. Floating thrombus in the aorta is a silent etiological abstract of peripheral arterial embolic events. Hypercoagulation has been proposed as one of the main cause. Nevertheless, therapeutic management of an intraluminal mobile thrombus remains controversial. We aimed to report a 61-year-old patient with peripheral arterial embolization who was treated medically.

**Case:** A patient who had underwent to open nephrolithotomy surgery one week ago presented with claudication intermitans occurred on postoperative day 12. The ultrasonography revealed biphasic flow pattern in anterior and posterior tibial arteries. The patient was screened by thorax computerized tomography (CT) due to the infiltration in lungs and incidentally a $7 \times 10 \times 25$ mm thrombus with weak wall involvement to the descending aorta was detected. Heparin therapy was initiated. We did not consider using thrombolytic agents because of the recent operation. Tumor markers were increased biochemically. So aortic thrombus is considered to be associated with an underlying malignity. The patient was decided to be treated medically, warfarin sodium, instead of surgery. Although the tumor markers were increased no specific malignity was detected. The patient discharged one month later with planning a control CT screening after one month.

**Conclusion:** Mobile thrombus of the thoracic aorta is an uncommon with potentially catastrophic complications. In the literature in case of detecting asymptomatic mural aortic thrombus, medical treatment can be a choice but there is no consensus how to treat a symptomatic aortic thrombus. The therapeutic strategies are influenced by the localisation of the thrombus, the co-morbidities of the patient and the physician's preferences. Medical, endovascular, open or combination treatment may prefer. An aggressive surgical approach is recommended in the low-risk patient to prevent further embolic recurrent episodes resulting in acute lower-limb ischemia. No long-term follow up of this rare pathology is available.

**Keywords:** peripheral artery embolism, descending aorta, thrombus

## PP-066

## Endovascular Repair of an Abdominal Aortic Aneurysm with a Coexistent Horseshoe Kidney

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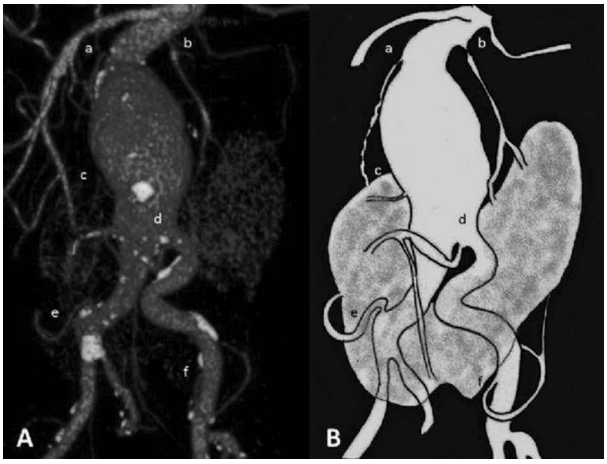
**Introduction:** Coexistence of an abdominal aortic aneurysm (AAA) and a horseshoe kidney (HSK) is a rare entity. When surgical intervention is necessary, the specific anatomical properties of the horseshoe kidney complicate a classical approach.

**Case:** Endovascular treatment of a 68 years old patient with an AAA of a 6.7 cm diameter, and a coexistent HSK is described. The vasculature of the kidney represents Type IV properties according to the Eisendrath's classification of horseshoe kidneys. Due to the severe atherosclerosis involving the renal vessels, one main renal artery with an 80% ostial stenosis on the left was stented prior to the insertion of the bi-iliac endovascular stent-graft. One renal artery on the right side was severely atherosclerotic, and the isthmic artery originating from within the aneurysm had to be occluded by the stent-graft. As a result the arterial supply of the kidney depended on the two arteries originating from the iliac arteries on both sides and the stented left renal artery.

**Figure 1**




*Anatomy of the abdominal aorta and the horseshoe kidney as seen in the CT (A) and a schematic representation for the detailed arterial supply of the HSK (B). Above the aneurysm, there was one renal artery on each side supplying the upper poles. The one on the right had widespread stenotic atherosclerosis all through its length (a), and the other was a major artery with an 80% ostial stenosis (b). From within the aneurysm arose a minor artery to the right (c). There was an isthmic artery arising from just after the aortic bifurcation, on the left common iliac artery ostium (d). Two other major arteries originated from both common iliac arteries on each side (e, f).*

Preoperative renal scintigraphy had revealed decreased perfusion. The creatinine level prior to the intervention was 1.0 mg/dl, which then made a peak at 1.75 mg/dl and was 1.57 mg/dl at the 3rd month follow-up.

**Discussion:** When an abdominal aortic aneurysm and a horseshoe kidney are coexistent, the position of the fused segment, the isthmus, usually in front of the aorta, together with its variable blood supply pose a great risk during conventional surgery. In addition, inadvertent injury to the ventrally rotated collective system may result in urinary fistula. Since the size of renal infarct does not always have to correlate with renal function endovascular solution was preferred.

**Conclusion:** Endovascular repair of AAA's with a coexistent HSK should be considered as a serious option despite the presence of accessory renal vessels, as some may be sacrificed with little clinically evident sequelae.

**Keywords:** abdominal aortic aneurysm, horseshoe kidney, endovascular

## PP-067

## Occlusion of Giant Aneurysm Originate from the Internal Iliac Artery with Stent-Graft Implantation-Case Report

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Surgical therapy of the abdominal aort aneurysms has high morbidity and mortality, Endovascular and stent-graft aortic procedures has same risks but early discharging from hospital and early returning to normal life are advantage.

A patient who is 83 years old and male, admitted to our hospital resting left hip pain and left hip lateral region echimosis as a complains. He has a chronic obstructive lung disease, smoking in his history. He has a pulstatile mass in abdomen in his physical exmination and no other pathological findins in physical examination.

He was diagnosed chronic ruptured aneurysm suspection lomber magnetic resonans (MR) in orthopedical investigation. A patient was consultated and after his physical examination, We planned computerized tomography (CT) aortobifemoropopliteal angiography because of ruptured aneurysm in result of the MR. Leakege from internal ilac artery 8 cm diamater aneurysm was found in CT aortobifemoropopliteal angiography as a result.

A patient admitted to our hospital to occlusion of giant aneurysm originated from the internal iliac artery with aortic greftstent implantation procedure. The abdominal aort catheterized via bilaterally femoral arteries with seldinger technique and peripheric angiography was done first. 14 mm × 12 cm stent-greft coated polytetraflourerethilen(PTFE) was implanted to from proximal main iliac artery to external iliac artery. So neck of the aneurysm was closed.

A patient was discharged from hospital with asetyl salisilic acid 300 mg, no morbidity and mortality were seen postoperatively during four month.

**Keywords:** iliac artery, aneurysm, stent-graft

## PP-068

## Open Surgical Repair After Endovascular Stent Grafting (Case Report)

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Increasing popularity of endovascular stent graft repair for abdominal aortic aneurysm opened a new era in medical technology.

Despite having acceptable short term morbidity and mortality rates, developing complications may result in rupture, as a consequence of lacking regular follow-up. Endoleaks are the most frequent complications after EVAR and type 1 and 3 endoleaks require special attention, because of continuing risk of rupture and need for immediate treatment. So this brings the necessity of consecutive CT follow ups to diagnose and treat endoleaks early.

76 and 74 years old two male patients underwent elective EVAR for infra-renal abdominal aortic aneurysm in 2011 and 2010. Both of the patients did not participate in controls after discharge. First patient referred to emergency department with right lower extremity claudication and the second patient referred with abdominal pain. CT-Angiography was performed and first patient's 3D CT-Angiography evaluation revealed 9.2 cm fusiform aneurysmatic dilation with a tear and leakage into the aneurysm sac at the right iliac artery extension of the graft. Second patient's CT-Angiography showed detachment of left iliac artery extension of the stent. In both patients, proximal control was performed by suprarenal cross-clamping. Partial graft removal was preferred because of ongoing inflammatory process. Aorta-bifemoral bypass was performed within 20 and 22 minutes of cross-clamping time respectively.

Open surgical repair after EVAR requires special attention. Suprarenal control is essential either via balloon occluder or Xclamp. "Clamp and pull" is the most common technique to remove stent graft with gentle traction of the endograft from the lumen. However, according to our experiences pulling the endograft may disrupt the proximal anastomosis site, instead of this, cutting the proximal part of the stent and leaving the proximal part at the sealing site is more logical. By doing this, graft may be sewn onto the stent graft easily.

**Keywords:** abdominal aortic aneurysm, endovascular repair, open repair, endoleaks

**Case 1, CT Angiographic 3-Dimensionalreconstruction image of the endoleak.**

## PP-069

# Giant Abdominal Aortic Aneurysm Treatment with Open Surgery in a Risky Patient Post CABG with Stenotic Coronaries

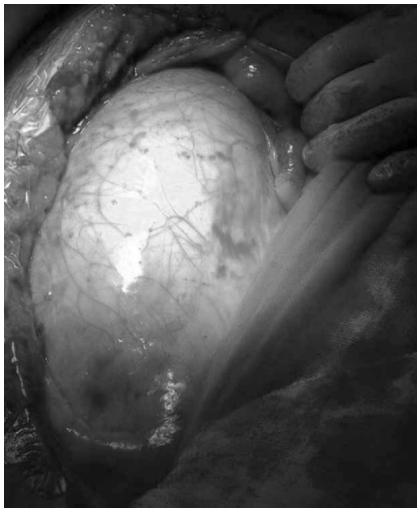
***Hakan Özgen,*** *Ibrahim Özsöyler, Mahmut Çetinoglu, Funda Tor Ocak, Hasan Uncu*

Numune Eğitim ve Araştırma Hastanesi Seyhan Uygulama Merkezi Kalp ve Damar Cerrahisi Ana Bilim Dalı, Adana, Türkiye

A 70 year-old syrian refugee male was admitted with history of a heavy smoking, CABG operation was 2 years ago with an open RCA greft but LAD 100% proximally plaque stenosis, 90% CX and multiple branches occlusions without angina with normal ejection fraction and normal valve functions. At the angiography no other grefts were observed and no epicrisis was obtained. He could not take any food because of vomiting and lose of weight day by day recently and with complaints of exceeding abdominal discomfort, increasing back pain and physical mobility discomfort in recent months duration. Physical examination revealed a giant, prominently visible, expansile, pulsatile, well-defined, nontender abdominal mass in the whole abdominal area. Computed tomographic (CT) and angiography revealed a large infrarenal aortic giant aneurysm with a maximum transverse diameter of 13, 6 cm without iliac extensions. Anatomy of the aneurysm did not permit endovascular aneurysm repair (EVAR). The patient underwent open surgical inclusion repair using an, aortobi-femoral 16 mm × 8 mm collagen-impregnated bifurcated Dacron graft. Postoperative recovery was uncomplicated and he is still at the cardiovascular surgery service with no complaints because of syrian refugee and on postoperative day 8 in good health. Histopathologic study is still in pathalogy labratory to be analysed.

**Keywords:** giant abdominal aortic aneurysm, aortobi-femoral graft, post CABG

**Şekil 1**



*Abdominal open sight of giant aneurysm*

## PP-070

# Open Surgical Approach for Chronic Mesenteric Ischemia Following an Endovascular Aortic Aneurysm Repair: Case Report

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Chronic mesenteric ischemia (CMI) is rarely seen after an aortic endovascular intervention. Endovascular method is the first line of management in suitable lessions. Open surgical approaches should be performed when the endovascular treatment choices have failed. We report a succesful superior mesenteric artery (SMA) bypass in a CMI case whose symptoms appeared just after the implantation of a thoracic aortic stent graft (TASG).

A 68 years old male, who had a history of previous thoracic endovascular aneurysm repair(TEVAR) procedure 3 months ago, admitted to our hospital with new symptoms of vomitting, gastric discomfort, pain and weight loss. The past angiographic images of TEVAR procedure revealed the occluded coeliac, superior and inferior mesenteric arteries and the patient was diagnosed as symptomatic CMI. Due the TASG was placed to above of the renal arteries, an endovascular procedure for SMA revascularization was not suitable thus an open surgical procedure was planned. SMA and iliac arteries were exposed via median laparatomy. After creating a trans-meso tunnel for graft course, the end to side anastomosis of SMA and PTFE graft was performed. Then the right common iliac artery and proximal end of graft were anastomosed in end to side position. To avoid a possible Type 2 endoleak, proximal end of SMA was tied up. Graft flow was controlled by aortography after the procedure and he was discharged on the 7th day of operation without any symptoms.

CMI can result in significant reduction of life quality and mortal complications. As seen in our case, endovascular aortic procedures can trigger the appearance of symptoms in asymptomatic CMI patients. To obtain the best results, revascularization tecnique must be chosen according to characteristics of patients and lessions. If the best choice of treatment is to perform an open surgical tecnique, endovascular approaches should not be compelled.

**Keywords:** endovascular aortic aneursym repair, chronic mesenteric ischemia (CMI), superior mesenteric artery revascularization

## PP-071

# The Management of Huge Glomus Tumor Surrounding Carotid Arteries

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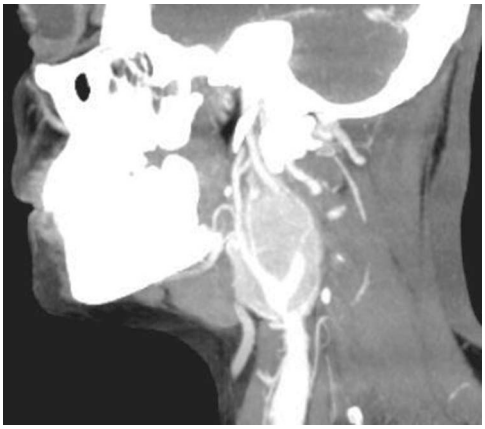
**Background:** Carotid body tumors (CBT) are reported to be the most common head and neck paraganglioma (PG) with a asymptomatic, slow-growing and generally benign clinical course. We aimed to report the treatment management of huge CBT with this report.

**Case:** A 33-year-old woman presented with a slow-growing mass in the left side of her neck. On imaging evaluation, the computed tomogram (CT) showed a well-enhanced, regular contoured mass considered a carotid body paraganglioma of Shamblin group 3, located at the left carotid bifurcation. (Image 1) Digital subtraction angiography showed hypervascular lesions at carotid bifurcation with multiple feeders. In surgical treatment, after dissection of common carotid artery and branches, vagus and hypoglossal nerve were seperated from the surgical plane. The CCA, the ICA and ECA were excised together with the mass. After the excision of the mass, 8 mm Dacron graft of proper length was implanted between the CCA and ICA. The ECA was anastomosed to the shunt at the superior level. Histopathologic examination confirmed the diagnosis of paraganglioma.

**Discussion:** Carotid bifurcation paragangliomas are rare and slowly growing tumors. Surgical treatment is the only therapeutic option that can offer immediate and complete tumor elimination. Most authors have recommended surgical resection of a CBT as soon as the diagnosis is established. Although the aim of surgery is total resection, because of their vascularity and the involvement of critical vascular and neural structures, the total removal of these lesions is highly difficult. Early treatment provides excellent outcomes. Class III CBPs intimately surround the carotid vessels and surgical resection is challenging and often requires temporary interruption of the cerebral circulation. The risk of postoperative neurological damage is higher in Shamblin class III tumors. An experienced operating team is recommended for reducing the risk of a vascular injury, especially in Shamblin class III tumors.

**Keywords:** paraganglioma, shamblin tumor, carotid body tumors

**Image 1**



*Computed tomography image of carotid body paraganglioma*

## PP-072

### Internal Carotid Artery Bypass with Saphenous Venouse Graft-Case Report

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Carotid artery diseases are often cause of the neurologic disorders. Surgical therapy of the carotid artery diseases has high morbidity and mortality.

A patient who is 58 years old and male, has periodically controlled because of transient ischemic attac (TIA) by norlogist since 2012, He admitted to our hospital because of increasing stenosis from 50% to 90% of the left proximal internal carotid artery (ICA) and distal of the common carotid artery in last dopler ultrasound. Right ICA and vertebral arteries were normal.

He has a insuline depended diabetes mellutus (IDDM) and smoking in his history. He has a left carotid artery systolic sufle and right hemiparesthesia in his physical examination.

He opereted with general anesthesia. distal of the common carotis artery (CCA) and proximal of the ICA were excessive calsific. Common carotid artery, external carotid artery and internal carotid artery were dissected and snared, after cross-clemp inserted, endartherectomy and primer closure were applied, but laggard of the internal carotis artery wall was very thin, for this reason, proximal of the internal carotid artery was stured, and side to side reverse saphenous vein graft bypass was applied from common carotis artery to distal of the internal carotid artery.

A patient was discharged from hospital with no additional morbidity with asetyl salisilic acid 100 mg and clopidogrel 75 mg, no morbidity and mortality were seen postoperatively during two month.

**Keywords:** carotid artery, bypass

## PP-073

### Reperfusion Injury may Mimic Transient Ischemic Attack

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**Introduction:** A transient ischemic attack (TIA) is a transient episode of neurologic dysfunction caused by ischemia. The most common cause of a TIA is an embolus that occludes an artery in the brain. This usually arises from a dislodged atherosclerotic plaque from the carotid system or the vertebral-basilar system. A cerebral infarct that lasts longer than 24 hours but fewer than 72 hours may cause reversible ischemic neurologic deficit. In this presentation we would like to present a 59 year old patient with TIA history underwent carotid artery endarterectomy and patch plasty.

**Case:** TIA was diagnosed in a patient after left hemiplegia occurrence in a different center. The patient recovered uneventfully in clinical setting. Subsequently patient applied to our department. Before operative planning, preoperative angiographic evaluation revealed 95% and 20% stenosis in right and left internal carotid arteries, respectively. The patient underwent right carotid artery endarterectomy and patch plasty.

**Results:** After surgical procedure left hemiplegia was observed in early postoperative course, after that diffusion MRI and cerebral BT studies demonstrated no abnormalities, including ischemic region or bleeding. After carefully medical treatment the hemiplegia was completely disappeared.

**Conclusion:** The Surgeons should not make panic in such cases, and refrain from aggressive surgical treatment methods before diffusion MRI and cerebral BT examinations. It is important to keep in mind that treatment of chronic ischemic conditions in central nervous system may mimic symptoms of TIA with the way of reperfusion injury.

**Keywords:** reperfusion injury, transient ischemic attack, endarterectomy, hemiplegia

## PP-074

### Lower Extremity Post-Traumatic Lymphedema Secondary to Accidental Injection of a Veterinary Drug; Report of an Unusual Case

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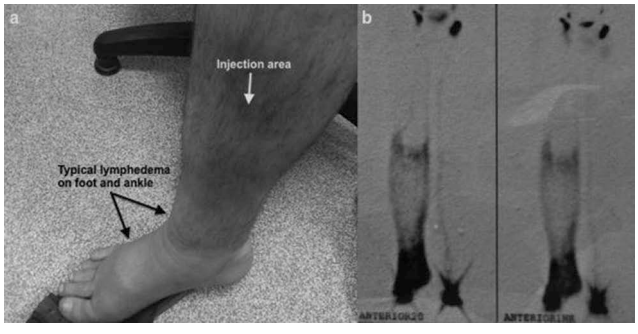
**Introduction:** Lymphedema is a serious disorder, which is a result of an abnormal accumulation of the interstitial fluid into intracellular space. It is closely related to lymphatic and venous pathologies. This disorder can be classified into two forms as primary and secondary according to etiologies. If there is not an extrinsic cause, it is called primary lymphedema, while if there is an underlying reason, than it is called secondary form.

**Case Report:** A 20-year-old male patient presented to our department with the swelling of his right limb. On his history, an accidental injection was happened into his right calf two months ago. The drug that injected was consisting tilmicosin phosphate, which is a macrolide antibiotic and used for the veterinarian practice. On physical examination, right lower limb swelling and significant stiffness with the mild erythema on the injection area were detected (Figure Ia). His right limb was 7 cm larger than the contralateral extremity at the level of ankle. On venous doppler ultrasonography, deep veins were normal while chronically thrombophlebitis was detected on both saphena magna and parva veins with significant subcutaneous edema. On three-phases bone scintigraphy, there was a local necrosis or heterotopic ossification area, which is probably secondary to injection or hemorrhagia in gastrocnemius muscle without any sign of reflex sympathetic dystrophy. On lymphoscintigraphy, there was a delay at the distribution of the Tc-99m on the affected limb, which was concordant with lymphedema (Figure Ib). On several investigation for hypersensitivity disorders, there was not any evidence of allergenic, immunologic or rheumatologic disorder.After all investigations, the patient diagnosed to acute traumatic lymphedema and undergone compression therapy with anti-edema treatment.

**Figure I**




*a. View of typical lymphedema on ankle and foot with erythema of the injection area b. Lymphoscintigraphy of patient. Anterior view of 20th minute and 1th hour.*

**Discussion:** Despite improvements on medical technologies, there is not a holistic approach to most of lymphatic disorders. However, secondary lymphedema is a preventable form of lymphatic disorders by its association with trauma. We aimed to present an unusual, interesting case of secondary traumatic lymphedema, developed from the disruption of lymphatic ducts secondary to accidental injection of a veterinary drug.

**Keywords:** traumatic lymphedema, secondary lymphedema, tilmicosin phosphate

## PP-075

### Endovascular Treatment for Extrahepatic Portal Vein Bifurcation Stenosis after a Whipple Procedure Using Kissing Stents Technique

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Department of Endovascular Thearapy and Interventional Radiology

A 57-year-old male presented with a rare extrahepatic portal vein bifurcation scar stenosis involving the proximal splenic vein and superior mesenteric vein after a Whipple procedure. He was treated with an endovascular coil embolization for the gastroesophageal varices and kissing stents for the portal vein bifurcation stenosis. This case demonstrates a rarely seen complication after the Whipple procedure and a novel management strategy which can be considered in the management of this complex disease.

**Keywords:** portal vein bifurcation, stenosis, kissing stents, whipple procedure

## PP-076

### Endovascular Treatment of an Unusual Primary Arterioportal Fistula Complicated by Cavernous Transformation of the Portal Vein Caused by Portal Thrombosis

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Department of Endovascular thearapy and Interventional Radiology

We describe an old woman who presented with an unusual primary arterioportal fistula (APF) and cavernous transformation of the portal vein (CTPV) caused by portal thrombosis, which were subsequently managed with an endovascular coil embolization and transjugular intrahepatic portosystemic shunt (TIPS) using two stents after balloon remodeling. This case demonstrates a rarely seen condition in the elderly and a novel management strategy which should be considered in the management of this complex disease.

**Keywords:** arterioportal fistula, cavernous transformation of the portal vein, transjugular intrahepatic portosystemic shunt

## PP-077

# Giant Splenic Artery Aneurysm

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**Introduction:** Visceral artery aneurysms are uncommon and splenic artery aneurysm (SAA) accounts for approximately 60% them. SAAs are usually saccular in form and have a female to male ratio 4:1. Risk factors include portal hypertension, multiparity, arterial fibrodiysplasia, atherosclerosis. Most SAAs are asymptomatic and diagnosed incidentally on ultrasonographic or computed tomographic detection. The most common symptom is pain in the upper left quadrant of the abdomen. Rupture occurs in 3 to 9.6% of patients with high mortality rate. Ruptured, symptomatic SAAs and in pregnant women require urgent treatment. Greater than 2 cm diameter SAAs must be treated. Treatment can be performed by laparotomy, laparoscopy or endovascular techniques.

**Case:** A skinny female patient, 87 years old, controlled hypertension and 3 previous pregnancies, presented with episodes of mild pain in the epigastrium evolving for about 9 months. Pulsatil mass was palpated on abdominal examination. A 7.5 x 10 centimeters saccular aneurysm with calcification located in the mild portion of the splenic artery was detected by computed tomography (Figure 1). Aneurysmectomy with splenectomy was performed. The patient was discharged on the 5th postoperative day uneventfully. Three months after surgery, the patient currently continues to be followed without the episodes of abdominal pain.

**Conclusion:** SAAs are a rare but potentially life-threatening form of vascular diseases and come to mind in the patients with abdominal pain in daily practice.

**Keywords:** splenic artery, saccular aneurysm, abdominal pain

**Computed tomographic appearance of splenic artery aneurysm**

## PP-078

# Hemodialysis Graft Pseudoaneurysm

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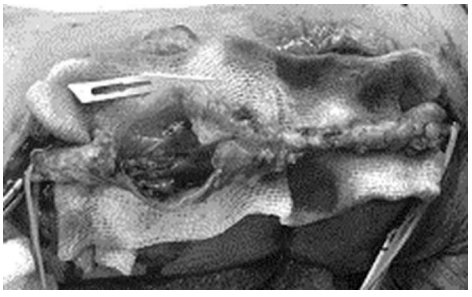
**Introduction:** The gold standard hemodialysis vascular access is a cephalic vein to radial artery fistula, with synthetic grafts as second option. Vascular access grafts are an important component of the treatment of patients with end stage renal failure. Pseudoaneurysm formation is a rare complication but potentially limiting the longevity of grafts. If the size of the aneurysm limits available dialysis cannulation sites or the integrity of the overlying skin is compromised, treatment is recommended. There are a number of surgical, endovascular, percutaneous and ultrasound guided options avaliable for pseudoaneurysm repair.

**Case:** A 68-year-old hemodialysis dependent, female patient presented with skin ulcer, swelling, erythema on the mild portion of her right arm, over a 9-week period. On examination, a pulsatil mass overlying the graft was palpated. A 3 x 4.5 centimeters pseudoaneurysm arising from PTFE graft was comfirmed by color doppler ultrasonography. Under axillary block, surgical excision of pseudoaneursym with graft and subsequent insertion of new PTFE graft material was performed (Figure 1). The patient was discharged on the 3th postoperative day. Six weeks after surgery, the patient initiated using new graft and currently continues to be followed uneventfully.

**Conclusion:** Graft pseudoaneurysm is a well-known complication of vascular access and traditional surgical treatment under axillary block can be performed easily, safely and effectively.

**Keywords:** pseudoaneurysm, renal failure, end stage, arteriovenous fistula

**Intraoperative view of graft pseudoaneurysm**



## PP-079

### Both Arterial and Venous Thrombosis on the Same Extremity

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Venous thrombosis and arterial thrombosis are traditionally regarded as two different disease with respect to pathophysiology, epidemiology, and treatment strategies.Venous thrombosis including Deep Vein Thrombosis (DVT) and Pulmonary Embolism (PE) occurs at an annual incidence of 1 per 1000 adults. The real incidence of acute limb ischemia (ALI) in the general population is not well known even though recent epidemiological data estimated that it occurs in 14 out of a population of 100,000. The described relationship between venous and arterial thrombosis is stil unclear. In this article we presented a 84 year old woman patient in her left lower extremity with both deep venous and arterial thrombosis. Simultanous acute thrombosis of both vasculature has a very bad prognostic value. Due to the lack of venous backflow, outcome of arterial embolectomy and thrombolysis is very prone to failure.

**Keywords:** deep vein thrombosis, arterial thrombosis, venous backflow, same extremity

## PP-080

### Complete Transsection and Embolization of a Central Venous Port Catheter: A Case of Pinch-Off Syndrome Treated Percutaneously

***Erkan Kaya*[1]*,*** *Kubilay Karabacak[1], Murat Kadan[1], Gökhan Arslan[1], Uygar Çağdaş Yüksel[2], Hasan Kutsi Kabul[2], Vedat Yıldırım[3], Suat Doğancı[1], Cengiz Bolcal[1], Ufuk Demirkılıç[1]*

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**Introduction:** Pinch-off syndrome is described as compression of the subclavian central venous catheter by surrounding tissues between first costa and clavicula. Syndrome my result in occlusion, tear or even complete transsection of involved catheter. We present a case of Pinch-Off syndrome that caused complete transsection of a port catheter and embolization of fragmented part which was retrieved percutaneously.

**Case:** A 37 year old lady with breast carcinoma was referred to our center for permanent venous port implantation. A Hickmann catheter via left subclavian vein was implanted successfully. However, three weeks after procedure patient presented with swelling and tenderness over left pectoral region. Several extrasysolic beats were noticed on physical examination. Catheter was checked under fluoroscopy which revealled a complete transection and embolization of fragmented catheter. Fragmented part was dislodged into right ventricle causing ventricular extrasysolic beats.

8F femoral venous sheat was placed to right femoral vein. A right judkins coronary angiography catheter was advanced through femoral vein and inferior vena cava and parked in close proximity to upper tip of fragmented catheter. A 15 mm diameter Amplatz Goose neck snare was advanced thorugh catheter. After several manipulations snare trapped tip of fragmented catheter and whole system with trapped fragment was withdrawn through right femoral sheath succesfully.

**Discussion:** Tenderness and swelling at port site, resistance during injections through port and arrhythmias should warn physician about a possible Pinch-Off syndrome. In case of complete transsection early diagnosis is important to prevent embolizations which may provoke fatal arryhtmias. An unnoticed fragment in the veinous system is a considerable risk for infections as well. In case of a complete transsection, percutaneous retrieval methods should be preferred first which may preclude surgery.

**Keywords:** pinch-off syndrome, catheter, embolization

## PP-081

### Acute Arterial Trombosis in a Patient with Gastric Carsinoma Following Chemotherapy: A Case Report

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The pathogenesis of *in situ* thrombosis in cancer patients is not well known. Possible factors include endothelial damage, decreasing of anticoagulant factors and increasing of procoagulant factors. The incidence of arterial thrombosis in cancer patients was 3, 8%. 5-fluorouracil mentioned as a rare etiologic agent in the literature, whereas cisplatin is the most common etiologic agent responsible for *in situ* thrombosis. In this report we present a 43 year old male patient with bilateral popliteal artery embolism after 5-fluorouracil/cisplatin/taxotare combination chemotheraphy for gastric carcinoma. He had no additional risk factors such as, smoking or any persisting organic arterial disease. His cardiac rhythm was sinusal on electrocardiography and there were no any abnormalities on echocardiography that can be source of emboli. After all, surgical thrombectomy performed with effective anticoagulation. After operation, our medical oncologist discontinued to 5-fluorouracil. There was no any evidence of thrombosis with normal vascular flow rate on his follow up.

**Keywords:** acute arterial ischemia, malignancy, chemotherapy, surgical intervention

## PP-082

### Simultaneous Arterial and Venous Emboli in A Hodgkin Lymphoma Patient

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Increased risk of venous thromboembolic events in cancer patients is well known. In addition, chemotherapy puts an extra risk factor for thrombosis. The pathogenesis of this prothrombotic state in cancer patients is not defined well, but it seems multifactorial. Most of the thrombotic events occur in the venous system and rarely seen in arterial system. In this report we present simultaneous *in situ* arterial and venous thrombosis in patient with Hodgkin lymphoma.

**Keywords:** simultaneous, emboli, thrombosis, cancer, chemotherapy

## PP-083

### Tibioperoneal Trunc Aneurysm: A Case Report

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An aneurysm is a general term for any dilatation of the artery greater than 1.5 times normal, usually representing an underlying weakness in the wall of the artery at that location. As its known very well an aneurysm of the tibioperoneal trunc is extremely rare. Especially if it is caused by a trauma and if it is a true one. To our knowledge, this condition has not been previously described. We report the presentation, diagnosis and the treatment of an isolated traumatic true saccular aneurysm of the tibioperoneal trunk in a thirty four-year-old female.

**Keywords:** tibioperoneal trunc, aneurysm, trauma, dilatation

## PP-084

### Endovascular Repair After Aortic Deceleration Trauma: A Case Report

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**Background:** Posttraumatic aortic transsection is a fatal pathology characterised with rupture of intimal and medial layers of aortic wall, and only adventitia and periaortic tissues prevent free aortic rupture. With this case report, it was intended to discuss our endovascular approach to transsection located at aortic isthmus secondary to deseleration trauma.

**Case:** After an accidental fall, computerised tomographic angiography (CTA) of a 43 year old patient showed a transection located at aortic isthmus just 7 mm away from left subclavian artery (SCA). After documentation of competency of right vertebral artery with aortography, a 32 × 32 × 100 mm Medtronic Valiant Captivia thoracic endograft was implanted with partial coverage of left SCA orifice in order to obtain a longer proximal landing zone. Postoperatively, there was only 50 mmHg blood pressure difference between two arms with adequate perfusion on left arm. His postoperative control CTA revealed the absence of endoleak and complete exclusion of traumatic aortic tissue.

**Conclusion:** In aortic transection, it could be difficult to detect the limits of healthy aortic wall in CTA and injured segment of aortic tissue could be more extensive than it seems to be. In our opinion, endovascular approach to transection should be different than the endovascular treatment of aneurysmal disease. We believe a longer landing zone is needed in transected aortic wall, due to the risk

**postoperative image**

of expansion of tear of partially injured aortic tissue proximally and distally after deployment due to radial force and the absence of a full thickness tissue around the endograft compared to aneurysmal disease. In our opinion, in patients with limited proximal landing zone due to the close proximity to left SCA, after documentation of competency of right vertebral artery, partial or total coverage of left SCA with endograft in order to extend the proximal landing zone is safe and should be preferred.

**Keywords:** deceleration trauma, aortic transection, TEVAR

## PP-085

### Leg Wound Closure After Saphenous Vein Harvesting in Patients Undergoing Coronary Artery Bypass Grafting: MiniVAC Therapy

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**Aim:** Various wound complications may occur after saphenous vein harvesting. We aimed to describe the alternative treatment managements for vena saphena magna (VSM) wound infections at the harvesting site based on two cases

**Cases:** Case 1: 65-year-old women underwent coronary artery bypass grafting (CABG). However, a recovery problem occurred at the VSM harvesting site above knee during postoperative period. A leg wound infection complicated at the 4 × 12 cm-length mid segment of incision line. 50 mmHg pressure MiniVAC (Vacuum assisted closure) intervention applied to the patient following debridement surgery for 18 days. Finally, the wound edges were closured by using primer suture technique.

Case 2: The second subject was 68 year-old women with insulin-dependent DM for 15 years. She underwent CABG. A leg wound infection complicated at the 5 × 10 cm-length segment of VSM incision. 50 mmHg pressure MiniVAC intervention applied to the patient following debridement surgery for 24 days. Finally, the wound edges were closured with primer suture technique.

**Conclusion:** The incidence of VSM wound infection is a common problem for especially obese or diabetic patients. The zipper closing method may give a lower infection rate and a better cosmetic result compared with the intracutaneous suture. Subcutaneous suture does not much reduce postoperative infection rate than the zipper closing does at the VSM harvesting site against long odds. Instead, the surgeon is much more essential. The infection rate observed in patients operated by an experienced physical assistant was significantly lower than in patients operated by various residents.

VAC therapy of infected vena saphena magna harvesting site was able to induce effective wound healing. VAC in vascular surgery proved to be simple and efficient method in therapy of acute and chronic wounds. VAC therapy may be a useful to accelerate healing of lower-limb vena saphena magna harvesting site wounds, allowing a faster recovery and with lower effort.

**Keywords:** coronary artery bypass grafting, saphenous vein harvesting, vacuum assisted closure

## PP-086

### Case Report: Post Traumatic Arteriovenous Fistula Causing Venous Ulcers in Intravenous Drug Addict Patient

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**Background:** Here we report a case with a chronic post traumatic AV fistula in the right groin and venous ulcers in the right lower extremity treated with open surgery.

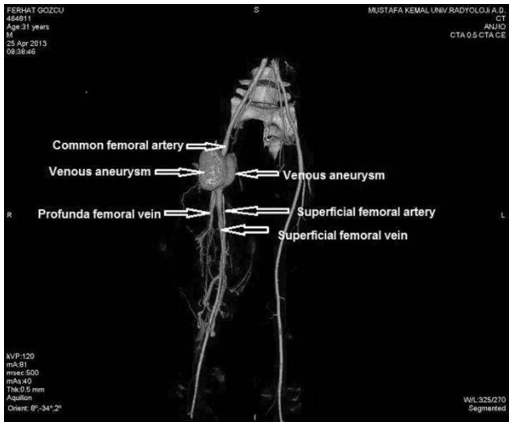
**Case:** A 31 years old male patient attended to general outpatient clinic with oedema in the right groin and ulcerations in the right ankle. The patient also specified that he often used his right lower extremity for drug injection. In the physical examination, there was a 5 × 10 cm sized oedema in the right groin with palpable thrill, varicose dilatations in the right lower extremity especially in the saphenous vein tracing, and 1 × 2 cm sized venous ulcers in the right ankle.

There was a difference in the diameters of the two lower extremities: in the cruris right/left 37.8/32.8 cm; in the distal thigh right/left: 42.7/38.5 cm; in the proximal thigh right/ left: 58/49 cm. There were a venous aneurysm between the right common femoral vein and deep femoral vein with size of 8 × 4 cm and an arteriovenous fistula between superficial femoral artery and superficial femoral vein at CT angiography. Under general anesthesia, The SFA segment that was covered by the aneurysmatic vein was wounded during exploration. The aneurysmatic vein segment incised and the AV fistula site was suturated with 5/0 polypropylene suture (Picture 4). The remaining part of the aneurysm was excised mostly and the vein was repaired primarily. A 6 mm polytetrafluoroethylene (PTFE) ringed graft interposed to wounded femoral artery segment with end-to-end anastomosis. At the 30 day follow-up a reduction in the leg diameters was observed. Also the venous ulcers in the right ankle was recovered.

**Conclusion:** Open surgical treatment of traumatic AV fistulas is inevitable when they are complicated.

**Keywords:** venous aneurysm, traumatic AV fistula, venous ulcers

**Figure 1**




*Venous aneursym at the CT angiography.*

**Postoperative image**

## PP-087

### The Urgent Surgical Treatment of Aortic Transection-Case Report

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**Background:** We aim to discuss the surgical treatment of acute traumatic aortic transection after deceleration trauma in a patient admitted to emergency room.

**Case:** A 26 years-old male patient was admitted to emergency room after car accident. On the thoracoabdominal computed tomography angiography (CTA), the flap at aortic isthmus just below the left subclavian artery (LSA), para-aortic hematoma and hemothorax was detected. The patient had taken to operation room emergently with pre-diagnosis of the aortic transection. Thorax was explored between 4th intercostal space with left anterolateral thoracothomy. After mediastinal pleura was opened, the subadventitial hematoma around approximately 10 cm segment of descenden aorta that began at the 3 cm distal of LSA was seen. After the adequate exploration of the proximal and distal of the aorta, vascular clamps were placed at the proximal descenden aorta just below the LSC and at the distal descenden aorta. After aortotomy we saw that the aorta was completely transected. In order to reach the healthy part, the arcus aorta between left carotid artery and LSA was explored and vascular clamps were placed between them and LSA itself. The interposition with dacron graft (no 20) was performed. The patient was discharged at the 6th day postoperatively.

**Result:** Aortic transection is lethal and requiring emergency treatment pathology which the intima and media layer of the aorta is teared and the only adventitia protects the rupture. At the aortic transection the exact boundaries of the damaged tissue of the aorta may be larger than appears on CTA. For this reason to control of massive bleeding especially proximal aorta exploration should be sufficient. In case of bleeding, the need of luminal aortic occlusion may be kept in mind. In our opinion the massive bleeding from proximal aorta may be prevented by foley catheter or aortic occlusion balloon.

**Keywords:** deceleration trauma, aort, transection, surgery

## PP-088

### Which Treatment Option Should be Chosen in a Case with Coronary Artery Disease, Vertebrobasilar Syndrome, Carotid Vascular Disease, Intracranial Arterial Aneurysm and Obstructive Peripheral Arterial Disease?

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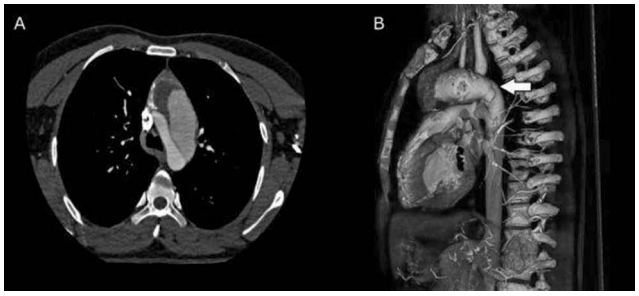
**Introduction:** We present a 21 years old male patient with coronary artery disease, vertebrobasilar syndrome, carotid vascular disease, intracranial arterial aneurism, obstructive periferal arterial diseases and associated type B aortic dissection.

**Figure 1**




*A: CT angiography image demonstrates dissection flap originated distal to the left subdavian artery, B: 3D image of same patient showing the dissection flao (Arrow).*

**Methods:** The 21 years old male patient who did not have any active complaints such as chest pain or malperfusion symptoms was consulted with the diagnosis of treatment-resistant hypertension to our clinic. During the clinical investigation multiple vascular involvements were determined, including coronary artery disease, vertebrobasilar syndrome, carotid vascular disease, intracranial arterial aneurism, obstructive peripheral arterial diseases and associated type B aortic dissection.
**Results:** Upper extremity arterial pulses were palpable without malperfusion symptoms, however stenotic lesions were revealed in both internal and external iliac arteries bilaterally in angiographic examinations. In addition aneurysmal dilatation and arterial occlusions in the intracranial vasculature were revealed. The presence of an intimal tear distal to the left subclavian artery, advancing toward to the arcus aorta without coronary artery compression was demonstrated. The diameter of partially thrombosed aortic dissection sac was 4 cm and demonstrated focal calcification areas.
**Conclusion:** Aortic dissection occurs when a tear in the inner wall of the aorta causes blood to flow between the layers of the wall of the aorta, forcing the layers apart. In most cases this is associated with severe characteristic chest or abdominal pain described as "tearing" in character, and often with other symptoms that result from decreased blood supply to other organs. However, in this case the clinical picture is thought as a result of systemic disease of vasculature. Therefore it was not thought any surgical intervention without malperfusion or life threatening symptoms.

**Keywords:** aortic dissection, coronary artery disease, intracranial aneurysm

## PP-089

# A Rare Cause of Hepatorenal Dailure After Aortabifemoral Bypass: Electronic Cigarettes

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**Aim:** The standard surgical treatment of infrarenal aortoiliac obstructive disease is abdominal aortobifemoral bypass. Cigarette smoking has been identified as an independent and preventable risk factor for atherosclerosis in aortoiliac obstructive disease. As a major global health concerns, many smoking quit program arranged and beside these scientific programs, electronic cigarette has an important role on individual attempts of quitting smoking.
**Case:** A 47-year-old man, a heavy smoker for 30 years, presented to our department with the diagnose of infrarenal aortoiliac obstructive disease. The patient was applied an abdominal aortobifemoral bypass surgery with PTFE graft and he was discharged uneventfully. On control examination at postoperative 21th day, we detected the increase of transaminase enzyme and urea/creatinine levels. While questioning his history we learned that the patient had been using e-cigarette (Ingredients: Herbal extract, Glycerol, Propylene Glycol) for the purpose of smoking cessation. The patient had no history of drug use including warfarin sodium. Althought we emphasized the need for using warfarin sodium, he had not used the treatment regularly at his own request. After stopping electronic cigarette use, the liver transaminase enzyme and urea/creatinine levels regressed the normal ranges in one-month period.
**Discussion:** The e-cigarette has been the cause of significant debate around the world. However, the data is little about the evidence of the potential risk of e-cigarettes. Since, the current standards of e-cigarette manufacturers have been quite variable, it can be a significant public safety concern. Most of questions are focused on the impact of repeated propylene glycol (a major chemical component of some e-cigarettes). As it may be a throat irritant, it does not seem to be reason enough to remove these products from the market. Furthermore, animal studies on repeated propylene glycol vapor exposure indicate no harmful effects, and the nicotine inhaler has similar side effects.

**Keywords:** aortabifemoral bypass, electronic cigarette, transaminase, hepatorenal failure

## PP-090

# Approaches for Penetrating Injuries to Carotid-Vertebral Arteries

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**Introduction:** The incidence of penetrating injuries of carotid and vertebral arteries are about 3% and 0.5%, respectively. Although the incidence seems not too much, it is quite challenging procedure for surgical treatment. In this presentation we would like to present a 35 year old patient brought to the emergency room due to penetrating injury of neck.

**Case:** Further blood loss was prevented by simple compression, and then the patient underwent emergency surgery. In operation, the left jugular vein and common carotid artery were secured with loops. After the primary repair of carotid artery, jugular vein was repaired.

**Results:** Although right hemiplegia was observed in early postoperative course, it disappeared completely in consecutive days, but speech impairment persisted. In postoperative MRI examination, ischemic region was demonstrated in left fronto-parietal area, and in control Doppler ultrasound the flow characteristics for common carotid artery and jugular vein were completely normal.

**Conclusion:** The presence of hypovolemic shock, internal carotid artery injury, complete vessel transection, and arterial ligation are associated with unfavorable outcomes. In cases with combined transection of carotid artery and jugular vein, the artery should be initially repaired after securing the jugular vein. In addition, if it is thought that the repair process of arterial transection will take long time, arterial shunting with appropriate sized conduits can be used for antegrade cerebral perfusion. In another option, even ipsilateral jugular vein may be used for retrograde cerebral perfusion in selected cases after systemic heparinisation.

**Keywords:** arterial injuries, cerebral protection, shunts

## PP-091

# Iliac Artery Perforation as a Complication of Subintimal Angioplasty

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**Introduction:** To reduce the procedural risk of aortobifemoral bypass for bilateral iliac chronic total occlusions (CTOs), subintimal angioplasty (SIA) has been utilized by many.It has revolutionized the way complex vascular pathologies are treated, but carries the risk of arterial rupture. We report our experience with SIA for bilateral iliac occlusion done on a patient who had an arterial rupture, which was detected and managed immediately postoperatively.

**Case-History:** 61 years old hypertensive male presented with history of disabling claudication of bilateral thigh and gluteal region since 3 months. He is an ex-smoker, had a coronary angiogram done 16 years back which revealed a triple vessel disease, was on conservative management for the same. MR angiogram was done which revealed bilateral iliac occlusion, left longer than the right (approx. 20, 12 cms respectively).

**Procedure:** Owing to his cardiac comorbidity, an endovascular procedure was planned. Bilateral femoral and right brachial percutaneous access were obtained, lesions crossed with subintimal re-entry device and stents placed across the lesions after pre-dilatations. At the time of closure, he had severe hypotension because of which cardiac, other anaesthesia related causes were ruled out and an arterial rupture suspected immediately. Repeat angiogram was done after obtaining access from left cut-open SFA.A rupture was noted at the junction of left common and external iliac artery, for which a covered stent was immediately placed across the lesion.

**Conclusion:** Arterial rupture may occur in cases treated with SIA for iliac CTOs. A high index of suspicion should be kept in mind while performing such a procedure and an immediate re-intervention should be done to prevent morbidity and mortality in the immediate post-operative period.

**Keywords:** iliac perforation, subintimal angioplasty, arterial rupture

**Iliac rupture**

*Angiogram showing dye extravasation from the left iliac artery.*

## PP-092

### Foot Drop as a Rare Manifestation of Iliac Occlusive Disease: A Case Report

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**Aim:** We present a case of foot drop secondary to a rare etiology which is easy to be miss. The purpose of highlighting this case is to emphasize the importance of thorough clinical evaluation and judicious employment of available investigations guided by a high suspicion for eventualities.

**Materials-Methods:** Our patient was a 44 year male diagnosed as right lower limb critical ischemia (by clinical evaluation), with ischemic sciatic neuropathy and sacral plexopathy (by neurophysiological studies) secondary to iliac and femoral artery occlusion (confirmed by imaging Doppler and MRA).The patient was assessed, optimized and planned for timely elective open aorto-femoral bypass after prompt emergent medical management including controlled anticoagulation.

**Results:** The patient made a complete gradual recovery and is able to walk more than 2 Km without pain, all distal pulses are palpable. Neurophysiological recovery was well documented by Nerve conduction studies. Patient is back to routine activities after 6 months and is under regular follow up.

**Discussion:** PAD has wide spectrum manifestations. Asymptomatic cases may gradually worsen to intermittent claudication, and eventually a critical limb. Alternatively, a few patient have an episode of superimposed acute limb ischemia and florid CLI abruptly.


*MRA- Right common iliac artery, EIA, CFA blocked.*

Neurologic changes may herald a major underlying pathology. All unexplained neurologically impaired limbs mandate a thorough vascular evaluation. Foot drop is its rare but sinister manifestation, where early suspicion, timely diagnosis and timely planned intervention can lead to complete recovery and limb salvage.

**Keywords:** foot drop, iliac occlusion, ischemic sciatic neuropathy

## PP-093

### A Proximal Tear Located in the Proximal Part of the LSA Confirmed by Balloon and Sealed with an Excluder

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We report a successful endovascular repair of a type B aortic dissection with a occluder to seal the proximal tear in the left subclavian artery (LSA) and a stent graft (SG) to seal the second tear. In a 40-year-old male patient with TB-AD, the proximal entry tear was located in the proximal trunk of the LSA. This tear was confirmed by balloon inflation blocking and then sealed with an occluder. The second tear was located in the middle part of descending aorta and sealed with a SG. Six month follow-up computed tomography angiography showed optimal position of the occluder, absence of endoleak, complete false lumen thrombosis in the thoracic segment, expansion of the true lumen, and shrinkage of the false one.

**Keywords:** aortic dissection, entry tear, virtual endoscopy, balloon, left subclavian artery, occluder

## PP-094

### Successful Inferior Mesenteric Artery Preservation in Endovascular Iliac Aneurysm Repair

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**Introduction:** During endovascular aneurysm repair (EVAR), interruption of the inferior mesenteric artery (IMA) or internal iliac arteries (IIAs) is thought to be associated with postoperative pelvic ischemic complications, including ischemic colitis. To prevent ischemic complications, IIA preservation using bifurcated iliac stent grafts and bypass procedures has been performed; however preserving the IIA does not guarantee protection against ischemic colitis. We herein report two cases of bilateral common iliac artery

aneurysms treated with EVAR and simultaneous IMA stenting to preserve IMA circulation.

**Report:** Case 1. An 80-year-old male with bilateral common iliac artery aneurysms (CIAAs) and left internal iliac artery aneurysm was treated with bifurcated stent grafting (main body of Endologic Powerlink® IntuiTrak, measured 25 mm × 60 mm in size) with bilateral IIA embolization. Simultaneously, a 5 × 19 mm bare stent (Express SD®) was inserted to IMA through the brachial access sheath. Postoperative contrast-enhanced computed tomography showed a patent IMA without enhancement of either CIAA.

Case 2. An 78-year-old male with bilateral CIAAS was treated with bifurcated stent grafting (main body of Endologic Powerlink® IntuiTrak, measured 28 mm × 60 mm in size) with bilateral IIA embolization. Simultaneously, a 4 × 19-mm bare stent (Express SD®) was inserted to IMA through the brachial access sheath. Postoperative contrast-enhanced computed tomography showed a patent IMA without enhancement of either CIAA.

**Conclusion:** Even though this procedure has been attempted in only selected cases, this technique is a good option for preventing postoperative ischemic colitis in patients treated with bilateral IIA embolization and EVAR.

**Keywords:** endovascular aneurysm repair, iliac artery aneurysm, inferior mesenteric artery, ischemia colitis

## PP-095

## Urgent Surgery for Cardiac Hydatid Cyst Located in Interventricular Septum

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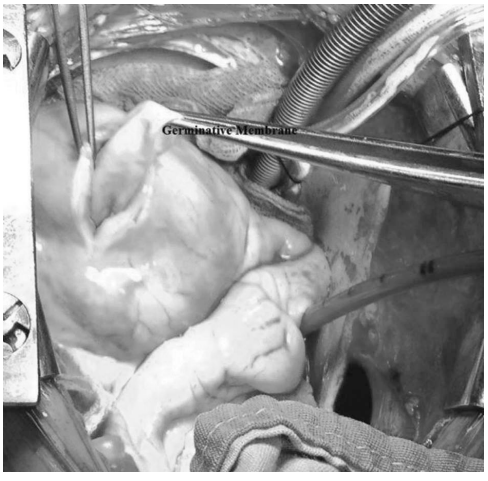
A 6 year old female patient was referred us with chest pain and dyspnoea. Examination of lung was natural and she has cardiac instability. X-ray was normal. Electrocardiography showed sinus tachycardia and demonstrated non specific ST-T changes. Cardiac biomarker creatine kinase MB was within upper of limit. Transthoracic echocardiography was performed and revealed a single large and well defined intramyocardial cystic mass in the interventricular septum. Although the echocardiographic diagnosis was straightforward, serologic test (Hydatid cyst antibody) with Eliza was performed which was positive for echinococcal infection. Other works up showed no involvement of other organ system. Urgent open heart surgery was applied to her for cardiac instability. Because of myocardial infarction, cardiac hydatid cyst, such as rupture and tamponade cases, cardiac instability of these reasons may require urgent surgery.

**Figure**




*Removed of Interventricular Hydatid Cyst.*

**Keywords:** interventricular cardiac hydatid cyst, chest pain, urgent surgery

## PP-096

## A Complication Due to Arteriovenous Fistula Aneurysm

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**Aim:** Prolonged use of AV fistulas extend the survival in patients which has renal failure, but sometimes may cause infective complications due to AV fistula aneurysm. In this study we aimed to present the treatment of infected AV fistula aneurysm.

**Material-Methods:** 65 years old female patient admitted with the complaint of erythema and painful hemodialysis on the arm. Patient was having dialysis therapy which is created between brachial artery and cephalic vein fistula, for 4 years. Cephalic vein was aneurysmal, starting from the elbow to the schoulder. Fistula flow was 150 ml/min.

**Results:** Temporary catheter was inserted for hemodialysis. Antibiotherapy were given. A new AV fistula operation performed on the other extremity, after 1 week. 1 months after the new fistula operation, aneurysmal AV fistula closure and partial aneurysm excision performed.

**Conclusions:** Giant aneurysmal AV fistulas are susceptible to infection and cause painful hemodialysis treatment. Fistula closure may be good choice for infected low-flow aneurysmal fistulas.

**Keywords:** AV fistula, aneurysm, infection

## PP-097

### A Case of Venous Thromboembolism Preceeding Lung Cancer

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**Objectives:** We experienced a case of serious venous thromboembolism that preceded the diagnosis of lung cancer.
**Case Description:** A 71-year-old man visited our hospital with collapse and dyspnea. Blood examination showed an elevated D-dimer level. Enhanced CT of whole body revealed deep vein thrombosis of lower limbs and submassive pulmonary embolism. He received thrombolytic and antithrombotic treatment immediately. Two months later, follow-up CT revealed a reduction of thrombus and an 11 mm-sized irregular-shaped nodule in the lower lobe of the right lung. By two months later, it had increased in size two-fold. By PET-CT, it was diagnosed as lung cancer and pleuritis cartinomatosa. We performed partial resection, adjuvant chemotherapy and careful follow-up because reduced vital capacity of the lungs precluded lower lobe resection.
**Conclusion:** The simultaneous presence of pulmonary thrombosis and lung cancer complicated the devising of a treatment strategy because both conditions reduce respiratory function.

**Keywords:** venous thromboembolism, lung cancer

## PP-098

### Successful EVAR for an Isolated External Iliac Artery Aneurysm

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[2]Department of Diagnostic Radiology and Nuclear Medicine, Gunma University Graduate School of Medicine, Maebashi, Japan

Isolated external iliac artery aneurysm is a rare type of aneurysm. We report here a case of isolated external iliac artery aneurysm, which was successfully treated with endovascular aneurysm repair (EVAR). A 75-year-old man was presented to the hospital for inspection of lower back pain. Computed tomography (CT) scan revealed a large isolated right arteriosclerotic external iliac artery aneurysm 63 mm in diameter. Because the patient had pancytopenia due to primary macroglobulinemia, coil embolization of the right internal iliac artery and EVAR were performed at the same time. Since the right common iliac artery had severe calcification and localized dissection, it was an unsuitable landing site for EVAR. A bifurcated stent graft was placed in the abdominal aorta and extended to the right external iliac artery and left common iliac artery. Enhanced CT scan taken on the 5th postoperative day showed no endoleak. The postoperative course was uneventful, and the patient was discharged on the 6th postoperative day.

**Keywords:** external iliac aneurysm, stent graft, coil embolization

## PP-099

### Experiences of Treatment in Nutcracker Syndrome

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**Introduction:** Nutcracker syndrome (NCS), caused by compression of the left renal vein (LRV) between the superior mesenteric artery and the aorta, results in left renal and gonadal venous hypertension. Several treatment options have been described to relieve associated symptoms. The purpose of this study was to evaluate late results of LRV transposition and conservative treatment in our hospital.
**Methods:** Clinical data from 3 consecutive patients diagnosed and treated with NCS. NCS was diagnosed by CT scan, cystoscopy and left renal venogram.
**Results:** There were 3 males (Mean ages: 20.7 range: 16-24) with diagnosed nutcracker syndrome. Three patients had gross hematuria without anemia. On venography, the mean renocaval pressure gradient was 7.3 cm $H_2O$ (range, 3–15 cm $H_2O$). Two patients underwent LRV transposition through a transperitoneal exposure. There were no early postoperative complications. The hematuria and other symptoms disappeared postoperatively for the mean follow up (42 months). The conservatively managed patient remained improved at CT scan over follow-up period of 24 months.
**Conclusion:** NCS should be considered in the differential diagnosis of hematuria. Evaluation of the clinical significance of hematuria with LRV compression remains challenging, as does selection of patients for intervention. LRV transposition is a safe, effective procedure in selected patients with persistent, severe symptoms. Conservative treatment is also considered in patients with mild symptoms.

**Keywords:** nutcracker syndrome, renal vein, treatment

## PP-100

### Results of out of Instruction for Guideline of Stent-Graft in Popliteal Artery Disease

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**Introduction:** Advancements in stent-graft have led to the development of such flexible self-expanding covered stents like the Wallgraft, the Hemobahn and Viabahn and they have been used with success in repairing popliteal artery disease. However indication of stent graft in popliteal artery disease didn't elucidate except popliteal artery aneurysm. Deploying a stent graft across the knee joint is undergoing constant flexion risks, graft migration, occlusion, or fracture. We describe the cases of the failure of stent-graft for popliteal artery disease.

**Method:** A retrospective review was performed on the 3 patients who visited our hospital with stent-graft occlusion of popliteal artery done by other hospitals.

**Results:** First patient was 23 year-old female. Viabahn were inserted due to both popliteal artery occlusion. Both stent-grafts were occlusive in CT angiography at 3days after insertion. CT angiography showed popliteal artery entrapment syndrome (PAES) in both leg.

Second patient was 42 year-old male. Viabahn was inserted due to popliteal artery occlusion. The stent graft was occlusive 1 month later. CT angiography showed adventitial cystic disease (ACD) in popliteal artery. We performed popliteal artery interposition with ipsilateral great saphenous vein.

Third patient was 75 year-old male. He has history of femorofemoral bypass (FFB) and femoropopliteal bypass (FPB) with PTFE graft. During the follow-up period, Viabahn was inserted in distal anastomosis of FPB due to graft occlusion. After intervention, Viabahn were occluded.

**Conclusions:** Endovascular treatment with stent-graft have successfully reported in the treatment of popliteal artery aneurysm. Here we reported the results of out of instruction for use of stent graft in popliteal artery diseases.

**Keywords:** stent-graft, popliteal artery disease, failure

## PP-101

### Redo Aorto-Femoral Bypass

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Manipal Hospital, Bangalore

Redo Aorto femoral bypass is a surgical challenge. Here we present our case report of a redo aorto bifemoral bypass surgery highlighting the technical difficulty, importance of post-operative care resulting in a successful outcome.

**Keywords:** redo aorto bifemoral bypass

## PP-102

### Brachial Artery Thrombosis Due to Giant Stented AV Fistula Aneurysm

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**Objective:** Hand ischemia due to trombosed arteriovenous fistula is a rare serious complication. We describe a renal transplant patient with symptomatic hand ischemia due to a thrombosed stented arterovenous fistula.

**Patients and Methods:** A 53-year-old male presented with claudication of the hand. Medical history showed end-stage renal disease with renal replacement therapy by hemodialysis treatment. Vascular access was obtained through a brachial-basilic arteriovenous fistula at the right arm for three years. Arteriovenous (AV) fistula was stented due to stenosis two years ago. After a successful renal transplant AV fistula thrombosed one year ago. At time of admission the doppler ultrasaund showed a dilated brachiosephalic fistula, with thrombus formation almost complately obstructing lumen prolongation into the proximal radial and unlar artery. Radial and unlar artery is filling with collaterals. Brachial artery thrombosis was chronic. Thrombosed basilic vein removed with stent surgically. Patients symptoms improved with medical treatment.

**Discussion:** Peripheral ischemia after AV fistula seen on especially upper extremity antecubital area fistulas (1). Arterial dilatation is known to develop earlier and more frequently in patients receiving steroids for autoimmune disease (2).

**Result**: Stented interference and steroids, wich can be caused by excessive growth of the aneurysm. AV fistula aneurysm compression may lead to brachial artery thrombosis. AV fistulas closed transplant patients in the early period.

**Keywords:** fistula aneurysm, arterial thrombosis

**Giant AV fistula aneurysm**

*Thrombosed giant arteriovenous fistula aneurysm.*

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## PP-103

### Fenestrated EVAR for a Donor Prior to Living Kidney Transplantation

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A 79-year-old male presented to our hospital for the treatment of a 30 mm diameter left common iliac artery aneurysm. He was the donor of a living kidney to be transplanted into his son. The aneurysm was discovered by his previous physician in a preoperative computed tomography (CT) scan. After repair of the aneurysm, the left nephrectomy procedure was planned using retroperitoneoscopy due to the risk of rupture during harvest surgery. Endovascular aneurysm repair (EVAR) was chosen over conventional graft replacement therapy to avoid dissection of adhesions for harvesting. Thin-slice CT revealed that the right kidney had double renal arteries, with the lower branch originating from the lower position of the abdominal aorta. It was thus necessary to protect right renal function after the left nephrectomy. Therefore, a homemade fenestrated stent graft was used to preserve the lower artery of the right kidney. Fenestrated EVAR, following the coil embolization to the left internal iliac artery, was completed and no visible endoleak was found in the final angiography of the procedure.

On the fourth postoperative day, enhanced CT showed no endoleak, and blood flow of both right and left renal arteries, including the right lower branch, was maintained. In addition, the postoperative serum creatinine level remained within normal limits. With no major complications, the patient was discharged on the sixth postoperative day. This case is a rare example of homemade fenestrated EVAR for a donor prior to living kidney transplantation.

**Keywords:** EVAR, transplantation, aneurysm

## PP-104

### Intrauterin Device Resulting in Raynaud's Disease

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A 54 year-old female with Raynaud's disease was referred to our clinic from the department of internal medicine due intermittent patchy cyanotic sites on the hand and painful-cold fingers (Figure—left side). The patient suffered from these symptoms for 6 years. Previous rheumatologic, endocrinologic and neurologic investigations failed to reveal a diagnosis. The findings of the laboratory tests and upper extremity colored Doppler ultrasonographic evaluation were in normal limits. During the investigation, any extraordinary finding was present except the anamnesis of previous copper intrauterine device (IUD) implantation which was performed 9 years ago. The patient was in menopause and it is recommended to remove the IUD. Following the removal of the device, the symptoms were started to disappear and any clinical finding was present at first week of the removal (Figure—right side). This rare entity was presented to report a probable reason of Raynaud's disease.

**Keywords:** intrauterin device, peripheral arterial disease, raynaud's disease

**Figure**

## PP-105

### Carotico-Jugular Fistula Following a Shrapnel Injury: Case Report

***Funda Tor Ocak,*** *Tolga Onur Badak, Mahmut Çetinoğlu, Hacı Ali Uçak, Ibrahim Özsöyler*

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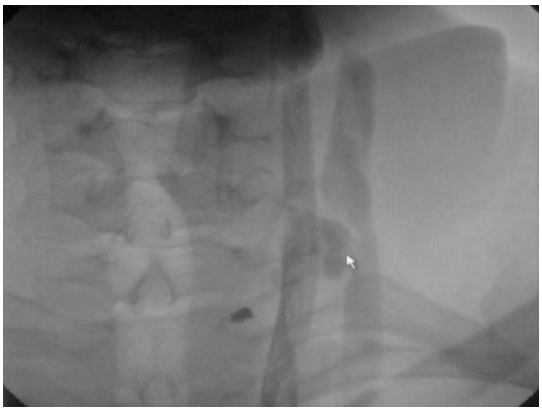
The traumatic arteriavenous fistulas of the region head and neck are rarely seen. The traumatic arteriavenous fistula may be caused by gunshot, penetrating or iatrogenic injuries. Gunshot injuries occasionally are seen in developed and developing countries, moreover, frequency of the explosion injuries increased by rising terrorism. Shrapnel injuries are the most important death cause in the explosion injuries. Traumatic arteriavenous fistula may be treatment by surgery or endovascular way. We presented the case who operated because of the carotico-jugular arteriavenous fistüla following shrapnel injury.

**Keywords:** carotid artery, jugular vein, gunshot injury

**Şekil 1**



*Preoperative imagine.*

## PP-106

### Giant False Aneurysm of Deep Femoral Artery After Perforating Injury: Case Report

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The complications releated with peripheric vessels are frequently seen in perforating injuries of the extremities. Pseudoaneurysms are seen in 5–7% of the vascular injuries. In this kind of injuries, the findings of physical examination might not be enough on ruling out any possible vascular pathology. Physical examintion findings may be normal in early period but possible complications can be prevented to use noninvasive and invasive technics. In this study, we present a case of a huge deep femoral artery pseudoaneurysm developed one years ago after the perforating injury.

**Figure**

*Preoperative imagine.*

**Keywords:** perforating injury, femoral artery, pseudoaneurysm

## PP-107

### Synthetic Graft Alternatives for the Treatment of Critical Limb Ischemia in the Absence of Vena Saphena Magna: Vena Saphena Parva-Vena Cephalica

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Vena saphena magna (VSM) is the gold standard material in the treatment of peripheral vascular disease (PVD). However in some cases a synthetic graft is preferred when VSM is unavailable. Alternative graft materials need to be considered due to the lower long-term patency rates of synthetic grafts. In this case report, the patient scheduled for operation due to critical leg ischemia, bilateral VSMs had already been used in previous cardiac and peripheral vascular surgeries. In the same session, the patient also underwent femoral-femoral cross-over bypass from left to right with vena saphena parva (VSP) and right femora-popliteal bypass with vena cephalica (VC). Distal pulses became palpable and symptoms were

quickly recovered after the operation. 32 months after surgery a control CT angiography scan revealed no signs of graft stenosis (figure).

Critical limb ischemia is a condition which has high mortality and morbidity in PVDs. The treatment of these patients should be managed according to guidance described in the TASC (Trans-Atlantic inter-Society Consensus). Percutaneous transluminal angioplasty (PTA) or surgery can be planned for the patients for whom revascularization is recommended. The optimal graft for bypass surgery has been a matter of discussion for years. While VSM has always been the first choice, in some cases where the VSM is unavailable, other superficial veins have been used as alternatives to synthetic grafts. Although thin walls and narrow diameters of superficial veins limit their usage, in certain cases they may be an alternative to synthetic grafts.

**Keywords:** limb ischemia, graft, vena saphena parva, vena cephalica

## PP-108

## Removal of Broken Catheter Piece with Snare Device During Endovascular Treatment of Post-Traumatic Brachial Artery Pseudoaneurysm

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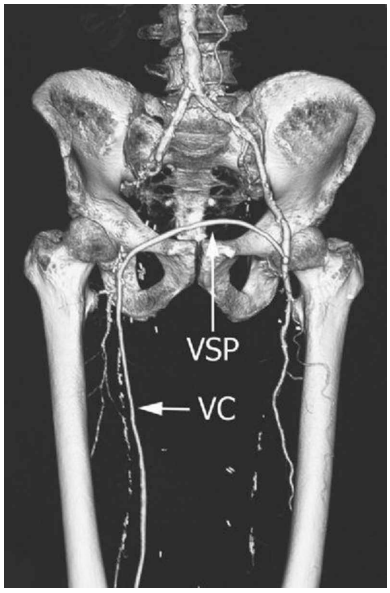
[1]Gulhane Military Medicine Academy, Haydarpasa Training Hospital, Cardiovascular Surgery, Istanbul, Turkey

[2]Gulhane Military Medicine Academy, Cardiovascular Surgery, Ankara, Turkey

**Figure**




*Postoperative CT scan shows anterior view of vena saphena parva (VSP) graft used for the cross-over bypass and the vena cephalica (VC) graft used for right femoral-popliteal bypass.*

Post-traumatic pseudoaneurysm is a rare complication of penetrating vascular injury. Endovascular stent implantation has become an alternative approach in the management of this pathology.

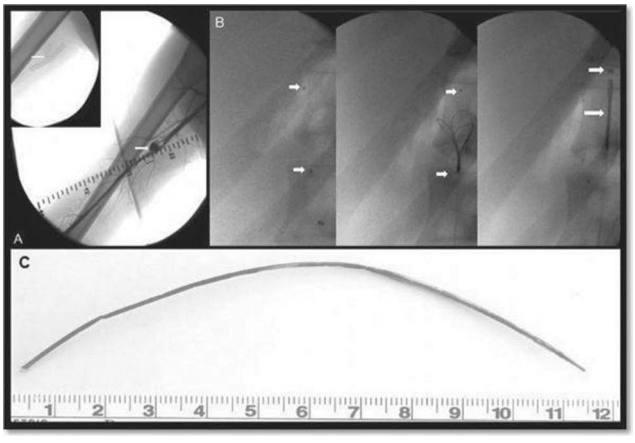
The etiology of pseudoaneurysms includes blunt or penetrating trauma, iatrogenic injury during vascular procedures or dehiscence of a vascular graft. Pseudoaneurysms can be treated in a variety of ways and treatment decisions often depend on their size and location. Although the gold standard treatment is still surgical approach, endovascular methods has become more frequently used in the recent decades.

Our case a 20-year-old male patient was admitted to the emergency department gunshot bullet wounds in the right arm. Angiography showed a pseudoaneurysm sac in the proximal part of the right brachial artery. Extravasation was not observed (Figure A). Pseudoaneurysm was stented. Control angiography showed that the stent could not be opened completely. Baloon dilatation was performed. During removal of the balloon catheter, the guidewire was manipulated hardly. Although the removal of the whole system was achieved, the distal part of the catheter was not seen. We checked the instruments and observed that the distal part of the balloon catheter was broken (Figure C). At the same session, the catheter piece was removed using a three dimensional snare device successfully (Figure B).

The use of endovascular procedures can be faster and safer in the treatment of post-traumatic vascular lesions. However, definite indications are not clear. The parallel with the rapid technological development and appropriate use of new devices, endovascular methods should be given priority because of the short operation time, less traumatic and safety of procedures in elective cases. Because of these reasons; we are priorly chose endovascular treatment in our case instead of surgical treatment despite endovascular treatment methods are not currently seen as the gold standard yet.

**Keywords:** pseudoaneurysm, endovascular, stent, catheter

**Figure**




*A: DSA angiographical seen brachial artery pseudoaneurysm sac and implanted stent, B: Removal of broken catheter piece with three dimensional snare device, C: Broken cathater piece.*

## PP-109

### Thrombosed Hemodialysis Access as an Unusual Source of Emboli to the Upper Extremity in Kidney Transplant Recipient

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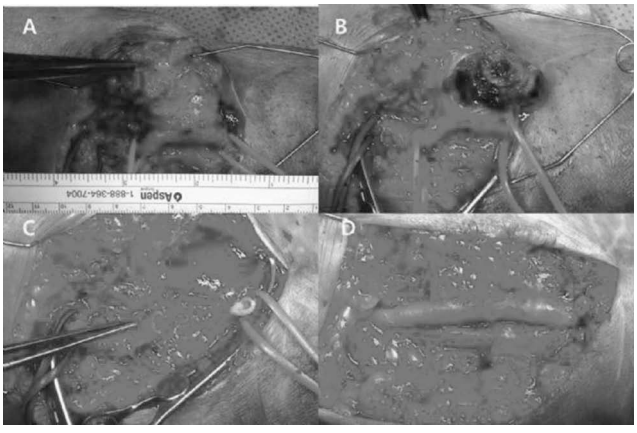
[2]Department of Surgery, Yonsei University College of Medicine

Arteriovenous fistula (AVF) is no longer use in kidney transplant recipient. However there is no consensus whether or not to ligate a well-functioning AVF after successful kidney transplantation, particularly in patients with good and stable function. Most of AVFs without complications was commonly left *in situ* and more than one third of native AVFs were spontaneously closed. Currently accepted policy to thrombosed AVFs is retained it within the patient's extremity without treatments. These thrombosed AVFs seldom cause a serious problem. However, it combined with aneurysmal dilatation of proximal vein adjacent to arterial anastomotic area; it could be act as the source of distal arterial emboli. This is very similar clinical scenario as seen in embolization from peripheral arterial aneurysm. We described a case report of upper extremity ischemia following massage of a thrombosed aneurysmal AVF. The patient was successfully treated with combination of catheter directed thromboaspiration, thrombolysis, and surgical repair of thrombosed AVF. To best our knowledge, this is the first report about upper extremity embolism occurred after massage of thrombosed aneurysmal AVF and treated with this combined approach.

**Keywords:** acute ischemia, arteriovenous fistula, embolism, kidney transplantation

**Figure**




*Anastomotic site between brachial artery and cephalic vein and aneurysmal segment of arteriovenous fistula (A). Aneurysm filled with thrombus (B). Segmental resection of involved brachial artery and aneurysmal segment (C). Repair of brachial artery by end-to-end anastomosis (D).*

## PP-110

### Aberrant Left Subclavian Artery Associated with Kommerell Diverticulum

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Kommerell diverticulum (KD) with left aberrant subclavian artery is a rare congenital variation of vascular structure, and it can be asymptomatic or symptomatic owing to mass effect. Surgical intervention is recommended in symptomatic patients or asymptomatic patients with a large diverticulum because of possible dissection and rupture of KD. We report a case of right-sided aorta, KD, and left aberrant subclavian artery in a 74-year-old man. He had no symptom with KD. Computed axial tomography of the thorax confirmed the existence of a right aortic arch with an aberrant left subclavian artery originated from the KD. Extra-anatomic left subclavian to right subclavian bypass was performed before the intrathoracic procedure. Subsequently, a right third intercostal thoracotomy provided adequate exposure for repairing the aortic aneurysm and over-sewing the aneurysmal origin of the subclavian artery. Cardiopulmonary bypass was established with cannulation to the femoral vein and the femoral artery. Graft replacement for aneurysm with aorta clump and closure of left subclavian artery without use of hypothermic circulatory arrest was performed. His postoperative course was uneventful, with no neurologic deficits. Performing subclavian reconstruction as an extrathoracic procedure before the intrathoracic repair would be expected to reduce the subsequent risk of distal ischemia or subclavian steal without increasing the overall morbidity associated with the procedure.

**Keywords:** kommerell diverticulum, aneurysm, aorta

## PP-111

### Major Bone Tumor Surgery of Complicated Venous Trombotic Lower Extremity by the Combined Theraphy of Chateter Mediated Selective TPA Lysis, Mechanical Shredding and Vena Cava Filter

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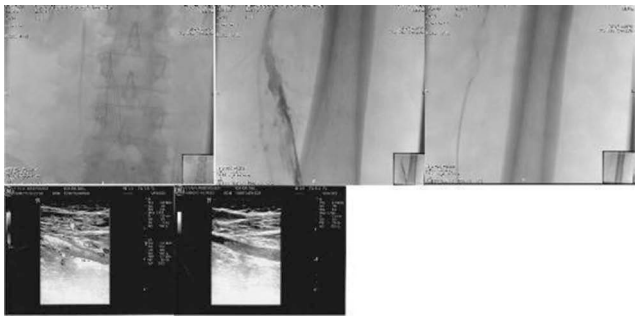
50 year-old female patient, radical mastectomy was performed in April 2012 due to breast carcinoma. Preoperative evaluation of macroscopic metastases has not been determined. In January 2013, routine postoperative follow-up examinations revealed right

**Vena cava filter position, catheter thrombolisis, postoperative venosus doppler USG**



**Treatment protocol**

| | | | |
|---|---|---|---|
| Before intervention | IV unfractione heparin | 500 IU/hour | 2 days |
| Intervention | Route of ipsilateral common femoral vein | Option™ vena cava filter | |
| Thrombolysis | Selectively popliteal vein | Selectively TPA administration (total dose 25 U) | Catheter mechanic thrombolysis |
| After intervention | | | |
| | LMWH (Enoxaparin 6000 IU/day | 2 × 1 30 days | First months |
| | Warfarin Na | 5 mg/days | 6 months |
| | Antiembolic stockings | | 6 months |

distal femur isolated lytic metastases of breast carcinoma. With this lesion increase in diameter of the right lower extremity, severe pain, swelling, warmth and discoloration have been identified. The lower extremity venous doppler identified obliterating thrombosis in the acute phase which started from vena poplitea to the opening of vena cava to the right common iliac vein have been identified. Due to the aggressive nature of the primary tumor surgery was planned taking into consideration the combined venous thrombosis therapy. Because of the risk of pulmonary embolism caused by massive thrombosis in lower extremity and major orthopedic surgery, simultaneously venous thrombolysis and vena cava filter placement was decided.

(Treatment protocol shown Table 1.)

Control venous doppler at the end of first postoperative week, recanalization of thrombosis was observed. Postopratif first month doppler USG revealed thin thrombosis at vein walls observed in the chronic phase which did not affect the blood flow. In the postoperative 6th months patient has been followed by warfarin therapy without an increase in diameter of the leg.

**Conclusion:** With acute deep venous thrombosis of the main structures of the neighboring malignant tumors, tumor surgery and follow-up of patients after surgery is quite problematic. Before the major tumor surgery especially at lower extremities, to ensure that adequate venous return at postoperatif period which reducing edema is very important by the means of postoperatif complications. Therefore, chateter mediated selective TPA lysis and mechanical shredding-aspiration method was applied to the thrombus. We suggest combined therapy in such cases, and believe that this combined procedure will yield better results in terms of tumor surgery.

**Keywords:** venous thrombosis, malign tumors, cava filtre, thrombolysis

## PP-112

## A Case of Aortocaval Fistula Due to Ruptured Abdominal Aortic Aneurysm

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Aortocaval fistula (ACF) is a rare but life-threatening complication of ruptured abdominal aortic aneurysm (AAA). A 63-year-old man was urgently referred to our hospital with complaints of severe lumbago and general fatigue. Palpation of the abdomen revealed a pulsatile mass and upon auscultation, there was note of

**Preoperative three-dimensional computed tomography**

a systolic bruit. The enhanced computed tomography (CT) scan and the ultrasonography showed the presence of an AAA which ruptured into the inferior vena cava (IVC). A standard midline approach was employed to expose the infrarenal AAA. After the aorta and common iliac arteries had been clamped, the aneurysm was opened longitudinally. There was a defect in the aneurysm wall, which was 15 mm in diameter. The fistula was closed while controlling the venous bleeding from the ACF by digital compression, and the aneurysm was replaced with a Y-shaped gelatin-coated woven dacron graft. The postoperative course was uneventful and the patient was discharged on the 28th postoperative day. Innovative CT images give us prompt preoperative diagnoses and elaborate surgical strategies.

**Keywords:** aortocaval fistula, ruptured abdominal aortic aneurysm, three-dimensional computed tomography

## PP-113

## Patient with Full Body Revascularisation

***Funda Yıldırım*[1],** *Alper Özbakkaloğlu*[1], *Tülün Öztürk*[2], *Ömer Tetik*[1]

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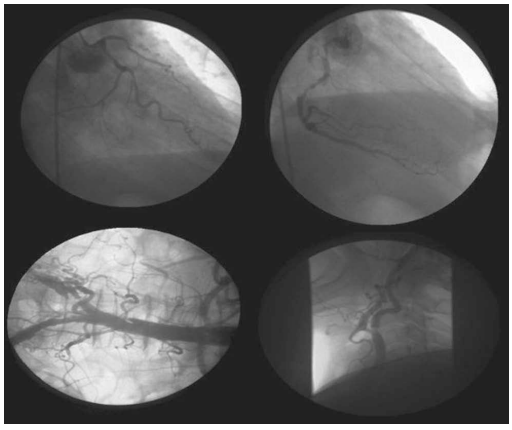
Atherosclerosis is a systhemic and chronic disease that affects arterial vascular system and remains asymptomatic for decades. Atherosclerosis affects the entire arterial tree and its branches, but more frequently larger, high-pressure vessels such as the renal, femoral, cerebral, and carotid arteries are affected. These are usually "clinically silent" because the person having the infarction does not notice the problem and does not seek medical asistance, or when they do, physicians do not recognize what has happened.

We would like to represent a 72 years old male patient who was referred to our clinic with the complaint of vertigo for the last two years. The carotis doppler ultrasonographic investigation showed 90% left carotid stenosis. Angiographic investigation was planned electively. The results of the study showed that he had severe left carotid disease accompanied with severe three vessel coronary artery and aortoiliac diseases.

We first performed the left carotid endarterectomy without any clinical complication. One month later, the patient had three vessel coronary artery bypass surgery without any complication. Three months later aortobifemoral bypass surgery with 16/8 mm Y greft was performed. On the 3-month follow up there were no complications and the patient remained asymptomatic.

**Keywords:** revascularisation, carotid, coronary, peripheral

**Angiography**



## PP-114

## Surgical Treatment Strategy of Acute Aortic Occlusion

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Acute occlusion of the infrarenal abdominal aorta is a catastrophic event requiring early recognition and intervention. While traditional causes of occlusion (saddle embolus and thrombosis) are the most frequent, aortic dissection, vasculitis and hypercoagulable states have recently been suggested as other etiologies.

This article presents two cases of acute abdominal aortic occlusion from different mechanisms. The first case was an 81 years old male patient who presented to our clinic with the complaint of claudication of both lower extremities. Angiographic evaluation of both coronary and lower extremity arteries were planned. During angiographic investigation aortic occlusion due to aortic dissection was occured. The patient had low ejection


*Angiographic view.*

fraction (20%), congestive hearth failure and basal creatinine level was more than 2.5 mg/dl. Both lower extremities were under ischemia.

The second case was a 54 years old male patient and aortic occlusion was due to occlusion of both common iliac stents because of ceasing of antiaggregant medications. The patient had severe pain and high liver enzymes. Peripheric angiography showed the occlusion of distal aort and both iliac systems.

We performed succesful axillobifemoral bypass surgery in both of the patients under local anesthesia and sedation because of the high risk of general anesthesia. In these two cases we would like to point out the importance of emergency surgical treatment need and strategy of acute aortic occlusions.

The first case died three days later after operation because of cardiac failure and right leg distal ischemia. The second case had right leg distal ischemia. The right leg was amputated below knee by orthopedic surgery and the patient was discharged without additional problems.

**Keywords:** aortic occlusion, surgery, acute, abdominal aort

## PP-115

## Guidewire Removal from Left Iliac Vein Under Local Anesthesia

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Central venous catheterization by Seldinger's technique uses a guidewire which may cause complications such as kinking, knotting, fracture an even the loss of the complete guide wire into the circulation.

**Guidewire removal**

*Removal of the guidewire*

We would like to present a male patient with acute coronary syndrome and he had left femoral venous catheterisation at another medical center. At our hospital he was taken to the angiography laboratory for coronary artery catheterization for further coronary intervention and the loose guide wire was seen under flouroscopic examination accidently.

The removal of the guide wire was planned electively to prevent venous thrombosis. We removed the wire under local anesthesia and sedation with left oblique lower abdominal incision through the left iliac vein without any complications.

**Keywords:** guidewire, complication, iliac vein

## PP-116

## An Unusual Cause of Respiratory Distress Due to Vascular Injury and Bleeding Due to Live Leech in the Oropharynx

*Samira Esfandyari[1], **Mohammad Kalantari Meibodi[2]***

[1]Student Research Committee Shiraz Medical University

[2]Shiraz Medical University, Trauma Research Center

**Case Report:** A 16 years old woman with mental retardation (maximom IQ 45–50) and history of seizurs in pastand who arrived in our emergency room with complaints of severe breathlessness steridor, bloody salivation and difficulty in speaking. On examination, he had inspiratory stridor with bilateral decreased air entry. Her history from relatives revealed that he had never had any respiratory problems and was symptomatic for the previous 48 h ago. she has history of travel to out of city in 48 h ago. After drinking water from well pit, he developed gradually progressive bloody salivation and horsnes. Based on history and presentation, aforeign body in the oro pharynx was suspected. Indirect laryngoscopy was performed in the emergency room, and a moving mass was seen inoropharynx. Direct laryngoscopy was performed after sedation and intubation Amassive mobile mass was seen protruding in oropharynx. It was a live leech that ingested blood measuring. The patient immidiately under sedation and intubation and suction of forign body after injection 3 cc lidocain to the mass and extubated the patient after 30 minute and relief stridor and started speaking normally. He was discharged from the hospital on the same day without complication. **Discussion:** Various foreign bodies have been found in the oropharynx Adults may accidentally swallow because of ingestion of blood, youngleech became lodged in the oropharynx or hypopharynx, and produced respiratory obstruction that was quickly diagnosed and properly managed.

**Keywords:** respiratory distress, vascular injury, live leech

## PP-117

# TEVAR Experience in a Patient with 8 cm Saccular Descenden Aort Aneurysm

***Mustafa Etli*[1], *Şahin Işcan*[1], *Özgür Gürsu*[1], *Sibel Ada*[2], *Esra Eker*[3], *Muntecep Aşker*[4], *Vural Polat*[1]**

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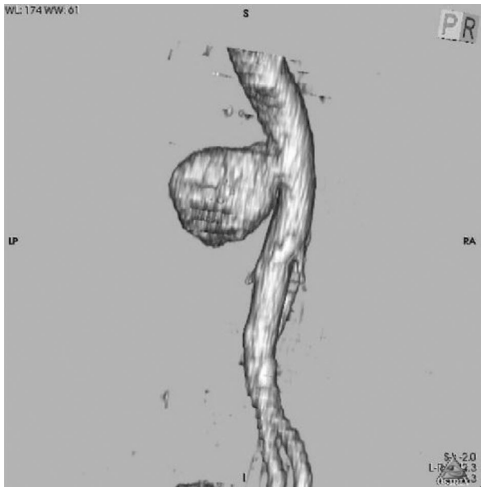
**Introduction:** Expeditious repair is indicated for symptomatic saccular aneurysms, and intervention is usually advocated even when they are asymptomatic because of the general belief that their unique shape predisposes them to rupture. İn this case we present an uncomplicated treatment of saccular aneurysm via endovascular method in the descending aorta of a high-risk patient.

**Report:** A thoracic stent-graft was implanted via access through femoral artery under local anaesthesia for the 8-cm-diameter saccular aneurysm incidentally detected in the descending aorta of the patient who has been receiving hemodialysis therapy for renal failure. The endoleak that developed subsequently was improved by balloon dilatation.

**Discussion:** The endovascular treatment of thoracic aortic aneurysms is encouraging for easily applicable procedure. The early term results in the high-risk patients are satisfactory, however, frequent follow-up examinations within short intervals are required to prevent long-term complications.

**Keywords:** saccular aneurysm, endovascular treatment, renal failure

**Case Figure**




*BT view of giant 8 cm saccular aneurysm.*

## PP-118

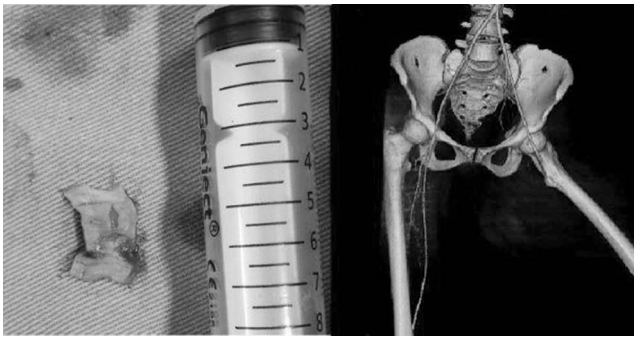
# Left Femoral Artery Dissection and Vein Rupture by Blunt Trauma

***Funda Yıldırım,* *Alper Özbakkaloğlu, Adnan Taner Kurdal, Ihsan Işkesen, Ömer Tetik***

Department of Cardiovascular Surgery, Celal Bayar University, Manisa, Turkey

Left femoral artery dissection and complete femoral vein transection from blunt trauma without bone injury is a rare event. We would like to present a young woman who sustained complete transection of the femoral vein and artery dissection following blunt trauma.

26 years old female patient was referred to our clinic due to enlarging swelling on the left groin and immediate fall of hemoglobin and hematocrit levels after blunt trauma. The CT showed that the patient had no bone fractures but extensive soft tissue and muscle damage as a result of massive hematoma was seen. Emergency exploration was performed and patient was managed successfully by contralateral saphenous vein interposition to both femoral artery and vein.




*Dissection and AngioCT*

The saphenous vein was preferred as a conduit because of size discrepancies, high contamination risk due to multiple associated soft tissue injury and extensive death space due to huge amount of hematoma.

**Keywords:** blunt trauma, femoral artery dissection, vascular injury

## PP-119

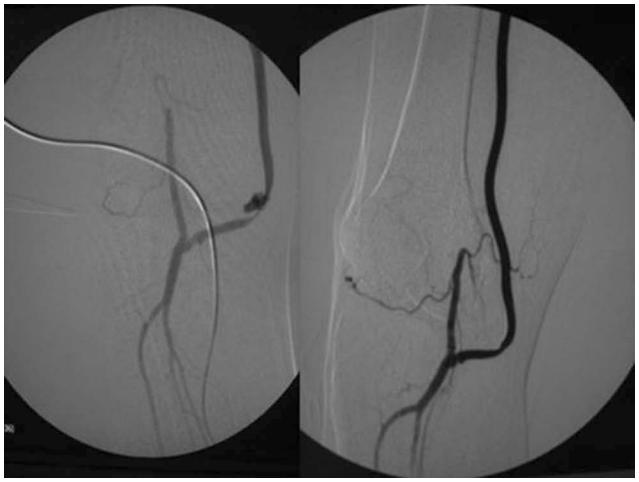
# Hybrid Treatment of a Composite Graft Pseudoaneurysm: A Case Report

***Habib Cakir,* *Ismail Yurekli, Serkan Yazman, Levent Yilik, Ali Gurbuz***

Izmir Katip Celebi University Ataturk Education and Training Hospital

In this paper we aimed to present a case with a previous history of below-knee crossover femoropopliteal bypass grafting using

**Figure 1**



*A covered stent of 5 × 50 mm was implanted excluding the pseudoaneurysm.*

composite graft that developed anastomotic pseudoaneurysm at the level of saphenous vein—ePTFE graft anastomosis on 60th postoperative day. This case underwent a successful endovascular intervention using covered stent.

On 60th postoperative day, he was admitted to our clinic with complaints of pain and swelling above his right knee. Physical examination revealed palpable peripheral pulses with a pulsatile mass of 3x3 cm medially just above the knee joint. A systolic murmur was heard on auscultation. Doppler ultrasound found a pseudoaneurysmal dilation. He was again taken to the hybrid operating room. A longitudinal incision of 2 cm was made over the skin covering the PTFE graft at the proximal 1/3 of the medial thigh region. An introducer sheath was inserted into the ePTFE graft and a control angiogram was held. It revealed a pseudoaneurysm at the anastomosis of ePTFE with the saphenous vein graft. A covered stent of 5 × 50 mm was implanted excluding the pseudoaneurysm (Gore®, Viabahn®, Flagstaff AZ). After the procedure, control angiogram was done confirming the exclusion of the pseudoaneurysm (Figure 1). Distal pulses were palpable and murmur disappeared postoperatively. Postoperative period was event-free and he was discharged. Physical examination was normal on 7th and 30th day controls.

Endovascular treatment is a safe method for patients developing pseudoaneurysm after femoropopliteal bypass with a composite graft. In order to avoid potential complications of surgery as bleeding and surgical wound infections, this method is a good alternative.

**Keywords:** pseudoaneurysms, stent, treatment

## PP-120

### Acute Symptomatic Endoleak Following the Endovascular Repair of AAA

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EVAR has been preferred because its lower mortality and less invasive procedure. However, the complications can induce secondary procedures to treat them and increase the risk for rupture and mortality. We experienced one case that underwent open surgery after EVAR to treat recurrent endoleak because insufficient placement of stent graft.

A 70-year-old woman presenting severe right flank pain was visited our department. Four months ago, she underwent EVAR for a 57 mm AAA at another hospital. However, it placed subintimally. One month after procedure, the abdominal pain was not relieved and CT angiography showed type II endoleak from IMA and both IIAs, but, no significant interval changes of sac size. After 1 month, the type I endoleak was newly developed and type II endoleaks from IMA and both IIAs were still present. The size of sac was increased from 55 mm to 60 mm and we treated the patient with embolization of the IMA. After embolization, there were no direct flow but still remained flows into the both IIAs via collaterals. For 6 months follow-up after IMA embolization, type II leak and flow through the false lumen from AAA to the bilateral IIAs disappeared and thrombosed AAA sac did't increase. Type II endoleak was newly developed after 7 months and she admitted with severe and continuous abdominal pain. On CT scan, the sac size increased from 57 mm to 60 mm and endoleak was still present. She underwent emergency operation. At the operation, we could identify multiple bleeding through the stent graft and the aneurysm sac showed bile tinged. We remove the stent graft except bare position and did Y-shaped prosthetic graft interposition. After surgery, the pain relieved and postoperative CT angiography showed non–specific finding. At 1 month follow up, she has resolution of her abdominal symptoms.

**Keywords:** EVAR, AAA, complication

# Case Presentation

## PP-121

### Spontenous Multiple Pseudoaneurysms of the Abdominal Aorta and Right Subclavian Artery, in a Patient with Behçet's Disease

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Harran University, Department of Cardiovascular Surgery, Sanliurfa

**Objective:** Spontaneous aortic pseudoaneurysm is a rare vascular

pathology related to Behcet's disease. Pseudoaneurysm rupture is a life threatening complication.

**Case:** We present a case of Behçet's disease with multiple pseudoaneurysms. A 30-year-old woman presented with 2 months' history of a painful, pulsatile mass on the right clavicle and abdomen. Image diagnosis showed that she had pseudoaneurysms of right subclavian artery, and celiac abdominal aorta. She had skin eruption and genital ulcer. The skin test was positive. She had no family history of familial vascular disorder. The pathological examination of the vessel was consistent with vasculitis. We treated first the right subclavian arterial aneurysm with operation. Aneurysm was 7 × 5 cm size and adherent to the surrounding tissue. Therefore pseudoaneurysm was resected under cardiopulmonary bypass. Polytetrafluoroethylene (PTFE) graft interposition was performed between axillary artery and aorta. Due to hypotension abdominal pseudoaneurysm surgery was postponed second session. After a week of surgery, abdominal pseudoaneurysm was ruptured and patient died in intensive care unit.

**Conclusions:** Vascular surgeons dealing with young adults with aortic pseudoaneurysms must be aware of Behçet's disease.

**Keywords:** aortic pseudoaneurysm, behçet's disease

**Pseudoaneurysm of aort and right subclavian artery**

*CT angiogram showing the pseudoaneurysm of right subclavian artery and pseudoaneurysm of abdominal aorta at the level of the celiac artery.*

## PP-122

# Endovascular Revascularization for the Obstruction After Patch Angioplasty in Buerger's Disease

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[2]Department of Surgery, Gospel Hospital, Kosin University, Busan, Republic of Korea

Total tobacco cessation is the only treatment that improves symptoms and reduces the risk of amputation in Buerger's disease. Other forms of treatment are not well established or have unfavorable results. Surgical revascularization for patients with Buerger's disease is possible only in a few cases, due to the diffuse segmental involvement and distal nature of the disease, as well as the lack of distal runoff vessels available for bypass surgery. We encountered a case of acute right foot pain at rest, coldness with dysesthesia, cyanosis on the right 1st toe, and claudication caused by Buerger's disease in a 28 year old male patient. He was treated with an endovascular intervention for the obstruction after vein patch angioplasty. Endovascular revascularization should be considered as a feasible and effective procedure in cases of critical limb ischemia.

**Keywords:** buerger's disease, endovascular revascularization, angioplasty

**Computerized Tomography (CT) angiography**


*Figure. A: Computerized Tomography (CT) angiography shows diffuse obstructions in the anastomosis site of patch angioplasty of right posterior tibial artery (white arrow). B: Post-interventional Computerized Tomography (CT) angiography shows improved blood circulation in the right posterior tibial artery (white arrow).*

## PP-123

# Emergent RE-DO OFF-PUMP Extraanatomic Bypass Graft in a Patient with Abdominal Pain Scheduled for EVAR

***Ozgur Baris*[1], *Ufuk Aydin*[1], *Orhan Findik*[1], *Ahmet Lutfullah Orhan*[2], *Atike Tekeli Kunt*[1], *Cevdet Ugur Kocogullari*[1]**

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[2]Department of Cardiology, Medeniyet University Goztepe Research and Training Hospital, Istanbul, Turkey

**Aim:** We report a case of a patient with infrarenal abdominal aortic aneurysm and unstable angina managed with an emergent re-do offpump extraanatomic bypass graft.

**Materials-Methods:** A 58-years-old male patient was admitted to our clinic with abdominal pain and stable angina pectoris. His past history revealed a coronary artery bypass graft in 2006 (CABGX3). His physical examination revealed a pulsatile abdominal mass. Coronary angiography showed that the anastamosis between left internal thoracic artery (LITA) and left anterior descending artery (LAD) was occluded totally and there was an 80% stenosis in the proximal LAD. Other two saphenous vein grafts were patent. Abdominal aortography revealed an aneurysm of abdominal aorta located infrarenally with a diameter of 58 mm and he was scheduled for EVAR after PTCA for LAD. Two weeks later, he was readmitted to the emergency department with acute coronary syndrome. His coronary angiography revealed total occlusion of left main coronary artery and retrograde flow in circumflex artery. A rescue PTCA was performed for circumflex lesion. However, his chest pain sustained and low cardiac output ensued. He was taken to the operating room for emergent coronary artery bypass graft. Since he had two patent saphenous vein grafts and pericardial adhesions around the ascending aorta due to the prior CABG surgery, an off-pump extraanatomic bypass graft between innominate artery and LAD with saphenous vein. He was discharged without any complications. When he was readmitted for EVAR procedure, coronary angiography was performed and revealed that the extraanatomic bypass graft was patent.

**Results:** We prefered an off-pump extraanatomic bypass graft in this patient since he had two patent saphenous vein grafts and pericardial adhesions.

**Conclusions:** Preoperative cardiac evaluation is crucial before endovascular procedures to the aorta. Coronary anatomy should be evaluated when required,hybrid procedures should be kept in mind. In the presence of patent coronary grafts like in this case,redo off-pump-extraanatomic-bypass-grafts are good alternative choices.

**Keywords:** opcab, extraanatomic, aortic aneurysm, EVAR

**Preoperative CT scan and postoperative angiography**

## PP-124

# Chronic Superior Mesenteric Artery Stenosis of Treatment as Surgical and Interventional Follow-Up

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[4]Baskent University Faculty of Medicine, Department of Cardiology, Ankara Turkey

71-year-old man was admitted with abdominal pain, anorexia, nausea, vomiting and weight loss. The patient noted that the emergence of pain especially after a meal. On examination, there were detected that abdominal tenderness and rebound and hypoactive bowel sounds. Abdominal computed tomography, origin of the superior mesenteric artery and proximal 2-cm segment was occluded. It was decided that it can not be opened as angiographic and the patient underwent surgery. It was bypassed between superior mesenteric artery and aorta with saphenous vein. After a month, abdominal computed tomography was taken again due to the recurrence of the patient complaints. The angiography was performed due to saphenous graft occlusion in abdominal computed tomography. Angiography showed that occlusion of celiac trunk, superior mesenteric artery origin and severe stenosis of inferior mesenteric artery origin and the stent was placed in inferior mesenteric artery. Control angiography, ileal branches of the superior mesenteric artery inflow was seen as normal by means of arc Riola. The patient is normal except for vague abdominal pain in the first month. Endovascular or surgical interventions can be applied in the treatment of mesenteric ischemia. We have seen to occlusion with the saphenous vein bypass surgery in the short term. We corrected to blood supply with endovascular intervention at follow-up. In these patients, we think that multidisciplinary

approach including general surgery, cardiovascular surgery and interventional radiology is important.

**Keywords:** aortamezenterik bypass, endovascular treatment, chronic mesenteric ischemia

## PP-125

### Agenesis of Vena Saphena Manga with Popliteal Vein Stenosis

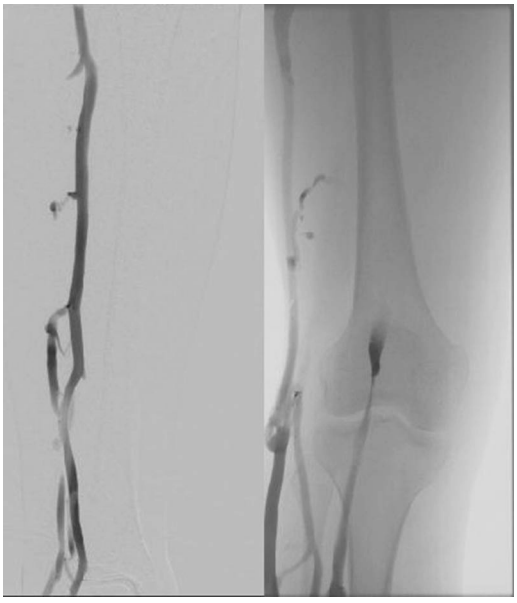
*Murat Günday,* ***Mehmet Özülkü,*** *Hakan Bingöl*

Baskent University Faculty of Medicine, Department of Cardiovascular Surgery, Ankara Turkey

**Introduction:** Rate of duplication vena saphena magna (VSM) has been reported as 1-2%. But we did not find agenesis of vena saphena magna with stenosisof popliteal vein. In this case report, agenesis of vena saphenous manga with popliteal vein stenosis were presented.

**Case Report:** A 22-year-old female patient with a complaint of swelling, pain, numbness, limping in right leg was admitted to our hospital. On physical examination, increase in diameter compared to the other leg, and superficial varicosities were observed. A thrill or murmur was not retrieved by hand. A Doppler USG showed agenesis of saphenofemoral junction and vena sahena magna. Therefore a digital substract angiography (DSA) and venography were performed for arteriovenous malformation. The patent arterial system and trifurcation were observed in the DSA. Also arteriovenous fistula was not detected in the late phase. The total saphenous vein agenesis was found in venography. About 3 cm. segment of popliteal vein stenosis was observed popliteal level. A very well-developed collateral venous vein was revealed at lateral movement of the lower limb (Figure 1). A balloon angioplasty + stent procedure was attempted in popliteal vein by retrograde femoral vein angiography. The catheter was not proceed to the upper part because of severe stenosis. Also retrograde invasive attemp was unsuccessful due to many collaterals. The patients were enrolled after the process is finalized.

**Figure 1**



**Conclusion:** Our patient was similar clinical symptoms with Klippel Trenaunay syndrome. Klippel Trenaunay syndrome is a congenital syndrome characterized by varicosities presenting with skin pigmentations and limb hypertrophy. Etiopathogenesis is unknown. However, agenesis of vena saphenous magna with Klippel- Trenaunay was not observed before. We think that our case was an interesting of this aspect. Also we have decided to present this case what could be done in surgical and / or invasive therapy and to discuss.

**Keywords:** vena saphena manga, agenesis, balloon angioplasty

## PP-126

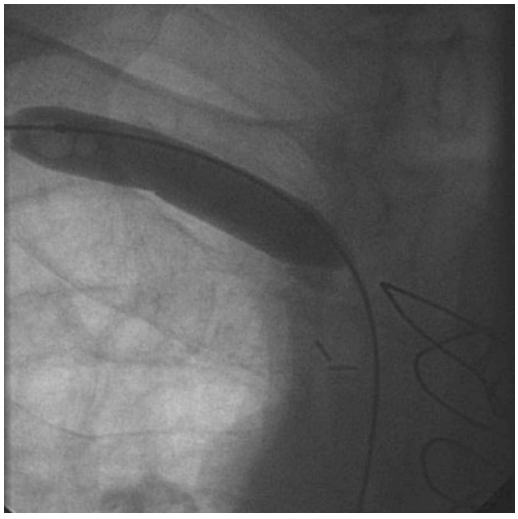
### Permanent Transvenous Pacemaker Implantation Following Percutaneous Transluminal Angioplasty in a Patient with Asymptomatic Bilateral Subclavian Vein Stenosis

***Özgür Çiftçi,*** *Murat Günday, Aytekin Güven*

Baskent University Faculty of Medicine, Ankara Turkey

The subclavian venous obstruction is a disorder that arises more frequently today due to the increased frequency of vascular interventions. It may affect one or both of the subclavian veins. When bilateral, it complicates the implantation of many devices that are preferably installed via the upper-extremity veins, like pacemakers, cardiac defibrillators, catheters for hemodialysis, or even port catheters. In this study, we present a case with symptomatic Mobitz type II AV Block who was planned to undergo a pacemaker implantation. Previously he had undergone two coronary bypass

**Figure 1**



operations, and probably due to the interventions made at that time, he was now diagnosed with bilateral subclavian vein obstruction. Following the diagnosis, the obstruction in the right subclavian vein was successfully relieved through balloon angioplasty, and a permanent atrioventricular pacemaker was installed.

**Keywords:** bilateral, asymptomatic, pacemaker, obstruction, occlusion

## PP-127

### Treatment of Venous Ulcer of Fıve Patıents: A Case Report

***Nazmiye Selçuk Kapısız*[1]**, *Hasan Fahri Kapısız*[2]

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[2]Yenimahalle State Hospital, Ankara, Turkey

**Aim:** Management of venous ulcer of five patients is presented here and the literature is reviewed.

**Materials-Methods:** Five male patients (21–60 years old) were operated for venous ulcer after a period of conservative treatment methods. The location of ulcers, venous doppler ultrasonography findings and surgery applied are indicated in Table-1. Dual antibiotic treatment, superficial wound care, low molecular weight heparin treatment, bed rest and leg elevation were applied in conservative treatment. Low dose steroid therapy was applied for both edema and inflammation. Venous doppler ultrasonography was applied on all patients and venography was applied for two patients with perforator insufficiency to localize the perforator. Complete stripping was applied in three cases with saphenofemoral insufficiency. Perforator ligation was applied in patients with perforator insufficiency. Only perforator ligation is applied in two patients with chronic venous thrombosis sequel, grade 2–3 deep vein insufficiency and perforator insufficiency.

**The location of venous ulcers, venous doppler USG findings and applied surgery**

| Age | Location of ulcer | Venous doppler USG | Surgery |
|---|---|---|---|
| 60 | Right leg medial malleol ulcer | Chronic CFV Thrombosis, Grade 2–3 CFV Insufficiency, Cockett's perforatorII–III insufficiency | Perforator ligation |
| 54 | Left leg medial malleol ulcer | Chronic CFV Thrombosis, Grade 2 CFV Insufficiency, Cockett's perforator II insufficiency | Perforator ligation |
| 25 | Left leg medial malleol ulcer | Left leg grade 4 GSV insufficiency, Right leg grade 2 GSV insufficiency | Stripping |
| 37 | Right leg medial malleol ulcer | Grade 4 GSV insufficiency | Stripping |
| 42 | Left leg medial malleol ulcer | Grade 3 GSV insufficiency, Grade 1–2 CFV insufficiency | Stripping and perforator ligation |

**Results:** The follow-up period is 3 months-two years. Ulcer treatment was completely successful in four of five patients and recurrence was not seen. Recurrence was seen in the patient with great saphenous vein and perforator insufficiency due to deep vein thrombosis that occured after the operation.

**Conclusions:** Preoperative conservative treatment, surgical teratment according to pathology, postoperative good care are important for venous ulcer treatment.

**Keywords:** venous ulcer, surgery for venous ulcers, varicose veins

## PP-128

### Successful Thoracic Endovascular Repair of a Late Posttraumatic Aortic Pseudoaneurysm

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**Aim:** We report a case of a late posttraumatic thoracic aortic pseudoaneurysm which is successfully repaired with endovascular stent graft.

**Material-Methods:** A 50-year-old man was admitted to the emergency department due to blunt chest trauma in a motor vehicle accident. Chest radiography revealed an area of calcification around the proximal descending aorta. Computed computed tomographic angiography was otherwise normal except 6.8 cm pseudoaneurysm of the proximal descending aorta. His past history revealed an involvement in a motor vehicle accident 20 years previously. Thoracic endovascular treatment with stent graft was performed successfully. The postoperative condition was well and the patient was discharged without any complications.

**Results:** Traumatic aortic transections ocur mostly due to penetrating traumas, however they may be also seen after blunt chest trauma (15%). Two percent of traumatic transections end in with a chronic pseudoaneurysm and most of them become calcific as in our case. The management of asymptomatic patients is controversial. We prefered endovascular repair of the pseudoaneurysm, as the diameter was 6.8 cm.

**Conclusions:** Chronic posttraumatic aortic pseudoaneurysm is a rare condition that requires a high suspicion and detailed past history examination. Endovascular aortic stenting in appropriate patients seems to be a good choice of management, however further multicenter studies are warranted to compose guidelines.

**Keywords:** thoracic aorta, endovascular repair, pseudoaneurysm

## PP-129

# A Rare Complication of EVAR

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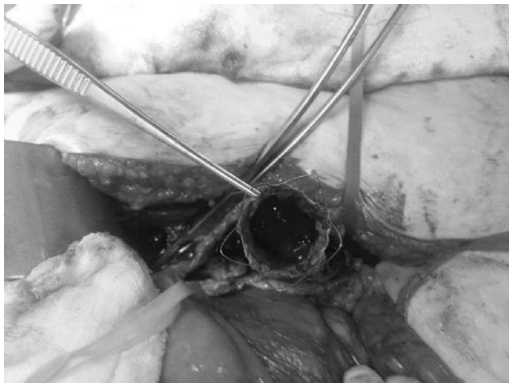
Bursa Yuksek Ihtisas Education and Research Hospital

**Introduction:** We report a rare and acute complication of endovascular repair.

**Figure 1**



*Thrombosed Endovascular Graft.*

**Report:** A 78-year-old female patient with a previous coronary artery bypass grafting was referred to our clinic with abdominal aortic aneurysm. Endovascular repair of the 6, 2-cm infrarenal abdominal aortic aneurysm was performed. In the ICU at 8th hour acute limb ischemia with severe asidosis was recognized. Aortagraphy showed total occlusion of the endovascular graft. And the patient underwent open repair of the aneurysm and removal of the endovascular graft.

**Discussion:** Careful follow-up after endovascular procedures is essential and early anticoagulation therapy may be used in these patients.

**Keywords:** thrombosis, evar

## PP-130

# Renal Artery Stent Fracture

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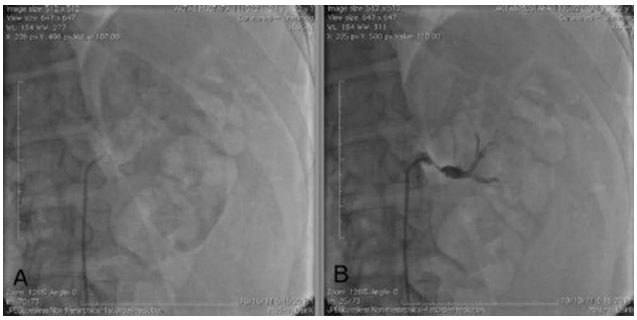
Renal artery stenosis (RAS) is a rare cause of refractory hypertension. Onset of hypertension before 30 or over 55 years of age merit diagnostic workup for RAS according to the ACC/AHA guidelines. Interventional techniques are preferred as the first line of treatment in symptomatic patients.

A 24 years old male patient has admitted to our clinic with refractory hypertension despite medications. He has a history of left RAS and was subjected to balloon angioplasty and stenting 2 years ago. Until recent months his blood pressure follow up was stable. Angiography showed Type IV stent fracture with severe stenosis between the stent fragments. Because wide alternating movements of left renal artery due to breathing was seen clearly in angiography, surgical operation was planned. Aorto–renal artery bypass with great saphenous vein was conducted via left retroperitoneal approach thorough paramedian oblique incision. There wasn't any postoperative complication occurred and the patient was discharged at the third day after surgery. His blood pressure decreased to normal levels at follow up.

Although stenting was the preferred method of treatment in RAS at first intervention, solutions for possible postoperative complications should be taken into consideration on individual characteristics of patients.

**Keywords:** real artery stenosis, stent fracture, revascularisation

**Angiography**




*A. Stent fracture B. Stenosis.*

## PP-131

# Hybrid Treatment of Coexisting Renal Artery Aneurysm and Abdominal Aortic Aneurysm in Gallbladder Cancer Patient

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**Introduction:** Renal artery aneurysm (RAA) is uncommon, and in addition to coexisting abdominal aortic aneurysm (AAA) is

extremely rare condition with potentially high life-threatening mortality in case of rupture. Aneurysms are treated by endovascular intervention or open surgery. Although most of aneurysms are treated by endovascular intervention, open surgery is often necessary for renal artery aneurysm associated with bifurcation or tributary pattern of distal renal arteries. We report a rare case of coexisting RAA with AAA treated by hybrid method, which is endovascular aneurysm repair (EVAR) for AAA and open surgery for RAA due to tributary pattern of distal renal artery.

**Case:** A 75-year-old man was admitted to our outpatient clinic complaining of abdominal palpable mass. The contrast enhanced computed tomography (CT) scan with 3-dimensional reconstruction showed one abdominal aortic aneurysm (AAA) measuring 5.0 cm × 4.8 cm, another renal artery aneurysm (RAA) measuring 3.0 cm × 2.8 cm in the left renal artery, and suspected gallbladder (GB) cancer. We operated AAA with EVAR and RAA with open surgery, which was aneurysmectomy and direct end-to-end anastomosis. The patient was discharged without any complications.

**Keywords:** RAA, AAA, EVAR, open surgery

## P-132

## Rapidly Growing Aneurysm of Persistent Sciatic Artery Treated by Endovascular Stenting

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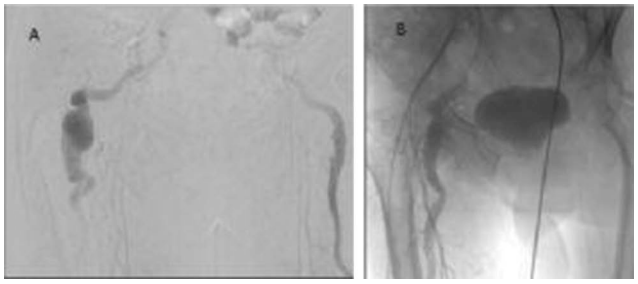
**Aim:** Persistant sciatic artery (PSA) is a congenital vascular anomaly which has an incidence of 0.025%–0.04% and frequently complicated with aneurysm formation and distal embolization. We present here a case of bilateral PSA manifested with reccurent arterial thrombosis and rapid evolution of aneurysm treated by endovascular stenting.

**Material and Methods:** A 77 years old female admitted with complaints of sudden onset pain and paresthesia of the right lower limb. She had a previous history of embolectomy due to acute arterial embolism of the same extremity. Physical examination revealed absence of right popliteal and pedal pulses and Doppler examination showed diminished arterial flow to the extremity therefore the patient underwent urgent embolectomy. On operation right femoral artery was observed to be rudimentary with an adjacent dominant PSA. Embolectomy was performed and thromboembolic material was extracted from both vessels. In order to confirm diagnosis postoperative peripheral angiography was made and it showed bilateral PSA as the major blood supply to both lower limbs. The patient was discharged on medical therapy however she applied after two months with a pulsatile painful mass in the gluteal region.

**Results:** Peripheral angiography revealed aneurysm of the right PSA. The aneurysm was treated by endovascular stenting (Figure 1).

**Images of sciatic artery aneurysm andendovascular stent graft**




*A. Aneurysm of the PSA B. Appereance of the artery after endovascular stenting.*

**Conclusions:** PSA is a rare vascular anomaly however; it may lead to aneurysm formation and threaten lower extremity by causing acute embolization and arterial thrombosis. Although there are limited case reports declaring the feasibility and short-term effectiveness of stenting PSA aneurysms; it can be the treatment of choice as the aneurysm is generally situated in deep pelvic layers.

**Keywords:** persistent sciatic artery, aneurysm, endovascular stenting

## PP-133

## Acute Femoral Artery Embolism Caused by Rupture of a Cardiac Hydatid Cyst with Muscle Involvement

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**Objective:** We report a patient with hydatid cyst in the interventriculer septum which caused acute femoral artery embolism and also identified soft tissue involvement during faciotomy.

**Methods:** 17 years old male patient was referred to our clinic with acute onset of pain and coldness in left lower extremity started 4 hours prior to admission in our hospital. Developmental and previous medical histories were nonspecific. Physical examination revealed absence of all pulsations except femoral artery in left lower extremity. He had pallor, pain, and paresthesia in left lower extremity. For diagnostic investigation ultrasonic duplex scanning and arteriography were performed.

**Results:** Embolectomy was performed as an emergency procedure with the diagnosis of acute arterial embolism. During embolectomy, a 3 × 2 cm sheet of slimy white material was removed from the superficial femoral artery. This resembled the thick outer layer of a hydatid cyst. All pulses were palpable after surgery, and heparin was started. The second day after surgery, the patient underwent fasciotomy for compartment syndrome. During fasciotomy another slimy white material was removed from the muscles which was latter pathologicaly defined as cyst membrane.

**Conclusion:** In this case report, we present a patient who had lower extremity embolism originating from the ruptured cardiac

hydatid cyst. It is obvious that while dealing with hydatid cyst and complications soft tissue involvement must be kept in mind.

**Keywords:** hydatid cyst, acute femoral artery embolism, complication

## PP-134

### Giant Ascending Aortic Aneurysm with Posture-Dependent Respiratory Symptoms: Unusual Case

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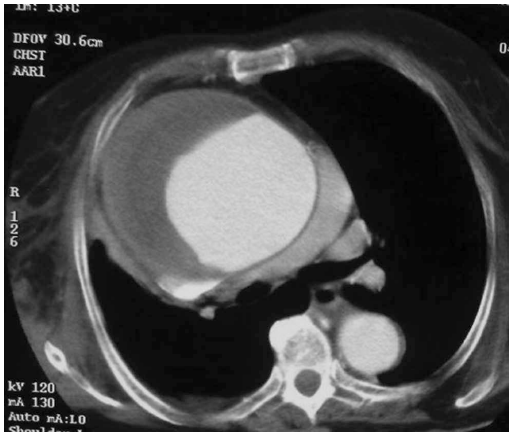
Giant ascending aortic aneurysm, defined as an aneurysm more than 10 cm in diameter, is rare. We present a case of a 77-year-old woman who was admitted to our department complaining of dyspnea and superior vena cava syndrome in supine position. Physical examination demonstrated a slight decrease in breath sounds over the right hemithorax. The chest X ray film showed a widened, convex right superior mediastinum and a deviation of the trachea because of mass effect. A contrast computed tomography confirmed the ascending aortic aneurysm which was compressed the superior vena cava. Its maximum diameter was 13 cm (Fig. 1). The operation was performed under cardiopulmonary bypass, established by cannulation of the right femoral artery via the right femoral vein. The aneurysm was excised and replaced with Dacron tube graft. Postoperative course was uneventful.

In conclusion, giant ascending aortic aneuryms sometimes cause unusual symptoms and the surgical treatment of a giant aortic aneurysm may be even successful in older patients.

**Keywords:** giant aneurysm, unusual symptoms, vascular surgery

**Figure 1**




*A computed tomography scan showed an ascendan aortic diameter of 13 × 11 cm at the largest point.*

## PP-135

### Endovascular Treatment with Stent-Graft (TAG) of Aneurysm of an Anomalous Systemic Arterial Supply to the Basal Segments of the Left Lung

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An anomalous systemic artery originating from the descending thoracic aorta and supplying the normal basal segments of the lower lobe of the left lung without sequestration is a rare congenital anomaly, and an aneurysm of this aberrant artery is even rarer.

The published treatments is primarily thoracotomy such as lung lobectomy. Although some cases about endovascular treatment such as coil embolization have been reported recently, there are no reports about treatment with stent graft. We report here a case about successful life-saving treatment with thoracic stent graft (GORE® TAG®) as well as brief discussion with literature review.

A 63-year-old man was admitted to an emergency room after he vomited large amounts of blood while taking a bath in the evening in February 2011. At the hospital, he was unconscious and had agonal respiration and extremely weak pulses in his arms. Immediately, intubation was performed followed by enhanced CT examination. An aneurysm accompanied with extravasation was observed in the left lung. When angiography was urgently performed, it was diagnosed that there was an aneurysm of anomalous systemic artery originating from the descending thoracic aorta, rupturing into the lung. The coil embolization was conducted at the

**CT (post-ope.)**

peripheral branches of the aneurysm and within aneurysm. Furthermore, thoracic stent graft (GORE® TAG®) was placed at the orifice of this aberrant artery to stop bleeding. He was ambulatory and discharged 14 days after receiving post-surgery intensive-care.

This published case is the first successful occlusion of the aneurysm with an aortic stent-graft(TAG) and coils,with 30 months of follow up.

**Keywords:** an anomalous systemic artery originating from the descending thoracic aorta, aneurysm, stent-graft

## PP-136

## Ankylosing Spondylitis with Patients After Coughing Develops Rib Fractures and Subcostal Vein Injuries

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Simple rib fractures are the most common cause of chest from blunt trauma. These fractures themselves creating a rare life-threatening abdominal and chest more severe injury to organs outside of the cage can be indicators. Cough associated with rib fractures primarily in women with chronic cough observed. Becoming part of the secondary side of the chest-turan ribs frequently affected areas decreased bone density risk, although that is associated with coughing Rib fractures usually consists of the basis of the normal bone density. In this article we report a case in developing stress fracture of the ribs from coughing.

This gender be explained by the varying bone density. Osteoporosis is associated with cough and rib fractures risk seen as a factor. However, the studies in patients with normal bone density can be seen in fractures associated with cough been demonstrated Cough, chest X-ray is used to detect fractures, rib fractures are associated with omitted. Radionuclide bone imaging, and contrast-enhanced chest computed tomography in detecting fractures.

X-rays is more effective than in this case report male patients with ankylosing spondylitis with rib fractures occurred after coughing report a case of hemothorax. Forty-two-year-old male patient with the complaint of chest sinking occurred after coughing admitted. Complaints does not exceed the emergency The PA-Lung admitted patients normal X-ray detection of right-sided pleural effüzon on Chest computed for the differential diagnosis of patients tomography scan. 7 right tomography ribs ewed non-displaced fracture and hemothorax. Cough can cause rib fractures alone should be evaluated in young patients without chronic cough after the addition does not exceed. In case of chest pain with coughing mind bring associated rib fractures and fracture detection in terms of the potential complications in the event of an early treatment should be initiated.

**Keywords:** rib fracture, hemothorax, ankylosing spondylitis

## PP-137

## Surgical Treatment for Arcus Aorta Pseudoaneurysm: Complication of Blunt Trauma

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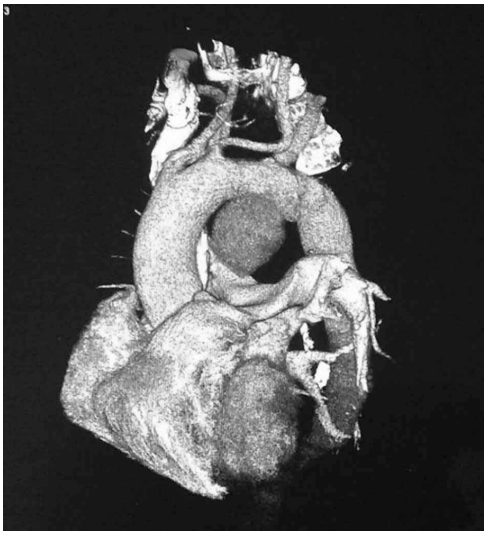
We present a case of psudoaneurysm of aortic arch due blunt trauma.

68-year-old male patient was referred to our hospital with dyspnea, orthopnea and decrease in functional capacity since two years. Echocardiography revealed depressed left ventricule systolic function and a large pseudoaneurysm in the arch of aorta. CT angiography revealed a 76 × 66 mm pseudoaneurysm which was originating from the posterior wall of arcus aorta at the level of left subclavian artery ostium (Figure 1). He had a history of trauma (fell from caterpillar) 2 years ago. Because of his comorbidities and clinical condition, we first planned to make a less invasive intervention to get rid of undesirable outcomes of prolonged cardio-pulmonary bypass and cross-clamping time. Our plan was a hybrid procedure which was consisting of a coronary bypass and debranching aortic arch surgery and endovascular aortic stent grafting. After making the median sternotomy, we could clearly see the pseudoaneurysm and its relationship with adjacent structures, especially with branches of aortic arch. We could reach the aortic arch enough to make a distal anastomosis after the excision of the pseudoaneurysm. Therefore we changed our strategy and decided to make supracoronary graft interposition and total arch replacement in addition to coronary bypass grafting after the excision of the pseudoaneurysm. With a 55 min-

**Figure 1**



*CT angiography view of arcus pseudoaneurysm.*

utes low-flow antegrade selective cerebral perfusion time we could achieve the planned operation. The postoperative course was uneventful.

These type of blunt injuries mostly effect the isthmus of aorta because of the anatomical vulnerability of this region. In experienced hands, surgery is a more acceptable modality with the well-known short and long term results. Even complex aortic arch aneurysms can be handled with the cerebral perfusion techniques with acceptable morbidity and mortality rates. Open surgery can also allow us to perform additional cardiac procedures just like in our patient.

**Keywords:** aortic pseudoaneurysm, surgery, trauma

## PP-138

## A Very Rare Anomaly; Idiopathic Pulmonary Artery Aneurysm

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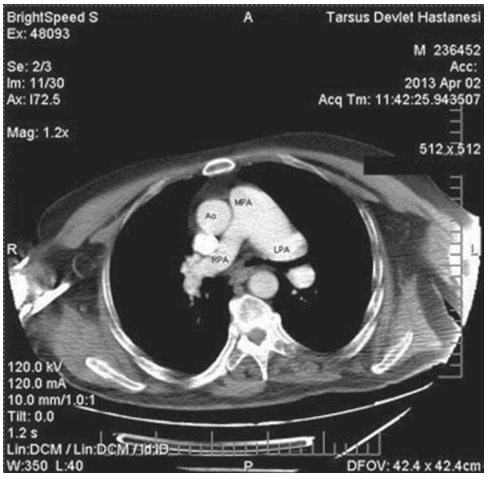
A pulmonary artery diameter exceeding 30 mm is defined as pulmonary artery aneurysm (PAA). This type isolated vascular disorders of pulmonary truncus are seen very rare. The frequency of PAA in autopsy studies was found to be 1:14000. As it is a rarely seen anomaly, there is lack of detailed information on long-term follow up outcomes and procedures that should be performed during diagnosis and treatment. We present an idiopathic PAA case which was misdiagnosed as a mediastinal tumor and referred to our hospital.

A 70-year old male patient with a smoking history of 45 years one pack a day was admitted to our hospital with complaints of dyspnea, cough and high fever. Physical examination revealed a blood pressure of 130/80 mmHg, pulse rate of 67 beat/min. Oxygen saturation was 97% with 2 L/min nasal oxygen supply. Chest X-ray showed an enlargement of pulmonary artery. Congenital anomalies such as patent ductus arteriosus and atrial septal defect that may directly affect pulmonary artery were absent. There was no thrombus or intracardiac mass. Doppler echocardiography showed 20 mmHg peak gradient at pulmonary valve and gradual increase in pulmonary velocity. Physical examination and laboratory parameters of the patient revealed no sign or finding of any systemic disorder or vasculitis. Pathergy test was made in order to screen Behçet's disease which was an etiologic factor and it was negative. The main pulmonary artery, the left pulmonary artery and the right pulmonary artery were 34 mm, 39 mm and 23 mm respectively in CT (Figure 1).

Rupture or dissection of these low pressure aneurysms is rare. The timing of surgical intervention should be determined by compression of the left main coronary artery and occurance of dyspnea, hemoptysis, size and rate of enlargement of the aneurysm which are considered as early signs of rupture. In our case, the risk of rupture was low, etiologic factors were absent. Thus, a clinical follow up was preferred.

**Keywords:** idiopathic, pulmonary artery aneurysm, pulmonary truncus, vascular disorders

**PAA, CT Imaging**




*CT imaging, Ao: Aorta, MPA: Main pulmonary artery, RPA: Right pulmonary artery, LPA: left pulmonary artery.*

## PP-139

## Surgical Venous Thrombectomy for Iliocaval Occlusion Caused by a Giant Uterine Myoma

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[2]Chiba Central Medical Center

[3]Nippon Medical School

A 42-year-old woman complained of a sudden swelling and pain in her left lower extremity. Her lower abdomen was distended, and a giant hysteromyoma that had completely compressed the left iliac vein was detected using magnetic resonance imaging. A laparotomy was performed under general anesthesia and positive-pressure ventilation, and an anterior total hysterectomy and simultaneous surgical thrombectomy were performed. We removed a large quantity of thrombi and a postoperative venography revealed excellent recanalization and she was subsequently discharged from hospital. Her clinical course has been extremely good, with no symptoms of post-thrombotic syndrome for two years.

**Keywords:** venous thrombectomy, uterine myoma

## PP-140

### Off-Pump Coronary Artery Bypass and Ascending Aorta-to-Left Carotid Artery Bypass by Median Sternotomy

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The optimal management of patients with severe carotid and coronary artery disease remains controversial. A 70-year-old male patient complaining of dizziness, headache, shortness of breath was admitted to our hospital. Coronary angiography showed to the severe stenosis in left anterior desending artery, right desending coronary artery, and circumflex coronary artery. Also, severe carotid artery stenosis was detected in left proximal carotid artery by computed tomography. The patient was made the median sternetomi under general anesthesia and ascending aorta-to-left carotid artery bypass with 6 mm PTFE graft. Left internal mammarian artery-left anterior desending artery, and aorta-saphenous vein-right coronary artery bypass grafting was performed by off-pump technique. We think that median sternetomy is beneficial in proximal carotid stenosis in terms of does not require an additional incision.

**Keywords:** coronary, carotid, bypass, PTFE

**Figure 1**

## PP-141

### A Neglected Cause of Urgent Surgery; Delayed Posttraumatic Pseudoaneurysm of the Deep Femoral Artery

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In most trauma cases, the injured arteries are treated with early repair or reconstruction surgery. When there is a delay in diagnosis, a pseudoaneurysm might be detected several weeks or months after the trauma. Pseudoaneurysms of the deep femoral artery (DFA) rarely occur and are serious complications of blunt or penetrating injuries. This report describes two cases of pseudoaneurysm of DFA, both of them were misdiagnosed as persisting hematoma and abcess formation; and required urgent vascular intervention.

Two male patients were referred from provincial care units who presented with a suspicious painful soft tissue mass in the proximal leg thought to be a persisting hematoma and erythematous mass with fever mimicking an abcess formation in the thigh following a penetrating injury 4 weeks and 7 weeks ago, respectively. The vascular examinations were normal with good posterior tibial and dorsalis pedis pulses. Although there were no evidences of vascular disease in duplex ultrasound, peroperative massive bleeding after evacuation of hematoma suggested a pseudoaneurysm. By involving the surgical procedure in both patients under urgent conditions, delayed repairs of DFA injury were established succesfully.

Pseudoaneurysms usually occur after penetrating injury, infection, aspiration, fracture, blunt trauma, or surgical intervention. A surgeon must always keep in mind that symptoms of a DFA pseudoaneurysm, in some cases, may be absent, too weak, or masked by hematoma but with good distal pulses. Techniques used for the diagnosis of pseudoaneurysms can be misleading due to inadequate facilities or incompetent practioners. If there is a suspect, more non-invasive and advanced technics have to be used for diagnosis and also for treatment before endangering lifes in operating rooms.

**Keywords:** pseudoaneurysm, deep femoral artery, arterial injury

## PP-142

### Endovascular Repair of an Iatrogenic Inferior Vena Cava Stenosis: A Case Report

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***Ömer Faruk Çiçek*[2]*,*** *Eren Günertem*[2]*,*
*Gökhan Lafçı*[2]*, Kerim Çağlı*[2]

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Iatrogenic venous injuries can occur during cardiac surgery. Iatrogenic inferior vena cava stenosis is an uncommon condition. We present the case of a patient with iatrogenic stenosis to the inferior vena cava during a cardiac surgery.

A 30-year-old woman with mitral valve prolapse and atrial septal defect had a 3-months history of worsening dispnea and lower extremity edema, despite medical therapy underwent mitral valve replacement with 29 inch St. Jude Medical Mechanical valve and primary repair of an atrial septal defect. During surgery a hemorrhage was occurred at the inlet of inferior vena cava to the right atirum. We got bleeding under control with primer suturing. Postoperative echocardiography demonstrated a gradient on inferior vena cava compatible with severe stenosis. Endovascular repair was performed in a hyrid operating room. Femoral artery was prepared for cannulation in case of emergent surgery. To treat

the caval stenosis a 14 mm–6 cm Self expandable stent (ProtegeTM, EV3) was implanted into the inferior vena cava and balloon angioplasty was performed with 10 mm–6 cm balloon angioplasty catheter (EverCrossTM, EV3). There wasn't seen any stenosis during control venography.

Inferior vena cava stenosis is a potentially life-threating situation if not recognized and treated promptly. Mostly open surgical repair of central venous stenosis isn't recommended because of its morbidity and marginal results. In surgically unfit patients endovascular interventions provide a favorable option. Perfoming this procedure in an hybrid endovascular operating room provide opportunities for rapid conversion to open surgical repair should that become necessary.

To our knowledge this is one of the few reported case of an endovascular repair of an iatrogenic inferior vena cava stenosis after open heart surgery.

**Keywords:** vena cava inferior, stenosis, endovascular treatment

## PP-143

## Primary Saphenous Vein Aneurysm: A Rare Cause of Groin Masses

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The differential diagnosis of a soft-tissue mass in an extremity that may need surgery can include a wide spectrum of lesions. Unlike arterial aneurysms, venous aneurysms are seen much less frequent pathology, and clinical experiences are limited to isolated cases.

The patient was a 32-year-old man who was admitted to our clinic with a painful growing mass at the right thigh for the last one year period. Imaging studies revealed an 8 cm in diameter saphenous vein aneurysm located inferior to the inguinal ligament. The aneurysm was excisized.

The surgical technique to repair greater saphenous vein aneurysms consists of resection of the aneurysmal segment, with or without complete greater saphenous vein extraction, depending on the existence of valve incompetence.

Surgical treatment for greater saphenous vein aneurysms is indicated with good results, when they cause symptoms, in cases of painful or growing masses.

**Figure I**

*The intraoperative photo of aneurysm and portion of the saphenous vein.*

**Keywords:** saphenous vein, aneurysm

## PP-144

## Successful Surgical Removal of an Entrapped Catheter in the Right Radial Artery During Transradial Coronary Angiography

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The transradial approach (TRA) has been used for vascular access during interventional cardiology because of its proven benefits. TRA may be preferred over transfemoral technique including the lower risk of access site related complications. However, catheter entrapment during its manipulation is not uncommon. Here, we present a rare case of successful surgical removal of an entrapped coronary angiography catheter in the right radial artery.

A 53-year-old man admitted to our hospital with chest pain and cardiologist decided to perform an urgent coronary angiography via the right radial artery. Significant resistance was encountered during catheter manipulation at the level of the brachial artery.

**Figure**

A warm compress applied along the arm, nitroglycerin and verapamil were injected through the sheath in order to dissolve the spasm. We decided to take the patient to the hybrid operating room and explore the patient's forearm.

After a skin incision was made over the wrist an approximately 30 centimeters of radial artery was found as stripped from its origin to the catheter. Then we enlarged the incision and visualized the radial artery's origin at the above the elbow. Therefore we thought that it could originate from high portion of brachial artery as a rare anatomic variation. The proximal end of the vessel was ligated. The postoperative course was uneventful, and the patient was discharged on the sixth postoperative day after a successful three vessel coronary artery bypass surgery.

High origin of the radial artery from the brachial artery was the most frequently encountered anomaly occurring in 7% of individuals. Radial approach for coronary has been proved feasible but failures could be the result of an anomalous origin of radial artery and relative small artery size promoting spasm after catheter manipulation. Imaging techniques may be performed before TRA to describe such anatomical variations.

**Keywords:** radial artery, entrapment, catheter, variation

## PP-145

### Relining Technique for Continuous Sac Enlargement and Modular Disconnection Secondary to Endotension After EVAR: A Case Report

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**Aim:** To present a case of endotension after EVAR (endovascular aortic aneurysm repair) managed by relining technique.
**Method:** An 81-year-old male complained non-decreasing huge aneurysm sac (9.7 cm in diameter). He had undergone EVAR for infrarenal AAA (abdominal aortic aneurysm) 6 years ago and no endoleak was found through the follow-up. Initially, CT-guided sac aspiration was performed for the growing aneurysm sac, and the sac shrinked in size mostly. One month after sac aspiration, the size of aneurysm sac increased as the size before the aspiration. Relining within previous endograft was planned. During the relining procedure, unexpected modular disconnection of the old endograft was found. Relining with double barrel, tubular endograft was performed and the modular disconnection was corrected in addition to endotension.
**Results:** Relining technique was successfully performed for the patient of endotension. The unnoticed serial gradual migration of the module was found on plain X-ray after the relining procedure. During follow-up after the relining procedure, the size of aneurysm sac continued to decrease in size.
**Conclusion:** The relining technique is effective method for endotension-related growing aneurysmal sac, but long-term follow-up is needed.

**Keywords:** aortic aneurysm, endovascular procedure, endoleak, complication

## PP-146

### A Surgical Approach for Tracheoinnominate Artery Fistula

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Tracheoinnominate artery fistula (TIF) is devastating complication of tracheostomy. Low pressure cuff has made a rare complication. Mortality is high. We report a case of tracheoinnominate artery fistula in the 71 year old female patient. Surgical approach and creation of innominate artery bypass graft with Gore-Tex are described.

The patient was admitted for rehabilitation therapy with tracheostomy state for 44 days because of cerebral infarction. She has drowsy mental state and left hemiplegia. Massive arterial hemorrhage was noted in the airway and around the tracheostomy tube site. Fiberbronchoscope finding showed typical TIF. Emergency operation was performed. Partial upper middle sternotomy was made and right collar excision was extended to expose innominate artery. End to end innominate artery bypass was made with Gore-Tex 8 mm interposition graft. Innominate artery was resected around the fistula site. Exposed tracheal fistula site was covered with muscle flap. Sternum and skin was closed. She was transferred to the intensive care unit uneventfully with tracheostomy state. Postoperative computed tomographic angiogram showed good patency in the bypass graft.

Prompt diagnosis, emergency operation and maintenance of blood flow through the graft is important. Resection of innominate artery plays a role to decrease the rebleeding rate.

**Keywords:** tracheoinnominate artery fistula bypass graft tracheostomy

## PP-147

# Descending Aorta Aneurysm That was Firstly Diagnosed as Coarctation

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**Introduction:** We present a case of descending aortic aneurysm which was thought to be a coarctation in origin.

**Case:** 23-year-old male patient admitted to our clinic with dyspnea, tachycardia and decreased exercise capacity. In trans-thoracic echocardiography there was a stenosis in the arch of aorta after the left carotid artery origin and a dilatation just after this stenosis. Early diastolic reverse flow and 20 mm-Hg maximum gradient at the isthmic part was also noted. There was a stenotic segment with a 20 mm at the narrowest part just before the left subclavian artery origin and distal to this segment, an aneurysmatic proximal decending aorta and proximal left subclavian artery was shown by the CT angiography. Operation was suggested with the diagnosis of distal aortic arch coarctation and proximal decending aorta and subclavian artery aneurysms.

After the left posterolateral thoracotomy, a passive shunt that was created by the union of the two aortic canulas was interposed between the proximal part of arcus aorta and decending aorta. Aorta was clamped just distally to the left carotid artery and also at decending aorta just before the shunt. Aneurysmal sac was explorated. There was not a coarctated segment and raphe formation in the lumen. Aortic wall was extremely thin and fragile.

A dacron graft was interposed between the distal aortic arch and decending aorta. Another dacron graft was interposed to left subclavian artery. Postoperative period was uneventful.

**Conclusion:** Similar cases (such as coarctation of aorta) with cross-clamping just before left subclavian artery may cause obstruction in the collaterals that provide blood flow to the distal parts despite of predicting short cross-clamp period. Therefore distal perfusion that was achieved by the active and passive shunts may be helpful with the other protection techniques like CSF drainage to protect the medulla spinalis from ischemia.

**Keywords:** descending aorta aneurysm, coarctation of aorta, surgery

## PP-148

# Radial Artery Pseudoaneurysm: Complication of Transradial Catheterization

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**Introduction:** We present a case of radial artery pseudoaneurysm that was a complication of transradial cardiac catheterization.

**Case:** A 42-year-old male underwent diagnostic coronary angiography prior to the surgical procedure (mechanical aortic valve replacement and ascending aorta graft interposition). He was on warfarin therapy following surgery and represented two months later with painless swelling over the site of radial artery access site. Duplex ultrasonography demonstrated a pseudoaneurysm, which failed to close with compression therapy. The International Normalized Ratio (INR) was between 2.3–3.8 following surgery. At surgical exploration, radial artery pseusoaneurysm with partially trombosed lumen was exposed and pseudoaneurym was repaired with one stitch of 7/0 prolene suture without complication (Figure 1).

**Conclusion:** Pseudoaneurysms following trans-radial catheterization are extremely rare, with a reported incidence of 0.03% in a very large series. Nevertheless, adequate compression following sheath removal and alertness of the development of delayed pseudoaneurysm especially at patients with ongoing anticoagulation after the procedure are essential for prevention.

**Keywords:** transradial cardiac catheterization, pseudoaneurysm, surgery

**Figure 1**

*Surgical view*

## PP-149

# Misdiagnosis of a Leiomyosarcoma of the Femoral Vein as Arteriovenous Malformation

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**Background:** Leiomyosarcoma of vascular origin is very rare, so diagnosis and surgical management of this condition is challenging. A delay in diagnosis and proper treatment of leiomyosarcomas often results in very poor prognosis.

**Case Presentation:** A 55-year-old female patient presented to the surgical department with a chief complaint of a left lateral thigh pain that had been present for about 3 years. She referred from other hospital as arteriovenous malformation. She received sclerotherapy two times in our hospital. But, following CT scan showed no therapeutic effect. Suspecting a malignancy, a PET-CT Scan was performed. The PET examination demonstrated malignancy and pulmonary metastasis. The tumor was removed surgically en bloc, and metastatic lung lesions were resected. The postoperative course was uneventful, and the histologic study of the resected specimen was confirmed microscopically to be a leiomyosarcoma. She received radiation therapy and then admitted to an oncology department where received adjuvant chemotherapy.

**Conclusion:** Although vascular tumors are very rare, clinicians must considered in patients with recurrent or refractory to treatment.

**Keywords:** leiomyosarcoma, arteriovenous malformation, pulmonary metastasis

## PP-150

# In Situ Sapheno-Popliteal Bypass Grafting in Chronic Deep Vein Thrombosis of Superficial Femoral Vein: A Case Report

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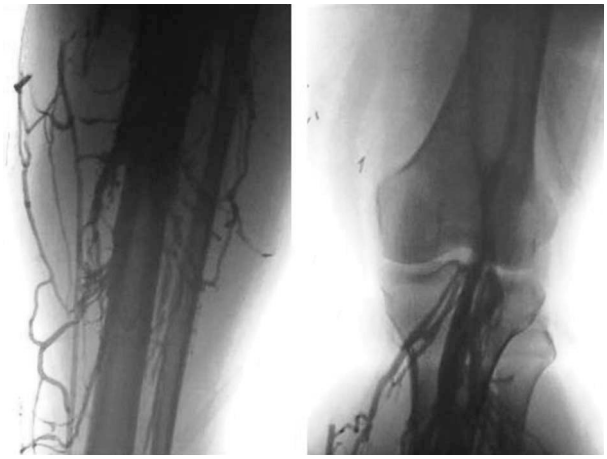
**Aim:** To discuss the current importance of in situ sapheno-popliteal bypass grafting in patients with chronic venous disease secondary to post-thrombotic femoral vein occlusion.

**Case:** A 38 year-old female had suffered from fatigue and swelling, secondary varicosities, hyperpigmentation, and induration in the affected limb for 5 years. Duplex scanning and ascending contrast phlebography showed chronic total occlusion of the left superficial femoral vein (Figure 1). A May-Husni procedure was planned to restore venous function of the relevant limb, and ipsilateral long saphenous vein was anastomosed to popliteal vein in an end-to-side fashion. We also performed a temporary arterio-venous fistula in the ankle to improve venous patency. The patient has been receiving warfarin in a therapeutic dose since the operation. The procedure provided an evident relief from the complaints during the postoperative period.

**Figure 1**



*Ascending contrast phlebography demonstrates occlusion of the superficial femoral vein.*

**Conclusions:** Secondary chronic venous disease manifests itself as leg swelling, venous claudication, dermal changes and finally venous ulcers all caused by ambulatory venous hypertension. The venous bypass surgery for chronic venous disease of the lower extremity has begun in the 1950s. Anastomosing the "non-diseased" long saphenous vein to the lowest segment of the popliteal vein, called in situ sapheno-popliteal bypass grafting (Husni or May-Husni procedure), restores the anatomical continuity of the venous axis, and improves venous competency in patients with chronic occluding thrombosis of the superficial femoral vein. It has been suggested by some authors that "in situ sapheno-popliteal bypass grafting is today of historical note only". In our opinion, this interpretation means undervaluing the importance of the procedure and, it may still be performed in patients with chronic venous disease secondary to post-thrombotic femoral vein occlusion that cannot be treated with other medical or endovenous therapies.

**Keywords:** *in situ* sapheno-popliteal bypass, May-Husni procedure, chronic venous disease, post-thrombotic vein occlusion

## PP-151

# The Case of Chronic Thoraco-Abdominal Aortic Aneurysm Dissection in Adult Patient with Coarctation of Aorta

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**Aim:** To demonstrate a case of poststenotic thoraco-abdominal aortic aneurysm (TAAA) with dissection.
**Material-Methods:** Patient O., 43 years old, had following complaints: general weakness, fatigue, shortness of breath, chest pain at moderate physical activity. The patient had severe arterial hypertension during previews seven years. During coronary angiography aortic coarctation was diagnosed. He was admitted to congenital cardiac surgery department. But the CT-angiography and repeated aortography revealed TAAA and dissection. As the aortic coarctation was present endovascular repair was contraindicated; and patient underwent open reconstructive surgery. The coarctation and aneurysm were resected, linear prosthesis was grafted on descending thoracic aorta under left atrial-femoral bypass.
**Results:** Postoperative course was uneventful. A drainage tube from left pleural cavity was removed a week after the operation. On 11th day after surgery the patients was discharged. The follow-up CT-scans show good results.
**Conclusions:** Aortic coarctation in adults can be a possible reason of resistant high blood pressure. All such cases should be investigated thoroughly.

**Keywords:** aortic coarctation, thoraco-abdominal aortic aneurysm, dissection

**CTA pattern and intraoperational pictures**

*CTA shows typical localised aortic coarctation and dissected poststenotic aneurysm of thoracic and abdominal aorta. Both coarctation and aneurysm were resected. Descending thoracic aorta was reconstructed by linear prosthesis.*

## PP-152

# Alternative Technique on Early Postoperative Aortic Tear with Prosthetic Vascular Graft: A Case Report

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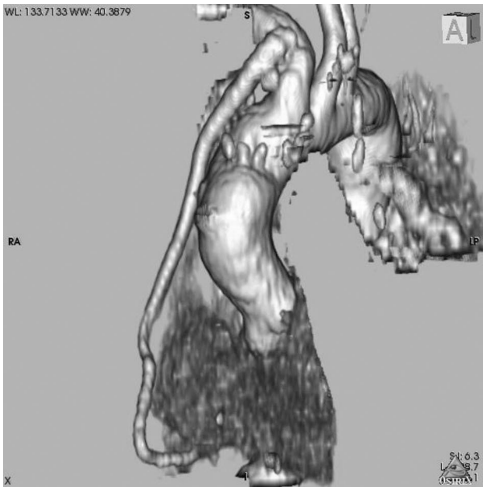
One of the problems, which may occur in the groups of surgeries where ascending aorta will be intervened on such as the coronary artery byspass surgery, is aortic injury. We have presented in the light of the information from the literature the case of a patient who had undergone coronary bypass and consequently had ascending aorta injury and on whom the aorta patchplasty and coronary graft that we had placed were extended using synthetic vascular graft and anastomosed to the innominate artery under the current conditions. A 77-year-old female patient underwent coronary bypass operation. (LİMA-LAD, Ao-RCA) The patient was scheduled for revision surgery since she had abundant drainage following a hypertensive attack at 8 hour post-operatively. It was seen that she had a tear in the right coronary saphenous proximal anastomosis site. The tear was not eligible for primary repair and abundant hemorrhage was present. A side clamp was placed, the right saphenous proximal anastomosis was eliminated, the tear site was expanded and patchplasty was performed on the ascending aorta with a 1.5 * 1.5 cm Dacron graft. Since the Dacron patch had a small diameter, the orifice to be opened for the right coronary proximal anastomosis would accommodate the graft in its entire scale and there would be a risk for the patch graft suture line to be undone; therefore, proximal anastomosis could not be performed on the Dacron patch. On account of the lack of hemodynamic instability and saphenous graft, proximal anastomosis was performed as end-to-side on the innominate artery and the distal

**Patent prosthetic vascular graft postoperative 25th day**



part of the graft was anastomosed as end-to-end to the right coronary saphenous graft by using the "GORE INTERİNG 4–7 mm vascular graft". It was shown that both the vascular graft and the right coronary saphenous vein graft as well as the anastomosis were patent with CT angiography (Figure 1).

**Keywords:** aortic injury, dacron graft, prosthetic vascular graft, coronary surgery

## PP-153

### Surgical Removal of a Fractured Balloon Catheter from Deep Femoral Artery: Case Report of an Unusual Complication

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Intravascular fracture of balloon catheters is uncommon. This is a rare but serious complication of interventional procedures, but it can lead to leg ischemia. We present an unusual case in which balloon catheter was broken inside of deep femoral artery and retrieved surgically. We believe this is the first report in literature of such a complication in which was surgically treated.

**Case Report:** A 71-year old male was admitted our hospital with a pain on right inguinal area started 1 month before after a coronary interventions via right femoral artery. A doppler ultrasonography revealed a pseudoaneurysm originating from deep femoral artery. A covered stent was placed across the hole in arterial wall to prevent receiving blood flow. But while withdrawing the balloon catheter, it broke down from the neck. Patient was taken up for emergent surgery. An arteriotomy was made. The broken end of the balloon catheter was seen into deep femoral artery and removed(Fig 2). After surgery our patient was followed-up 3 days in service room and discharged home.

**Discussion:** Fractured segment of angioplasty balloon catheter in a peripheric artery carries the risk of undesired complications such as acute embolisation leading to leg ischemia. Improper entry point on vessel can also cause these complications. In our patient interventionalist had put the sheath on deep femoral artery. Choosing common femoral artery for access could have reduced angulation on the neck of catheter and prevented breakage. If catheter size is incompatible with sheath size, interventionalist can face similar problems. Using a longer sheath would have been precluded this complication in our patient. Intravascular fracture of angiographic catheters during peripheric catheterizations is very rare and has not been reported in the literature. Physicians should be aware of such problems and we believe that this report will guide us in what to do in such cases.

**Keywords:** fractured balloon catheter surgery femoral

## PP-154

### Thrombosed Phbectasia of the Eternal Jgular Ven: A Case Report

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**Aim:** To present a case of thrombosed phlebectasia of extenal jugular vein managed by surgical removal.

**Methods:** The patient was a 91-year-old female with painful righ neck mas for one month. There was no history of trauma, catheterization, or infection of her neck. She had no history that any kind of venous thrombosis and embolism.

On physical exam, about 2 × 5 cm, non-pulsatile mass without a bruit was apparent. The mass appeared well circumscribed and was located lateral to the right sternocleidomastoid muscle, along from infra-auricular to supraclavicular area. All laboratory data, including those of coagulation studies, were normal. Enhanced CT showed dilation of the right external jugular vein consistent with thrombosed phlebectasia. To prevent a possible pulmonary embolism, resection of the vein, along with the thrombus, was planned. Under general anesthesia, the skin overlying the external jugular vein was incised. After dissection of the platysma muscle, the dilated external jugular vein was exposed. The external jugular vein proximal to the dilated portion was ligated to prevent intraoperative embolism, and then the affected segment with the thrombus was removed.

**Results:** Surgical resection of the phlebectatic segment with thrombosis of the external jugular vein was safely done. Histology of resected specimen confirmed venous dilatation with organizing thrombus, consistent with aneurysm. Postoperatively, the patient had no complications and neck pain has disappeared.

**Conclusion:** We presented a case of thrombosed phlebectasia, the congenital dilatation of a vein without tortuosity which is rare in adults. Due to risk of pulmonary embolism, surgical resection of the phlebectatic segment is performed in the condition of thrombosis with success.

**Keywords:** external jugular vein, phlebectasia, thrombosis

## PP-155

### Ruptured Abdominal Aorta Treated with Endovascular Iliac Limb Extensions After Treatment of Secondary Aorto-Enteric Fistula

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We report a case of successfully treated a ruptured Abdominal Aorta (rAA) using Endovascular Aortic Repair devices after the procedure of Secondary Aorto-enteric Fistula (Secondary AEF). At the age of 70, the male patient underwent the surgery of Aorta to Right Common iliac artery and Left External iliac artery (Lt. EIA) bypass for the lesion of total occlusion at Rt. CIA and 75% stenosis at Lt. EIA. At the age of 88, he had persistent high fever and complained of lower abdominal pain, and visited a hospital. The CT angiography leaded to diagnosis of Secondary AEF by Pseudo Aneurysm at Proximal anastomosis of the vascular prosthesis. He was transferred our hospital and we performed an emergency operation. The extra-anatomic bypass preceded the removal of vascular prosthesis, aortic stump closure and partial resection and direct reconstruction of the duodenum. He was discharged on the 94th postoperative day. One year later, he was transferred again because of sudden onset massive hematemesis. The emergency CT Angiography showed intra-abdominal extravasation of blood and intra-jejunum hematoma. We suspected a penetration into the jejunum by the pseudo aneurysm after rAA and performed the emergency operation. To avoid the risk of damage to adhesive intestine, we inserted and deployed the iliac limb extensions from aorta to Lt. EIA after the endovascular repair for narrow Lt. EIA, by the retroperitoneal approach. The Postoperative CT Angiography showed the reduction of hematoma at the front of aorta and the upper gastrointestinal endoscope didn't indicate the obvious penetration. He had no infectious sign and was discharged on the 123th postoperative day. In this case, the iliac limb extensions were very effective in covering up the rupture site completely. It is necessary to follow up his pathology carefully, though there has had no symptom of the infection.

**Keywords:** ruptured abdominal aorta, endovascular aortic repair, secondary aorto-enteric fistula

## PP-156

### Obturator Bypass Surgery of Femoropopliteal Graft Infection

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**Aim:** Graft infection in the groin area after reconstruction using arterial grafts often require revascularization procedure by subtracting the area of new and cleaner alternative. In this article, we presented a obturator bypass procedure of femoral wound infection after iliofemoral bypass operation.

**Materials and Methods:** Fiftysix-year-old male patient presented to our department with swelling of the left femoral region. There was the story of intravenous drug use. Aortoperiferik CT angiography was performed and left femoral aneurysm was revealed. Left iliofemoral bypass was performed. After the patient was discharged, on the follow-up period he was presented with purulent flux on left femoral region.

**Results:** Staphylococcus aureus was detected on the wound cultures. Graft infection was diagnosed and appropriate antibiotic therapy, starting with a suitable graft revascularization with resection was planned. External and internal iliac arteries were found in the left retroperitoneal incision. The left superficial femoral artery was found by opening the laptop area. Iliofemoral bypass through the obturator foramen with 8 mm PTFE graft was performed. Extensive debridement of surrounding tissues and iliofemoral bypass graft removal was performed. The patient was discharged on the postoperative 10th day with completely healed extremity ischemia and signs of infection.

**Conclusion:** Extra-anatomic bypasses are rare nowadays. Obturator bypass are rarely preferred because of the difficulty as well as it requires experience. Especially in cases with femoral vascular graft infections, surgeons should be to keep in mind the obturator bypass graft procedure.

**Keywords:** obturatuar bypass, graft infection, extra-anatomic bypass

## PP-157

### Endovascular Treatment of False Lumen Patency After the Surgery of Type A Dissection

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**Objective:** Residual false lumen patency is the main cause of aortic enlargement and rupture after the surgical repair of Type

A aortic dissection. Aneurysmal dilatation of the descending aorta occurs over a five-year period in 80% of the patients after conventional surgery of the acute Type A dissection. Additionally false lumen patency is related 18% rupture risk in the long term. We are presenting endovascular repair of the false lumen patency 5 year after the conventional surgery.

**Case:** A 67 year old years old male patient admitted our hospital suddenly developed claudication 5 years after conventional repair of the Type A aortic dissection. False lumen patency beginning from the abdominal aorta through to the right iliac artery was evaluated in computerized tomography (CT). Angiography revealed the reentry side, which was in the right external iliac artery. Endovascular stent graft implanted to the right internal iliac artery following occluder deployment to the right internal iliac artery. The procedure was ended with aortic bare stent implantation to increase radial force of the aorta, which might support false lumen thrombosis (Figure 1). Postoperative course was uneventful and the patient was discharged home on postoperative 2nd day without any complication. Postoperative 6th month CT revealed complete thrombosis of the false lumen.

**Conclusion:** In the surgical treatment of the Type A dissection, occlusion of the reentry side is important to avoid postoperative complications. Endovascular procedures are important for revealing and treating of the reentry side. These simple techniques could perform under local anesthesia with lower perioperative risks.

**Keywords:** aortic dissection, aortic enlargement, endovascular treatment, false lumen

## PP-158

## Surgical Management of Slow-Flow Venous Malformation of External Jugular Vein

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**Introduction:** Venous malformations(VM) in the cervicofacial region constitute about 40% of all VM in the body. Out of these, those arising from the external jugular vein (EJV) are very rare with less than ten cases described in literature. Cosmetic deformity and pain are the main patient concern. Sclerotherapy has now become the mainstay of treatment for cervicofacial malformations. This case series describes the management issues associated with this rare lesion.

**Material and Methods:** 5 patients (4 female and one male) with EJV associated slow flow VM were followed for atleast six months post operatively between 2009 and 2012. In all the patients the diagnosis was confirmed with Doppler study and MRI. All were initially referred to an intervention radiologist where multiple sessions of USG guided intralesional sclerotherapy were performed under fluoroscopic control. Following sclerotherapy failure all patients underwent excision of the lesion after ligation of the communications between the VM and EJV.

**Figure 1**

*Showing large communicating channels between VM and EJV.*

**Results:** Sclerotherapy, has shown consistent suboptimal results in tackling VM arising from EJV. Two patients had partial resolution of lesion with persistence of cosmetic deformity and pain. In three sclerotherapy was abandoned due to rapid flow of drug into the deep vein. Intraoperatively all lesions either had multiple or wide communicating channels between the VM and EJV. Lesions were completely excised and EJV was preserved in all. Post operatively there was complete resolution in all patients with no residual lesion. One patient had minimal skin necrosis.

**Conclusion:** Lack of adequate dwell time and decreased concentration of sclerosant in the VM, due to wide and multiple communicating channels is the reason for ineffective sclerotherapy. The major complications of sclerotherapy include skin necrosis, residual lesions, skin pigmentation, peripheral nerve palsies and hypotensive crisis. Surgical intervention is the definitive treatment of this VM achieving optimal functional and aesthetic results.

**Keywords:** venous malformation, external jugular vein, sclerotherapy

## PP-159

## The Importance of Hybrid Approach For Peripheral Vascular Diseases

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**Aim:** Mild and moderate peripheral arterial stenosis progresses over time and causes peripheral bypass graft occlusion. Hybrid approach to peripheral vascular disases reduces surgical risk and hospitalization. The aim of this study to evaluate the treatment of 2 patients with femoropopliteal graft thrombosis and iliac stenosis.

**Material-Methods:** Two patients, which had femoro-popliteal bypass surgery before 2 and 3 years ago, were admitted with the complaints of claudication. Critical iliac stenosis and femoropoliteal bypass graft trombosis was detected on the ipsilateral extremity, after peripheral angiography. 2 iliac balloon expandable stents were implanted to 2 patients using femoral access from contralateral extremity. After 1 month, redo-femoropopliteal bypass operation was performed.
**Results:** Postoperative anticoagulant and antiplatelet medication were given. A new complaint has not occured in 3 to 6 month follow-up.
**Conclusions:** Aortofemoropopliteal arterial occlusions are progressive diseases. After peripheral vascular bypass surgery, progressing of the mild and moderate iliac stenosis causes graft occlusion. Hybrid approaches provides a longer graft patency and low-risk intervention for patients. Frequently follow-up of peripheral vascular disases and using hybrid approaches reduces morbidity rates.

**Keywords:** vascular disases, hybrid approach, iliac stenosis

## PP-160

### Acute Arterial Thrombosis Following Chemotherapy in a Patient with a Gastric Carcinoma

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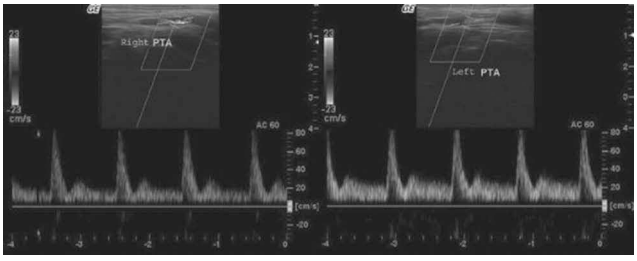
The pathogenesis of *in situ* thrombosis in cancer patients is not well known. Possible factors include endothelial damage, decreasing levels of anticoagulant factors and increasing levels of pro-coagulants. In the literature, the incidence of arterial thrombosis in cancer patients is reported to be 3.8%; 5-fluorouracil is mentioned as a rare causative agent, whereas cisplatin is thought to be the most common agent responsible for *in situ* thrombosis. In this report we present a 43-year-old male patient with bilateral popliteal artery embolism after 5-fluorouracil/cisplatin/taxotare combination chemotheraphy for gastric carcinoma. He had no additional risk factors such as smoking or any persistent organic arterial disease. He had sinus cardiac rhythm on electrocardiography and there were no abnormalities on echocardiography that could have been source of emboli. Surgical thrombectomy was performed with effective anticoagulation. After the operation, our medical oncologist discontinued 5-fluorouracil. At follow up, there was no evidence of thrombosis, with normal vascular flow rate.

**Figure I**




*Doppler ultrasonographic data of the patient's first month of follow up.*

**Keywords:** acute arterial ischaemia, malignancy, chemotherapy, surgical intervention

## PP-161

### Thromboangiitis Obliterans in a Non-Smoker Young Male with Ulcerative Colitis: A Case Report

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Thromboangiitis obliterans (TAO) is a recurrent inflammatory, nonatherosclerotic segmental vasculitis that affects the small- and medium-sized arteries and veins of the extremities and is strongly associated with smoking. The immunopathogenesis of TAO remains generally unknown. However, TAO in non-smokers are very rare. Ulcerative colitis (UC) is an inflammatory bowel disease of unknown etiology as well. Cell-mediated mechanisms play an important role in both diseases. Patients diagnosed with both TAO and UC have never been reported. We herein report an 18-year-old nonsmoker male with TAO who had a history of UC. We believe that this is the first case of the concomitance of TA and UC. May UC trigger the formation of TA?

**Keywords:** thromboangiitis obliterans, buerger, ulcerative colitis

## PP-162

### Left Brachial Artery Aneurysm Repair with Plegia Sutures After Percutaneous Coronary Intervention

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**Aim:** Various peripheral vascular complications may be observed after cardiac catheterization. (Especially after urgent primary coronary intervention (PCI).) We aimed to evaluate the brachial

artery aneurysms based on a case with brachial artery aneurysm occurred after PCI.

**Case:** We present a rare case of brachial artery aneurysm, a 65 years old woman who underwent primary PCI due to the diagnose of ST elevation myocardial infarction (STEMI). Patient was evaluated with Doppler ultrasonography after PCI. Following the procedure, the color arterial doppler ultrasonography revealed a brachial artery aneurysm due to left brachial artery injury. Afterwards, the patient underwent brachial artery aneurysm repair operation with interposition of saphenous vein graft. The operation ended in usual manner and the patient discharged uneventfully.

**Conclusion:** The incidence of peripheral artery aneurysm after primary PCI was determined to be 2.3%. The patients with peripheral artery aneurysm experienced prolonged hospitalizations compared to the non-peripheral artery aneurysm group, but no differences in in-hospital or long term mortality were noticed. In the multivariate analysis of a study, female gender and age ( >75 years), after primary PCI, were found to be independent predictors of peripheral artery aneurysm. High incidence of peripheral artery aneurysm was noticed in STEMI patients undergoing primary PCI, which prolonged in-hospital stay. Extra care must be given, especially to women and those who are >75 years of age, for this complication. With the validating new invasive diagnostic and interventional procedures in cardiovascular diseases, to be aware of the type and frequency of possible complications are important, especially of those that may occur late. In the present study anticoagulation, coagulation disorders, and cardiac catheterization combined with brachial puncture and angiography all predisposed to a vascular complication.

**Keywords:** ST elevation myocardial infarction, brachial artery aneurysm, primary coronary intervention

## PP-163

## Symmetrical Peripheral Gangrene Following Noradrenalin Therapy

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**Aim:** The syndrome of symmetrical peripheral gangrene associated with noradrenaline is characterized by distal ischemic damage in two or more extremities, without large arterial obstruction. We aimed to present a patient with peripheral gangrene following the initiation of noradrenaline.

**Case:** An 81 year-old-man admitted to general surgery department with abdominal pain. As soon as the gastric perforation diagnose, he underwent urgent open laparotomy. Unfortunately in the next day the patient underwent two revision operations more due to anastomose leakage. After repairing the anastomose leakage, the patient was taken to intensive care unit. Following the development of hemodynamic deterioration, the patient received vasoactive agents, including norepinephrine, dopamine, and dobutamine. Three days after admission, all digits in the four extremities exhibited progressive pallor (Figure 1). Administration of norepinephrine was stopped and cilostosol treatment was initiated. Heparin also was admitted to the treatment. Unfortunately, without any clinical recovery, the patient died on postoperative day 10 due to severe sepsis.

**Figure 1**

*Image of symmetrical peripheral gangrene following noradrenaline therapy.*

**Discussion:** Digital ischemia caused by a combination of the low systemic perfusion state and peripheral vasoconstriction induced by septic shock. In such a base, catecholamines may cause or exacerbate symmetric peripheral gangrene. It is also likely to occur following the administration of noradrenaline. This has been attributed to their vasospastic effects which may be more intense in the digital vascular beds than in the larger systemic vessels. Treatment of established symmetrical peripheral gangrene is generally unsatisfactory. Numerous therapeutic manoeuvres have been advocated including the intravenous administration of phentolamine, trimetaphan, nitroprusside and heparin, as well as sympathetic blockade. We think that early diagnose of pallor in extremities following the administration of vasoactive agents is essential. Beside, the treatment of the underlying infection and supportive therapies to improve the peripheral perfusion should be the mainstays of care for these patients.

**Keywords:** noradrenaline, symmetrical peripheral gangrene, sepsis

## PP-164

# Is the Classic Femoropopliteal Bypass the Only Option for Discrete Lesions at Popliteal Artery Above the Knee?

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**Aim:** The most common location for the peripheral atherosclerotic disease at the lower limb is the superficial femoral artery (SFA). So far, there are different treatment modalities such as surgical bypass, percutaneous transluminal angioplasty (PTA), stent implantation, and the endovascular implantation of an endoprosthesis. In this report, we present a case of a short segment bypass graft, using saphenous vein, between proximal and distal segments of an occlusion at the SFA.

**Case:** A 65-year-old male presented with symptoms consistent with intermittent claudication after walking 50 meters at his right leg. In angiography, total occlusion at a 2 cm long segment distal to the Hunter's channel at the popliteal artery above the knee is demonstrated. Instead of performing classic femoropopliteal bypass for this patient, which uses common femoral artery as an inflow and distal popliteal artery as an outflow, we performed a short segment bypass graft, just above and below the occlusion using saphenous vein (Figure 1).

**Discussion:** Even though femoropopliteal bypass is the most common surgical option for the lesions of the popliteal artery above the knee, the indications and type of surgery as well as which material to use as a graft still remains controversial. Classic femoropopliteal bypass requires two separate incisions, increasing the relative risk of wound infection compared to a single incision. On the other hand, the long segment bypasses require longer grafts, which make them more susceptible to thrombotic complications. Similarly, the longer nature of the bypassed segment increases the likelihood of the surgeon to use synthetic grafts, which have more size discrepancy and shown to have a lower patency rate. Therefore, discrete lesions at the proximal popliteal artery can be managed with a short segment bypass graft; preferably by using autologous saphenous vein, with reduced risk of infection and thrombosis.

**Figure 1**

*The image a short segment saphenous vein bypass graft at surgical site.*

**Keywords:** femoropopliteal bypass, saphenous vein graft, peripheral atherosclerotic disease

## PP-165

# Severe Upper Extremity Ischemia Following Intraarterial Drug Injection

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**Aim:** Acute hand ischemia associated with intra-arterial drug injection is rare, but can have a dramatic presentation with serious complications. The majorities of these cases are encountered in the upper extremity and affect mostly the radial and cubital arteries due to easier accessibility and proximity to major target veins such as the cephalic and basilic vein. We aimed to present a patient with acute upper extremity ischemia following intra-arterial drug injection.

**Case:** A sixty-year-old woman hospitalized for diabetes mellitus complained of burning pain in the hand following drug injection via radial artery in the left upper extremity. In a few hours, the pain became unbearable; the wrist, the palm, and the fingers of the hand became pale, cold and then the fingers were in flexion posture with restricted finger movements. In light of these clinical signs, the patient was diagnosed with acute hand ischemia. Doppler ultrasonography revealed a thrombosis of the arterial palmar arcuses, confirming the diagnosis of acute arterial ischemia. After admition to our department, urgent treatment including intravenous heparin, vasodilators and analgesics were initiated. Hyperbaric oxygen therapy was planned for the patient. Glycemia regulation was achieved by intravenous insulin administration. The patient is still hospitalized with minimal recovery in clinical signs in the hand and still goes on taking hyperbaric oxygen therapy.

**Discussion:** Distally located injection sites, which compared to injection into larger caliber vessels, have higher risk of limb ischemia due to their thin calibers. Control of pain and preventing vasospasm to achieve adequate circulation again and prevention of

thrombosis is essential for the management of this clinical situation. Good treatment outcomes have been reported with intravenous iloprost infusion. Iloprost also has antiaggregant properties. With all these medical treatments, the clinical recovery is not so satisfactory and most of these cases end up with extremity amputation.

**Keywords:** acute hand ischemia, intraarterial drug injection

## PP-166

### Is Cilostazol a Safe Drug for the Peripheric Artery Disease Patients Who Is Also Diagnosed with Inflammatory Bowel Disease

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**Aim:** Excessive migration of monocytes have an essential role on to tissue damage in inflammatory bowel disease. The objective of this study is to evaluate whether cilostazol is a safe drug for the patients with inflammatory bowel disease in light of current literature.

**Case:** A 68-year-old man, a heavy smoker for 40 years, presented with claudication intermittent in 100 m. In physical examination, right femoral artery was non-palpable. The right extremity was minimally pale and cold compared to the extremity on the other side. Digitally subtraction angiography revealed a stenosis in the right common iliac artery (CIA) and beside, some noncritical stenotic lesions were detected in the left CIA. As a first choice, we decide to perform an iliofemoral bypass surgery but the patient rejected the offered surgical treatment. Whereupon, we arranged a medical treatment including cilostazol. Administration of cilostazol was to be some hesitating because of concomitant disease of inflammatory bowel disease considering the potential risk of aggravation. We concultated the patient to gastroenterology department and they stated that there had been no data in the literature supporting that cilostazol has reverse effects on inflammatory bowel disease. Concurrently, following the initiation of cilostazol no complication occurred in the patient.

**Conclusion:** Cilostazol is thought to be have a significantly suppression effect on the increased migration of monocytes via suppression of interaction of platelets with monocytes. As a PDE-3 inhibitor, cilostazol effect in murine ileitis is through attenuating migration of monocytes to the intestinal mucosa. This interaction suggests a potential usefulness of antiplatelet drugs for additional treatment of Crohn's disease. We also suggest that cilostazol has good clinical outcomes for the prevention of NSAID-induced small intestinal lesions.

**Keywords:** cilostazol, inflammatory bowel disease, peripheric artery disease

## PP-167

### Huge Popliteal Artery Aneurysm and Surgical Treatment

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**Aim:** Popliteal artery aneurysms have a prevalence of approximately 70% of all peripheral aneurysms with an incidence estimated as less than 0.1%. An enlargement of the popliteal artery of more than 50% of the original diameter is defined as a popliteal artery aneurysm. The majority of the patients are male and older than 65 years of age. The incidence is 1%, in 50% of cases is bilateral and in up to 50% in association with other large vessel aneurysms. We aimed to evaluate treatment strategies, surgical techniques and endovascular interventions.

**Case:** A 64-year-old female was referred with a 4-month progressive history of a pulsatile mass in the left popliteal fossa. Past medical history was unremarkable, and the patient denied any traumatic events. Physical examination revealed no particular abnormality other than the popliteal mass. Lower extremity pulses were normal. Color Doppler ultrasonography and computed tomography scan showed a fusiform popliteal artery aneurysm of $90 \times 55 \times 55$ mm in diameter with mural thrombus in the left popliteal fossa (Figure 1). In surgical treatment, an aneurysmectomy was performed, and the left popliteal artery was repaired with saphen vein graft. The postoperative course was uneventful.

**Discussion:** A popliteal artery aneurysms are usually known as silent killer due to their serious complications like, distal embolization, thrombosis, and, rarely, rupture. The goal of repair is to prevent the complications of arterial embolization, thrombosis, and, least commonly, rupture. The invasive treatment is indicated

**Figure 1**

*Image of popliteal artery aneurysm at surgical site.*

for patients with patent aneurysms at a diameter of more than 2 cm or if a thrombus is present within the aneurysm. Symptomatic popliteal artery aneurysms are always an indication for therapy. Modern repair consists of either endoaneurysmor-rhaphy by interposing a bypass graft or aneurysm ligation combined with bypass grafting. It is clear that outcomes are better after elective repair than after acute surgical treatment.

**Keywords:** popliteal artery aneurysm, peripheral arterial disease

## PP-168

## Laparoscopic Retroperitoneal Sympathectomy—First Cases in Our Country

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**Aim:** The aim of this study is to introduce the first 4 operations about the retroperitoneal laparoscopic sympathectomy in our country, which has been just started in our institute.
**Material-Methods:** As part of a collaboration with Strasbourg University and our department, laparoscopic vascular procedures have began. Preceding to the bypass procedures, we began to perform laparoscopic sympathetomy cases retroperitoneally. Up to date, 4 procedures were done with the indications of Buerger and Reynaud diseases in the legs.
**Results:** The first case was converted to open procedure due to the scar formations due to previous interventions. The others were completed in the planned and closed laparoscopic route. All of them were discharged from the hospital in short periods.
**Conclusion:** Laparoscopic procedures are not sufficiently used in Turkey due to the lack of scopic training among vascular surgeons. Hence, more effort can be spent in order to accomplish these kind of procedures in more minimally invasive manner.

**Keywords:** laparoscopy, smpathectomy, buerger, reynaud, excessive swelling

## PP-169

## Endovascular Treatment of Massive Hemoptysis from Intercostal Artery

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**Aim:** Massive hemoptysis is a medical emergency requiring prompt diagnosis and treatment. The bronchial arteries are the major source of the bleeding. But some other vessels like intercostal arteries can be the other causes of the disease. The aim of the presentation is to demonstrate the imaging findings and embolization of bleeding intercostal artery of a patient who has a cavitary tuberculosis and his bronchial artery had been embolized before.
**Material and Methods:** A 21-year-old patient suffering from massive hemoptysis was admitted to our department for PA Chest grapy and angiography of thoracic aorta.
**Results:** At PA chest grapy a cavitary lesion and nodular infiltration areas were seen at left lung apex. At DSA a transfemoral approach was made to patient and an aortogram was taken. The bronchial arteries were studied super selectively but no extravasation was demonstrated. The feeding vessels going to the cavitary areas which are originated from intercostal arteries were seen. A micro catheter was put into the bleeding vessel and embolization was made with PVA micro bubbles. The procedure was very safe and rapid. At the control imaging no extravasation was found. After the procedure the patient was well and no bleeding was seen.
**Conclusions:** Hemoptysis, when acute and massive, is a life-threatening clinical condition. Death is usually by asphyxiation due to large amounts of blood obstructing the airways. Intercostal arteries can be the causes of the bleeding. In such cases intercostal artery angiography should be included to the study.

**Keywords:** endovascular, hemoptysis, intercostal artery, massive

## PP-170

## Late Presentation and Conservative Management in a Type I Aortic Dissection

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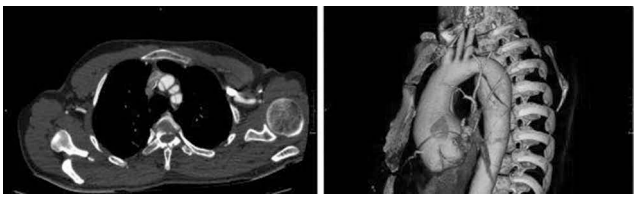
**Introduction:** We hereby report a late presentation and medical management in a type I aortic dissection.
**Case:** Thirty eight years old male patient was diagnosed with Type I aortic disection extending into the carotid arteries after a

**Figure 1**



*Type I aortic disection extending into the carotid arteries.*

CT scan was obtained. (Figure 1) In consideration of the one month period between the initial presentation and the diagnosis, no signs of organ malperfusion as well as lack of progression of the illness, conservative management with strict blood pressure control with frequent follow ups were recommended.

**Discussion:** Even though surgery is the preferred approach for acute presentations in Type I aortic dissection, conservative approach may be recommended in low-risk patients.

**Keywords:** type I aortic disection

## PP-171

### Renal Nutcracker Syndrome

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**Aim:** Nutcracker syndrome, also called left renal vein entrapment syndrome is a rare cause of non-glomerular hematuria due to compression of renal vein between the aorta and the superior mesenteric artery. This phenomenon results in renal venous hypertension and unilateral hematuria. We report a typical case of nutcracker syndrome in a male 15 year old with a characteristic clinical picture. The diagnosis was finally established by constrated computed tomography studies.

**Material and Methods:** Fatigue and lassitude, flank pain, abdominal pain, and macroscopic hematuria were the presenting symptoms. Urinalysis revealed microscopic hematuria or non-nephrotic proteinuria. Abdominal computed tomography scan identified compression of the left renal vein between the superior mesenteric artery and the aorta.

**Results:** The patient was diagnosed as having the nutcracker phenomenon and no treatment had begun. After 6 months, the patient's hematuria and anemia spontaneously improved. the body mass index was markedly increased at the end of the follow-up period relative to at diagnosis.

**Conclusion:** The nutcracker phenomenon is a rare cause of hematuria. The exact incidence of the symptomatic nutcracker phenomenon is not known, although most cases in the literature have been reported from the Far East. The diagnosis of this syndrome should be considered in the presence of symptoms such as proteinuria and hematuria and should be absolutely ruled out before attempting renal biopsy. An apparent correlation between an increased body mass index and regression of symptoms was seen. It originates exclusively from the left kidney and is a possible cause of orthostatic proteinuria and hematuria. Although under diagnosed, there are several treatment options available ranging from simple surveillance to surgical resolution.

**Keywords:** nutcracker syndrome, renal vein entrapment, hematuria without diagnosis.

## PP-172

### May-Thurner Syndrome, Iliac Vein Stent Implantation

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May-thurner syndrome or iliac vein compression syndrome is a rare clinical condition which appears as a result of compression of the left common iliac vein where it's crossed by the right common iliac artery in front of the lumbal vertebral body.

In fact may-thurner syndrome is an anatomical variation. According to the studies this variant present in over 18–20% of the population and it is mostly asemptomatic. Only 2% of these patients examined with DVT, varicosities, chronic venous stasis ulcers or pulmoner embolism. Especially DVT is the classical presentation of the may-thurner syndrome.

Upon the doubt of the clinician, the diagnosis of may-thurner syndrome must be based on the chlinical history of the patient, the physical examination and the imaging findings. Doppler usg, CT, MR imaging and venography are available in diagnostics of may-thurner syndrome.

There are many different treatment options. If the compression of vein is minimal the conservative management like systemic anticoagulation, is possible. But in advanced cases this treatment is inadequate. At the present day endovascular technics like stent implantation with pharmacological anti-trombotic treatment are more preffered than surgical treatment.

In our case, we describe an unusual presantation of may thurner syndrome. A 22 year-old woman administered to our clinic with only leg swelling which was continued for ten years. There was no other finding like DVT, chronic venous ulsers or pulmoner embolism. We diagnosed the patient with physical examination and radiological imaging techniques. In this case; as the method of the treatment; we used stent implantation.

**Keywords:** may-thurner syndrome, stent implantation, iliac vein

**Figure 1**

*view of the stent from AP imaging.*

## PP-173

# Can we Direct Deep Venous System Bood to Superficial Venous System in Deep Venous Injuries

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**İntroduction:** The peripheral vascular injuries are very common and require emergency intervention. Vascular injuries are classified as: contusion, intimal disruption, puncture, lateral disruption, transaction, arterio-venous fistulae and pseudoanerysm. Rapid diagnosis of vascular injury is very critical. İn prevention of mortality, extremity loss and dysfunction early vascularization is mandatory.

**Case Presentation:** The 16-year-old male patient, 2 hours after penetrating vascular injury, was brought to our emergency service. Under general anesthesia femoral region evaluated. Through the open wound destructed superficial femoral artery, superficial femoral vein and deep femoral veins easily explored. The vascular clamps were rapidly placed to superficial femoral artery, superficial femoral vein and deep femoral vein. The exploration field was widened to femoral region. Large defective segments in all arterial and venous vascular structures were evaluated due to the corrosive effect of the firearm. All arterial and venous vascular structures were inappropriate to primary repair so Vena saphena manga prepared from the effected extremity. Superficial femoral artery and superficial femoral vein were repaired respectively with otogen saphein vein graft.

The destructed proximal segment of the deep femoral vein couldn't be explored through the group of deep extensor muscles. As a result, drainage of deep femoral vein to sapheno-femoral region was decided. Findings of congestion in the leg disappeared after repair of deep femoral vein rather than repair of superficial femoral vein.

**Case Figures**

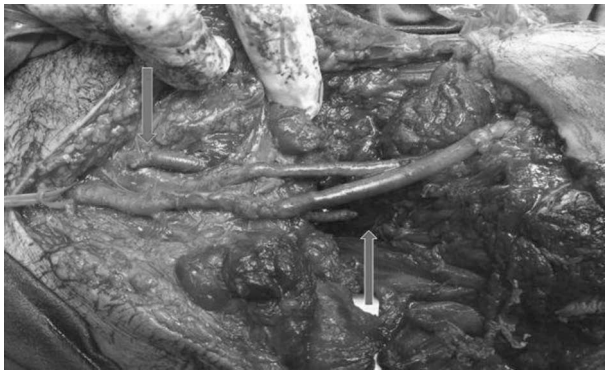

*Figure: Drainage of distal end of deep femoral vein (blue arrow) to sapheno-femoral junction (red arrow).*

**Conclusion:** We conclude that performing drainage of deep venous system to superficial venous system would be a good alternative in the inappropriate cases for end to end repair.

**Keywords:** vascular injury, deep venous system, otogen vascular greft

## PP-174

# Acute Deep Venous Thrombosis Associated with Acute Brucellosis: A Case Report

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**Background:** Brucellosis is a zoonotic disease that is common in developing countries, which is a serious medical impact. Vascular complications, including arterial and venous associated with Brucella infection, have rarely been reported. In a review of articles, it is clear that, only seven cases of deep venous thrombosis (DVT) of the lower extremities and just one case of cerebral venous thrombosis, associated with brucellosis have been reported so far. In this paper, a case report is presented of deep venous thrombosis (DVT) developing after a diagnosis of acute brucellosis in a young milkman. Apparently, this case report is the second case of DVT due to brucellosis in Turkey.

**Case Presentation:** A 26-year-old man who presented with pain in the right leg had been dealing with milk. The patient's medical history included a diagnosis of brucellosis three weeks previously in our hospital where he had presented to with complaints of weakness and fever. Peripheral venous doppler ultrasound showed DVT and patient was treated with anti coagulants. The patient discharged with warfarin therapy and anti-brucellosis treatment.

**Conclusion:** Although rare, some infectious agents may cause vascular pathologies.

These conditions may be life-threatening. Patients presenting with symptoms of DVT or similar vascular pathologies should be assessed for infectious agents particularly in those coming from Brucella-endemic areas.

**Keywords:** brucellosis, deep venous thrombosis, venous thromboembolism

## PP-175

### Effect Of Jak2 V617F Mutation on the Venous Thrombosis in a Patient with May–Thurner Syndrome: A Case Report

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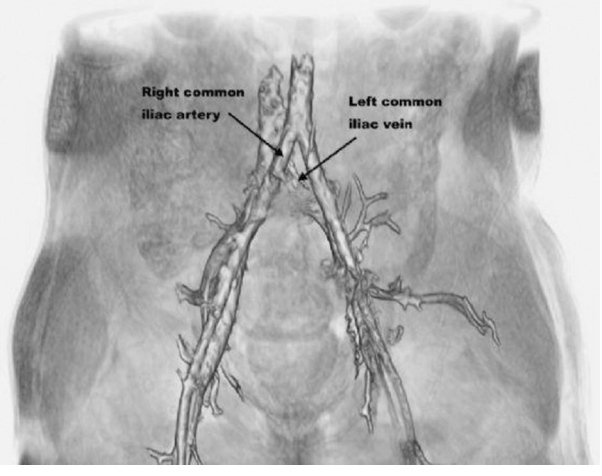
May–Thurner syndrome (MTS) is typically a common condition that the left common iliac vein is compressed against the fifth lumbar vertebrae by the right common iliac artery, as it crosses in front of the vein. MTS can present as acute or chronic deep venous thrombosis (DVT) leading to pulmonary embolism (PE) or other well-known complications. It is important to consider MTS in patients who have no other obvious reason for hypercoagulability. Other causes for hypercoagulable state, JAK2 V617F mutation is a recently found and useful test for the diagnosis of myeloproliferative disorders (MPD) and also apparently idiopathic abdominal venous thrombosis. We have described an interesting case of a 21-year-old male who presented with two spontaneous episodes of left lower limb venous thrombosis. MTS related DVT of the left common iliac vein diagnosed with magnetic resonance (MR) venography (Figure 1). When we checked the reasons of hypercoagulability, however, JAK2 V617F mutation was diagnosed without any MPD or other findings comorbid this mutation. Subsequently, patient was discharged on coumadin therapy and compression stockings. MTS and comorbid JAK2 mutation in a case is the first in literature and highlights the potential of detail testing in recurrent DVT of lower limb. DVT may be aggravated with JAK2 mutation in MTS patients as in our case.

**Keywords:** JAK2 mutations, venous thrombosis, may-Thurner syndrome

**Figure 1**




*May-Thurner Syndrome. Compression of the left common iliac vein by the right common iliac artery visualized with 3D magnetic resonance venography.*

# Miscellaneous

## PP-176

### A Simple Additional Method for Creation of Arteriovenous Fistula

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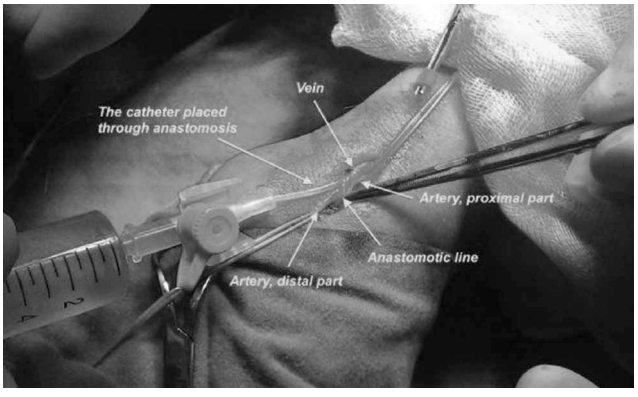
**Introduction:** Arteriovenous fistulas (AVF) are commonly used in patients with end-stage renal failure. Creating of an AVF is mainly in the field of cardiovascular surgery, while hemodialysis and the other interventions are usually in the field of nephrology. Several techniques of anastomosis were defined for many years about creating AVF such as end-to-side, side-to-side, and end-to-end. We would like to present our simple method that can be applied with all of the techniques mentioned before.

**Surgical Technique:** Classical techniques are performed as always done until the end of anastomosis. Afterward, lumen of the vein is washed by heparinized, warm fluid with the assistance of a simple catheter, which is used as the probes used in coronary anastomosis. The catheter can be inserted on tip of a simple injector; therefore the heparinized fluid can be injected simply (Figure 1). We created AVF with this technique on 11 patients with good results. No thrombosis and revisions necessity were seen in early time of operation. All the fistulas were functional on first and third month and all of the patients were undergone hemodialysis at the 3rd week of operation.

**Discussion:** Most important aim of this method is washing the lumen of vein, which may be occluded by thrombosis within the creation of anastomosis period. The other benefits are the follows: Controlling the patency of anastomosis by mechanically as in the coronary surgery, and preventing the vasospasm through the temperature of fluid. The most important complication of this method

**Figure I**




*Surgical view of the method. The lumen was washed with heparinized fluid into a simple catheter just before the completion of anastomosis.*

may be endothelial damage by catheter. Increased bleeding rates and rupture of the suture of anastomosis are the other possible complications, which can be avoided with care.

**Conclusion:** We believe that, this method will increase the early patency rates of AVF. Therefore we recommend using this method in all AVF creation operations.

**Keywords:** arteriovenous fistula, patency rates, control of anastomosis

## PP-177

### Our Experiences in Sharp-Object and Gunshot Wounds

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**Introduction:** Reasons of peripheric vessel injuries are related to socio-economic level and localization where individuals dwell. Wounds of extremities, if intervened late, may lead to the losses of extremities and even deaths. Here, we aimed to present our experiences concerning the patients treated with appropriate diagnostic and surgical approach.

**Material-Method:** Thirteen patients admitted with sharp-object and gunshot wounds between January 2011 and February 2013 and operated on in the Department of Cardiovascular Surgery of Konya Training and Research Hospital were retrospectively investigated.

**Results:** All cases were men, mean age rate was 24.3 ± 16.4 (from 9 to 44 years). Of 13 cases, 7 were admitted with sharp-object wounds, 3 with gunshot wounds, and blunt trauma was present in 2. Surgery was decided via the findings of physical examination for 5 cases, via arterial-venous Doppler Ultrasound imaging for 7, and via digital subtraction angiography (DSA) for 1 case with lower extremity trauma. However, computed tomograhy was performed for traumas including abdominal and thoracic regions.

Among total 10 cases with arterial wounds, 3 had accompanying venous injury, 1 had accompanying internal jugulerven injury, and 1 had accompanying cardiac injury. The last case indicated poplitealven injury, as well as muscle and nerve injuries. The case with femoral arterial injury was restored with politetrafloroetilen (PTFE) graft, and 3 cases with brachial-arterial, ulnar-arterial and poplietal-arterial injuries were restored with saphenous vein plus bypass.

**Discussion:** Considering the mortality rates in literature, the percentages related to vascular injuries range from 1.5% to 20%. As consistent with literature, 2 of 13 cases died in our study.

In cases with vascular injuries, the fact that the duration to take patients to hospital is short, and diagnosis and decision are made accurately in the emergency will decrease the rate of amputation and mortality.

**Keywords:** gunshot wounds, sharp-object wounds

## PP-178

### The Use of Enoxaparin and Tizaparin Thrombosis of Patients Treated with Radiothraphy and Chemotherapi

***Zeynep Ulusan Özkan,*** *Ata Niyazi Ecevit, Mehmet Orkun Şahsıvar, Mustafa Dağlı, Mehmet Kalender, Osman Tansel Darçın*

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**Objective:** Venousthromboembolism is encountered in nearly 20% of patients with cancer. Procoagulant factor and tissue factor in malign cells are effects in pro-inlammatory cell stimulus, angiogenesis and coagulation. We aimed to compare the effectiveness of low-molecular weight heparin (LMWH), enoxparin and tinzaparin on thrombosis developing in such patients.

**Material-Method:** As 18 patients admitted to Ankara Oncology Hospital in 2009 and 18 patients to Konya Training and Research Hospital in 2012, 36 patients presenting with venous thrombosis while being treated with radiotherapy and chemotherapy due to cancer were investigated retrospectively.

**Cases:** Of 36 cases, 14 were given enoxaparin, and 22 were given tinzaparin. Gastrointestinal system tumors were present in 22 cases; 5 cases displayed involvement of genitourinary system; 3, 4, 1 and 1 cases had breast cancer, lung cancer, lymphoma and brain tumor, respectively. Four of 10 lethal exitus were with colon cancer. Among 2 patients treated with enoxaparin, one survived for 9 months, and the other for 16 months; however, of 2 cases on use of tinzaparin, one survived for 4 and the other for 5 months. While 2 of 3 stomach cancer patients treated with tinzaparin survived for 1 and 3 months, the third patient treated with enoxaparin survived for 7 months. Treated with enoxaparin, 2 of 3 patients with pancreas cancer survived for 3 months, but the last treated with tinzaparin died 1 month after the diagnosis of thrombosis.

**Conclusion:** A regression was observed at the rate of symptoms in cases where thrombosis clinically developed while being treated with LMWH, and no novel thrombosis was monitored on Doppler US imaging. A regression was observed, and no hemorrhagic findings were witnessed in patients. However, life span was seen to be longer in patients given enoxaparin. Anti-tumor effect was considered to play a part on longer life span.

**Keywords:** venousthromboembolism, low-molecular weight heparin

## PP-179

### Rare Anomalies of Upper Extremity Mimicking Venous Dilatation

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3 glomus tumours, 2 synovial cysts and a blood cyst were detected in patients presenting with symptoms of mass effect, pain and tenderness and cosmetic reasons.

Glomus tumours are benign lesions deriving from the glomus body responsible for blood and temperature regulation. Two of the glomus tumours were located in the flexor side of the 1/3 proximal forearm and one in the palm. Doppler USGies showing marked vascularity aroused the suspicion of the tumours and MRIs had high T2 signal and marked uniform enhancement after gadolinium administration. The diagnosis were confirmed histopathologically from the excised tumours of the forearms'. Parents of the little boy with palmar glomus tumour refused the operation.

Two of the synovial cysts were on the lateral aspect of the wrist. The patients were heavy workers that we thought multiple traumas might have played roles in the etiology.

Blood cyst of the forearm is a quite unique entity. The patient underwent valve replacement due to infective endocarditis two years ago and has been under warfarin_Na treatment since then. However, he insisted that the cyst was also present while he had endocarditis and has got bigger in times. Excised cyst was pathologically proven to be blood cyst with partial thrombosis.

On follow-up no resected lesions showed recurrence.

**Keywords:** glomus tumour, blood cyst, synovial cyst

## PP-180

### Vascular Complications Related to Lumbar Disc Surgery

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Vascular complications related to lumbar disc operation are rare but extremely fatal conditions. The vascular related symptoms that warn the surgeon may be late to appear: they usually turn out to be mortal. The hypotension during the operation, tachycardia and pulsatile unstoppable hemorrhage observed in the disc space are major findings, urgent detection of this complication and the repair of the vascular injury prevent the case from turning out to be fatal.

We report our experience 4 cases with vascular complications that occurred during lumbar disc operations performed.

One patient underwent an L5-S1 procedure and the remaining underwent L4–5 surgery. Missed injuries which were found during the late postoperative period, including pseudoaneurysm in one case and 3 cases with complications occurring early in postoperative period, the all cases left common iliac artery.

In two cases shock or pre-shock due to hemorrhage developed during the early phase. 3 cases the lesion was repaired using primer suture techniques and the other case performed endovascular graft insertion.

There was no surgery-related death and none of the patients suffered any problem related to vascular injury.

Despite its low incidence, iatrogenic vascular injury related to lumbar disc surgery is a possible complication. During lumbar disc operation early diagnosis of vascular injuries and urgent transperitoneal surgery can save patients' lives.

**Keywords:** disc surgery, vascular trauma

## PP-181

### Community Ambulatory Venous Surgical Centers Setup in Hong Kong

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Clinic Natural Ambulatory Surgical Centre, Venous Surgical Centre

**Aim:** Varicose vein is common in Hong Kong, affecting up to 55% of adult. It has both significant pathological and cosmetic impacts on Patient. Treatment of such condition is however suboptimal due to large patient load and lack of facilities. Most of the patient could not receive adequate treatment before severe disease stage. This article discusses the setup of Community Ambulatory Venous Surgical Centers (CAVSC) and the expected efficacy to deal with the condition.

**Methods:** As a case report, it documents the rationale, setup, management and efficacy of community venous ambulatory surgical centers in Hong Kong.

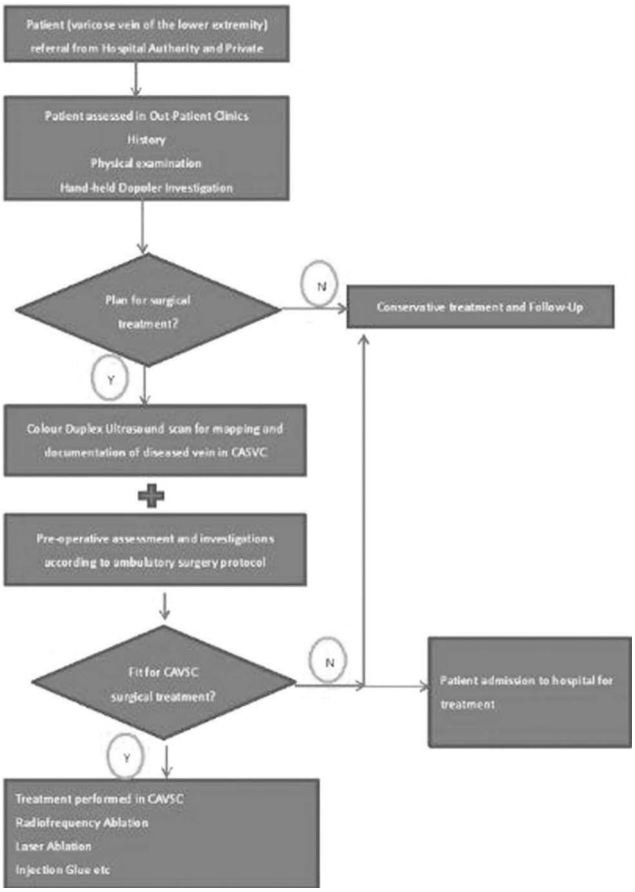
**Results:** The estimated varicose vein case number in Hong Kong is beyond 300,000, and roughly 75,000 cases require treatment. But only 2566 cases are treated in hospital in 2012 year term and not all of them received definite surgical treatment. The treatment supply is far lag behind the demand. Setting up Community Venous Ambulatory Surgical Centers can relieve the stress.

Four ambulatory surgical centers of designated functions are established successfully in managing varicose vein disease of different severity in Hong Kong. Related instruments are installed including duplex ultrasound, radiofrequency ablation unit, laser ablation system, surgical suite etc.

With the estimated annual treatment capacity being around 200 cases, the centers could manage 28% of the total annual cases treated in private sector. This significantly shortens the treatment waiting time. It is effective in dealing with varicose vein disease at early disease stage and prevents disease progression to severe complications.

**Conclusions:** The concept of setting up CAVSC can be effective in dealing with varicose vein disease at early stage with convenient accessibility. The strategy improves patient satisfaction, shortens treatment waiting time and reduces extra resources consumption

**Figure: CAVSC Referral**




*CAVSC Referral The CAVSC referral system.*

due to disease complications. This model can be promoted to other disease condition after further evaluation of its efficacy.

**Keywords:** ambulatory venous surgical center, varicose vein

## PP-182

## Does Vitamin C or Its Combination with Vitamin E Improve Radial Artery Endothelium Dependent Vasodilatation in Patients Awaiting Coronary Artery Bypass Surgery?

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**Background:** We evaluated the vasodilating effects of two antioxidants, vitamins C (ascorbic acid) and E (a-tocopherol), on radial artery and endothelium-dependent responses in patients awaiting coronary artery bypass surgery.

**Materials-Methods:** The study was performed in three groups. The first group took 2 grams of vitamin C, orally (n = 31 patients, Vitamin C group), and the second group took 2 grams of vitamin C with 600 milligrams of vitamin E, orally (n = 31 patients, Vitamins C + E group) and the third group took no medication (n = 31, Control group). After baseline measurements of the radial artery lumen diameter, flow volume and lumen area in the non-dominant radial artery were taken, occlusion for 5 minutes was maintained with a pressure cuff placed around the arm. The measurements were taken again at the cuff deflating time and 60 seconds later. Then, the measurements were repeated after medications in two groups and after placebo in the third group.

**Results:** We compared values of vitamin C group with vitamins C+E group, and found that values of vitamins C+E group were higher than those of vitamin C group, but it showed no statistically difference from the other group. In control group, there was no statistically difference.

**Conclusion:** Vitamin C or its combination with vitamin E enhances endothelium dependent vasodilatation in the radial circulation of patients with coronary artery disease, and it is statistically significant. Its combination with vitamin E is superior to vitamin C administration alone for endothelial enhancement, but this difference is not statistically significant. So, we hypothesized that vitamin C or its combination with vitamin E may be used as antioxidants for arterial graft patency in patients undergoing coronary artery surgery.

**Keywords:** antioxidants, vitamin C, vitamin E, atherosclerosis

## PP-183

## Inhibition of Angiogenesis by Calcium Dobesilate in the Chick Embryo Chorioallantoic Membrane Model

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**Objective:** Calcium dobesilate (CaD) is a veno-tonic drug that is widely prescribed in venous diseases. Antioxidant and vasoprotective effects of CaD were described previously. Moreover, recent studies focused on to possible microcirculatory effects such as angigogenesis. Thus, we investigated the antiangiogenic efficacy of CaD in chick chorioallantoic membrane model.

**Method:** Antiangiogenic potential of CaD was compared with well defined antiangigogenic agent Bevacizumab (Bb). Three different concentrations (10-6, 10-5, 10-4 M) of drug pellet were prepared for each drug. Vascular structures were evaluted after pellet application and vessel regression were scored.

**Result:** As expected, antiangiogenic effects were observed for each concentration of Bb. The anti-angiogenic scores of Bb were

determined as 1.0, 1.6, 2.1 in 10-6, 10-5, 10-4 M concentrations respectively. The antiangiogenic behavior of CaD was lower than Bb, despite the significant dose dependent increase manner. The anti-angiogenic scores of CaD were determined as 0.47, 0.66, 1.0 in 10-6, 10-5, 10-4 M concentrations respectively (average score >0.5 was significant). Significant inhibition observed at higher doses (10-5, 10-4 M) of CaD.

**Conclusion:** CaD shows significant antiangiogenic effect by dose increment. This antiangiogenic effects may be benefical for disorders with pathological angiogenesis formation, such as diabetic rethinopathy. However, this antiangiogenic behaviour might be disrupt essential angiogenesis in patients whom needs angiogenesis for provide organ microcirculation (e.g. diabetic peripheral vasculopathies). Therefore, the possible benefits or harms of antiangiogenic behaviour of CaD should be investigated in future studies.

**Keywords:** calcium dobesilate, angiogenesis, dose-dependent action, chorioallantoic membrane model

## PP-184

### Comparison of the Antiangiogenic Behaviors of New and Old Factor Xa Inhibitors

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**Objective:** Factor Xa inhibitors are important drugs in thrombosis prophylaxis. However, old factor Xa inhibitors low molecular weight heparins (LMWH's) are invasive drugs which can utilized via subcutaneous or intravenous. Thus, new oral factor Xa inhibitors developed for alternative use which are non-invasive. However, efficiency of these drugs still is a moot point. We compared antiangioenic impacts of Factor Xa inhibitors in chick chorioallantoic membrane model.

**Method:** New oral factor Xa inhibitor Rivaroxaban and LMWH's (Enoxaparin sodium and Tinzaparin sodium) compared in the study. Three different molar concentrations (10-4 M, 10-5 M, 10-6 M) were studied for each drug. Each drug compared each other after vessel formations were evaluated and scored.

**Results:** Enoxaparin and Tinzaparin sodium all shows insignificant antiangiogenic effects with dose depended manner ($p < 0.05$). This dose depended behaviours is similar as Rivaroxaban. But it is in significant too.

**Conclusion:** New factor Xa inhibitors seem to be more favorable due to oral usability. Furthermore, the antiangiogenic potentials of Rivaroxaban is similar as LMWH's. So, it can have similar microcirculatory effects as LMWH's.

**Keywords:** factor xa inhibitors, LMWH's, rivaroxaban, angiogenesis

## PP-185

### The Role of Hospital Disaster Planning in Traumatic Vascular Injury

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**Background:** Considering the importance of emergency medical practice as a therapeutic specialty such as vascular injury is very important during disaster condition and itís logical to think about vascular management.

**Methods:** First of all we have defined clinical crisis as a situation in which a hospital is not able to cope based on it normal daily capacity. An aerial map of namazi hospital (for which the study is conducted) is used to depict the positions of field units and command centers both when it's partially dilapidated. Necessary training based on this procedure was provided to the staff and the program was followed to the practice phase and a maneuver was then conducted.

**Results:** The program should be prepared in such a way to constitute immediate establishment of crisis committee comprised of: (1) head of the hospital who should direct the operation and make contacts to other on call physiciansí (2) Para clinic unit (3) nursing unit (4) psychiatric (5) emergency evacuation unit, (6) specialized units. Each unit is headed by a director for whom 3 surrogates should be designated who would immediately take the directorís place if and when necessary. The operation would begin by an announcement by the head of the crisis management headquarters of the university to the head of the hospital as the field commander.

**Discussion:** After preparing such plan extensive and comprehensive training should be given to hospital staff or whoever which would be engaged in such reaction. Eventually the readiness of the staff should be evaluated through simulated situations and maneuvers.

**Keywords:** disaster, traumatic, vascular

## PP-186

### Assessment Effect of Triage Education Based on Emergency Severity Index (ESI) on Knowledge and Performance of Nurses in Patients with Vascular Diseases and Improvement the Qualitative Indices of Emergency Department

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**Introduction:** It is essential for nurses in emergency ward to be aware of the triage process based on emergency severity index (ESI)

in order to properly identify, prioritize patients specific patients with vascular disease that have vital role in patients and to do the appropriate nursing services to patients in the shortest time needed.

**Method:** Present research is a quasi-interventional study. For this purpose fifty members of staff including nurses and technicians emergency medicine in the Emergency Department with the inclusion criteria for participation were selected. At first, Knowledge and practice of staff in the emergency department on patients triage was evaluated by means of tests. Then a workshop about vascular diseases was held for personnel.

**Results:** The knowledge triage score before training increased from 10.7206 ± 3.1 to 17.8 ± 1.6, two days after training and 16.1 ± 2.3, six weeks after training, Triage performance score from 48.9 ± 9.9 before training increased to 59.8 ± 7.6, two days after training and59.7 ± 8.1, six weeks after training. (P-value = /001) And the workshop was effective on promotion the qulitative index of the emergency department, however in the period of three months before to three months after the intervention. Average percentage of successful CPR was performed in the emergency department is increased from 28.6% for 62.6% and the Percentage of patients care following under 6 hours is 100% of both time and has not changed.

**Conclusion:** The results showed that triage education influences on the practice and knowledge of nurses and improvement qualitive index of emergency department. Therefore, the development of theoritical and practical of training triage for nurses in all hospitals is recommended. In addition, ongoing training in these areas is essential and effective, because the impact of training is reduced over the time.

**Keywords:** triage,nurses, vascular

## PP-187

## Importance of Air Way Management in Patients with Traumatic Vascular Injury

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**Background:** airway skills are perhaps the most important skills that emergency physician possesses. The new techniques that used to find the air way let the physicians to save the golden time and decrease the mortality rate. In this paper we studied systematic review on the articles that introduced these methods.

**Method:** We conducted a systematic review on 10 cohort studies from Barcelona university-Alabama university-Virginia university and Singapore university where have been done during 2003 to 2006 and the published results are existing on line in the internet.

**Results:** The finding from this systematic review indicate that before intubation we should know the case of death or near death of patients. If patient is near death we should determine that his or her airway is difficult or not. The no difficult airway leads to RSI (rapid sequence intubation) and if the case is difficult airway the approach depends on the saturation of blood oxygen where used BMV (bag mask ventilation)-Awake technique or LMA (laryngeal mask air way) or cricothyrotomy or blind nao tracheal.

For near death ones (crash airway) first BMV is recommended to use and then try to intubation. If its not successful we would consider failed air way and use BMV and then cricothyrotomy.

**Conclusion:** It is necessary for emergency physician to has learn to work with this instrument because management of air way is the first duty of emergency medicine and emergency physician should decide about personal workers management in emergency department and using each instrument in the best way.

**Keywords:** air way, vascular injury, emergency

## PP-188

## Axillary Schwannoma Mimicking Hemangioma: Case Report

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Schwann cells provide myelin sheath insulation for peripheral nerves. Schwannomas are commonly benign tumors originating from Schwann cells and malignant transformation can rarely be seen. They are solitary, encapsulated and grow slowly. 57 year old man presented with painless palpable mass in the right axilla for 2 years. He was admitted at the department of general surgery two months ago for palpable mass in the right axilla and he underwent incisional biopsy. The patient who had showen hemangioma like findings in his biopsi, referred to our clinic. On local examination, he had a 10 × 5 cm firm swelling in the right axilla. There was no neurological deficit in the upper limb. The hematological and biochemical parameters were within normal limits. The patient was operated under general anesthesia. During surgery for excision through an axillary approach, a 10 × 7 × 6 cm firm mass arising from the medial cord of brachial plexus was found. Axillary artery and vein were controlled. The tumour was completely enucleated avoiding any damage to artery, vein or nerves. The patient was discharged on postoperative day 4 without any problem. The histopathology of the tumour was consistent with malign Schwannoma. The patient referred to oncology department for medical treatment.

**Keywords:** schwannoma, neurogenic tumour, axillary mass

## PP-189

### Traumatic Vascular Injuries Diagnosis and Treatment Approaches

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[2]Yenimahalle State Hospital

**Background:** We evaluated the cases admitted to emergency clinic with traumatic vascular injuries requiring surgery.

**Methods:** Cases operated for traumatic vascular injuries were evaluated retrospectively in terms of injury site, associated lesions, applied treatments and early results.

**Results:** We studied forty-five males, eighteen woman, totally sixty-three patients (mean age:31, age range: 17–65) who had surgical operation for traumatic vascular injuries. The most common cause of injury was cutting-piercing tool injury in thirty seven patients.

**Conclusion:** Injury site and form, associated injuries, early intervention, carefull approach to the patient are important factors that affect morbidity and mortality in traumatic vascular.

**Keywords:** traumatic injury, traumatic vascular injury, surgical therapy of vascular injuries

## PP-190

### Vascular Complications of Intra Aortic Balloon Pump

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**Objective:** Despite the increasing number of older, sicker, and more extensive diseased patients referring for coronary artery bypass grafting results of cardiac operative procedures continue to improve. However; low cardiac output and cardiogenic shock are still life threatening complications of cardiac surgery. The intraaortic balloon pump usually is the first mechanical device used for perioperative cardiac failure.

**Method:** The patient population was consisted of 76 (78, 4%) males and 21 (21, 6%) females with a mean age of 58 ± 8, 5 years (range 38 to 77 years). 8 patients required preoperative, 64 patients intraoperative and 25 patients postoperative IABP.

**Results:** There were 13 (13, 4%) major and minor complications due to IABP insertion. 11 limb ischemia, local bleeding in the insertion site in one patient and one local infection. 5 of the patients with limb ischemia recovered after the removal of the IABP.

**Conclusion:** IABP has remarkable beneficial effects in patients with haemodynamic instability due to myocardial ischemia and low cardiac output syndrome. At the same time IABP is related to significant morbidity and mortality related to vascular complications due to its insertion which include limb ischemia, limb loss and even mortality.

**Keywords:** IABP, vascular complication

## PP-191

### Cardiopulmonary Bypass and Total Circulatory Arrest for the Treatment of Renal Cell Carcinoma

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Total surgical resection was performed to 11 patients with renal cell carcinoma and vena cava inferior extension of the tumor. Seven patients (63.6%) were male, 4 (36.4%) female and the mean age was 66. Coronary artery disease was present in 2 (18.2%), peripheral artery disease in 1 (9.1%), hypertension in 5 (45.4%), and diabetes mellitus in 3 (27.2%) patients.

Infrahepatic vena cava involvement of the tumor thrombus (level I) was detected in 3 (27.2%), retrohepatic vena cava involvement (level II) in 3 (27.2%), suprahepatic vena cava involvement (level III) in 2 (18.2%) and intraatrial presence (level IV) in 3 (27.2%) patients.

Cardiopulmonary bypass (CPB) was not used in level I and II patients. We preferred cell saver usage in 2 of these 6 level I and II patients. While CPB was used in all level III and IV patients, total circulatory arrest (TCA) was necessary in 1 of 2 patients (50%) in level III and in 2 of 3 patients (66.7%) in level IV. Redo sternotomy was done in one patient (9.1%) with previous CABG. Concomittant procedures were mitral valve reconstruction in 1 patient (9.1%) and cholecystectomy in 2 patients (18.2%). Postoperative intensive care unit stay was 4.1 ± 6.8 days, hospitalization period was 22.7 ± 27.3 days. One patient (9.1%) needed revision for bleeding and one patient was lost due to disseminated intravascular coagulation.

Surgical strategy in the treatment of renal cell carcinoma with vena cava inferior extension is extremely important. The classification of the caval extension plays the key role for the surgery. CPB and TCA should be considered in level III and IV patients. While CPB was used in all level III and IV patients, TCA was used according to the invasiveness of the tumor.

**Keywords:** renal cell carcinoma, vena cava inferio tumor, cardiopulmonary bypass, total circulatory arrest

## PP-192

### Local/Controlled-Release Statin Ameliorates Adipose-Derived Stem Cell Therapy in Limb Ischemia

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**Aim:** Clinical trials of autologous adipose-derived stem cell (AdSC) therapy for peripheral artery disease (PAD) patients with critical limb ischemia are now on-going. We have investigated the hypothesis that statin, an agent of activating stem cells, could augment the therapeutic potential of AdSCs.

**Material-Methods:** Human AdSCs were isolated by enzymatic digestion of surgically resected subcutaneous adipose tissue. Nude mice underwent unilateral hind limb ischemia by femoral artery ligation and were assigned in the following 4 groups with different local injection: gelatin hydrogel (1 mg, Control), Simvastatin-conjugated gelatin hydrogel (18 μg/mg, ST), AdSCs (50, 000 cells), and ST + AdSCs. Laser Doppler Imaging analysis was performed weekly for blood flow assessment in ischemic area, and vascularity and transplanted AdSC retention/differentiation were examined by immunohistochemistry 28 days after surgery. To evaluate the effect of simvastatin on AdSC functions of proliferation/migration and differentiation/growth factor production, human AdSCs were treated with different doses (0, 1, 10, 100, 1000 nM) of simvastatin, and MTT assay/Transwell method and real-time RT-PCR were performed *in vitro*.

**Results:** Although all groups exhibited significant recovery of blood perfusion with increased vascularity, the best result was obtained in ST+AdSCs group. The retained transplanted AdSCs were significantly increased in ST+AdSCs group compared with those in AdSCs group. Moreover, the transplanted AdSCs were not only more survived but also more differentiated into Endothelial cells (ECs) and vascular smooth muscle cells (VSMCs) in ischemic tissue in ST+AdSCs group. *In vitro* assay, simvastatin significantly promoted the migration activity of AdSCs without changing proliferation activity, and also up-regulated mRNA expressions of various growth factors, and EC or VSMC markers in a dose-dependent manner except for 1000 nM in AdSCs.

**Conclusions:** Local/controlled-release statin augments both paracrine effect on angiogenesis and direct contribution to neovascularization of AdSCs in mice. Local combined application of statin and AdSCs might ameliorate therapeutic angiogenesis in severe PAD patients.

**Keywords:** statin, stem cell, ischemia, angiogenesis

## PP-193

### Unilateral Breast Enlargement After a Brachiobasilic A-V Fistula in a Patient with Subclavian Vein Occlusion

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**Aim:** The subclavian vein occlusion or stenosis is a well-known complication in patients who have had central venous catheters inserted into the subclavian vein or the internal jugular vein.

**Material and Methods:** Between 2005 and 2013, 5 patient was admitted to our outpatient clinic with breast enlargement following ipsilateral AV fistula. All patients had a history of percutaneous double-lumen catheter insertion for temporary hemodialysis on their right subclavian vein. They had mean 6 AV fistula operation within 5 years and last ones functioned well.

**Results:** On examination thrilled transposed brachiobasilic AV fistulas on the right arms and remarkably right breasts asymmetric enlargement. The subcutaneous veins of the right infraclavicular region were significantly dilated and tortuous. The breast examinations revealed no mass but the skin was edematous as compared to the left one. The mammograms demostrated subcutaneus edema and increase in breast density but no calcifications or mass. Right upper extremity venography and fistulography was performed and revealed occlussion of the right subclavian vein with multiple venous collaterals. Fistula ligation was suggested to for the relief of breast enlargement.

**Conclusion:** Stenosis of the subclavian vein usually occurs following catheter insertion for hemodyalysis. Ipsilateral breast enlargement is a rare complication in patients with active AV fistula when there is subclavian vein occlusion. Generally the only treatment option is ligation of the AV fistula; however, it eliminates an important site of vascular access for hemodialysis.

**Keywords:** breast enlargement, A-V fistula, subclavian vein occlusion

## PP-194

### Thrombolysis with in Ultrasonographic Cathater in Acute Pulmonary Embolus

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**Aim:** Acute pulmonary embolus is a life threatening disease having limited treatment modalities. Catheter based interventions

have become alternative choices for treatment of pulmonary embolus. We present a case of pulmonary embolus we treated with percutaneous thrombolysis via ultrasonographic catheter.

**Material-Methods:** A 75 years old woman with Parkinson disease was admitted to our hospital with dyspnea. Transthoracic echocardiography showed that pulmonary artery pressure was 65 mmHg with tricuspide regurgitation. Thorax computerized tomography showed massive thrombus in bilateral main pulmonary arteries. Lower extremity Doppler ultrasonography revealed acute thrombus formation in left common femoral vein. Thrombolytic treatment via intrapulmonary catheter was planned because of hypotension despite positive inotropic drugs and low oxygenation. Ultrasonographic thrombolytic catheter was inserted via right femoral vein through main pulmonary artery into the right inferior pulmonary branches. She was taken into intensive care unit having ultrasonographic catheter directed thrombolysis with 1 mg/hour dosage of tissue plasminogen activator for 16 hours. Oxygen saturation was elevated from 80–85% to 96–100% after the intervention and the need for inotropic support decreased.

**Results:** Although the symptoms revealed, echocardiography showed a pulmonary artery pressure of 50 mmHg. Control computed tomographic angiography showed resolution of thrombus only in the segments of lower pulmonary artery but no significant resolution in other regions. We assume that the thrombus was in chronic nature because of an uncertain story the patient told.

**Conclusion:** Pharmacomechanical thrombolysis is a recent and promising treatment way of pulmonary embolus. Further studies are required to assess the efficacy of these procedures on thrombus resolution.

**Keywords:** pulmonary embolus, ultrasonographic catheter, thrombolysis

### PP-195

## Management of Renal Artery Aneurysm: A Case Report

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**Objectives:** Renal artery aneurysm is an uncommon pathology usually having an asymptomatic course, but it carries a risk of life-threatening spontaneous rupture. Prompt management of this pathology is essential. We present a case of renal artery aneurysm we treated surgically.

**Methods:** A 39 year old with headache was examined for hypertension and Doppler ultrsonography showed an aneursym of renal artery. The patient was referred to endovascular stent insertion.Digital subtraction angiography showed tortiose structure of renal artery making it unsuitable for endovascular management.Coil embolisation was not preferred for renal salvage. Surgery was planned in order to prevent rupture and nephrectomy. Median laparotomy incision was made to reach renal artery. The aneursymatic region was exposed after dissecting the renal artery towards the left kidney. Two big renal artery branches to middle and lower segments were decided to be anastomosed for renal salvage. One little brach of upper segment was sacrificed. Renal artery and its branches were clamped and aneursym was excised. The middle segment branch was anastomosed end-to-end first in about 8 minutes.The lower segment artery was anastomosed end-to-side to renal artery afterwards in about 12 minutes.The warm ischemic period of the kidney did not exceed 20 minutes.Pulsation of the branches were adequate with digital examination.The laparotomy incision was closed after maintaining hemostasis in standart fashion.

**Results:** Urine output in the intensive care unit was in normal ranges and the postoperative course was uneventfull. A computerized tomographic angiography was performed on postoperative first day showing that 60% percent of the kidney was functioning. This was because the small upper pole renal artery we had sacrificed in order to avoid prolonging the ischemic period of the kidney. The long term follow up will show the adequacy of the kidney.

**Conclusions:** Several treatment options have been suggested for patients with renal artery aneurysms like nephrectomy, vascular bypass, coil embolization, and stent-graft placement. We presented a case we anastomosed renal artery after aneursym excision.

**Keywords:** renal artery aneursym, surgical resection

# Peripheral arterial disease

### PP-196

## Revascularisation in Critical Lower Limb Ischaemia; Does the Angiosome Matter?

***Nalaka Gunawansa**, Joel Arudchelvam, Ranjuka Ubayasiri, Renzi Cassim, Mandika Wijeyaratne*

University Surgical Unit, National Hospital of Sri Lanka

**Introduction:** Angiosome is a unit of tissue supplied by single feeder artery. The foot has six angiosomes supplied by three main arteries. It is hypothesized that direct revascularization of the relevant feeder artery as the runoff vessel is associated with better outcome in distal revascularization procedures. This was studied in open revascularization performed for Critical Limb Ischaemia (CLI).

**Materials-Method:** Ninety six (65 male, 31 female) consecutive patients with CLI and ischaemic ulcers who underwent primary open distal revascularization were prospectively analysed. All procedures were performed at a single unit by one of three experienced surgeons performing distal bypass. Period of study was from January 2012 to April 2013. The most appropriate patent pedal artery seen on angiogram and duplex imaging was used as the run-off vessel. Patients were divided into direct and indirect revascularization groups based on the angiosome concept. Patients

who were lost to follow-up (by death or default) were excluded.
**Results:** There were 3 deaths and 7 secondary amputations due to graft thrombosis. Of the remaining 86, wound healing was assessed according to reduction in size and degree of granulation. At 6 weeks wound status was classified as satisfacotory and healing in 68% of all those studied. This consisted of 55.6 direct v 71% indirectly revascularized limbs (P >0.05, CI = 95%).
**Conclusion:** In our study there is no difference in outcome between direct or indirect revascularization. Interconnections between adjacent angiosomes may explain this. Our current practice of selecting the best outflow vessel on imaging irrespective of the angiosome should continue.

**Keywords:** —

## PP-197

### Traumatic Popliteal Artery Injury; A Continuing Menace

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University Surgical Unit, National Hospital of Sri Lanka

**Introduction:** Traumatic injury to the popliteal artery can have devastating consequences including limb loss and death. We looked at our experience of managing Popliteal Artery Injuries (PAI) referred to the University Surgical Unit, National Hospital of Sri Lanka.
**Methodology:** All PAIs managed between May 2005 and January 2012 were analysed retrospectively. Patient demography, mechanism of injury, intra-operative findings and surgical outcomes were studied. All mangled limbs were excluded. Those with other life-threatening injuries were also excluded.
**Results:** There were 81 isolated PAIs managed during this time. The mean follow up was 36 (6–68) months. The mean age was 36 (14–74) years, while the gender distribution was 69 (85%) male and 12 (15%) female. The mechanisms of injury were motor vehicle accidents 38 (47%), injuries related to firearms and explosives 32 (40%) and other 11 (13%). Preliminary fasciotomy was performed in 41; 07 by the regional hospital prior to transfer and 34 by the vascular team following transfer. The mean ischaemia time upon reception was 5.5 (3–19) hours.

Eight (10%) limbs deemed non-viable following fasciotomy were not revascularized while all others (n = 73) underwent emergency vascular repair. Five (7%) developed significant reperfusion injury following repair; 3 (4%) underwent ligation of popliteal artery and secondary amputation while 2 (3%) died of reperfusion related organ dysfunction. The limb salvage rate was 68/73 (93%) following revascularization and 68/81 (84%) overall.
**Conclusion:** Traumatic injury to the popliteal artery can lead to significant morbidity and potential mortality. Early recognition and transfer to a specialized unit, timely fasciotomy performed at the regional hospital and better management of potential reperfusion related effects can help to improve overall outcome.

**Keywords:** —

## PP-198

### Femoro Popliteals versus Distan Bypasses: How Different Are Their Outcomes? A 5 Year Analysis

***Nalaka Gunawansa,*** *Ranjuka Ubayasiri, Rezni Cassim, Mandika Wijeyaratne*

National Hospital of Sri Lanka

**Introduction:** Diabetes mellitus is increasing. We see more and more distal vessel (tibio-peroneal) occlusive arterial disease with extensive tissue loss who need bypasses to tibial (anterior or posterior) or to pedal (dorsalis pedis or plantar) artery. General view is that these limbs are not salvageable and they are better off with an amputation. We examined the outcome of those patients receiving a popliteal outflow (PO) graft versus those with a tibial/pedal (TPO) outflow graft.
**Methodology:** Outcomes were derived for 232 consecutive infra-inguinal bypasses {Fem-popliteal (113), Fem-tibial/pedal (67) Pop-tibial/pedal (52)} done from March 2006 to March 2011 a prospectively entered database and follow up for 3 months. Mortality, graft patency and limb salvage were compared between 113 PO and 119 TPO grafts. Graft patency was assessed clinically with graft pulse, ABPI together with Duplex scans.
**Results:** The population was elderly (median age 64 (26–89) years and the majority were men (73%). Diabetes was seen in 178 (76.7%), Hypertension in 124 (53.4%), ischaemic heat disease 148 (63.8%). Three month cumulative graft patency rate for the population was 90.1% 209/223. When PO was compared with TPO, the mortality [2/113 (1.8%) v 7/119 (5.9%); P = 0.11], graft patency [106/113 (93.8%) v 103/119 (86.6%); P = 0.01] and limb salvage [98/113 (86.7%) vs. 95/119 (79.8%) p = 0.16] were not significantly different while significantly high number of TPOs had diabetes [PO v TPO: 78/113 (69%) v 100/119 (84%), p = 0.00], Nevertheless, the amputation rates due to graft failure [13.3% (15/113) vs. 20.2% (24/119) p = 0.16] were similar.
**Conclusions:** We should be aggressive in salvaging diabetic ischaemic foot ulcers. Distal vessel bypasses should be offered to them as there graft survival, limb salvage rates and mortality are similar to the popliteal outflow bypasses.

**Keywords:** —

## PP-199

# Early Results of Peripheral Arterial Bypass Performed Using Shelhigh No-React Treated Internal Mammary Arteries

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[1]Medicana İnternational Hospital Cardiovascular Surgery Department

[2]Medican İnternational Hospital Anesthesiology

In 30 cases at our clinic, bovine internal mammary arterial grafts, were used for femoro-popliteal arterial bypass on patients to be re-operated due to obstruction. All patients had previously gone through coronary bypass in the period 2009–2011, and subsequently had no saphenous veins or whose saphenous vein quality and diameter was inadequate where a Dacron® synthetic graft, autologous saphenous vein or PTFE were used. Alongside of the peripheral arterial bypass, aorta-bifemoral bypass with a Dacron® graft was performed on six patients. After the operation, all patients were monitored at week 1, week 4 and week 8 by arterial colored doppler ultrasoundography, and MR angiography was performed at week 12 and MR angiography was performed at year 1. Early period check-ups (postoperative, week 12) and medium term follow-ups (postoperative year 1), no obstruction was detected except in 4 patient. The No-React® treated Shelhigh internal mammary artery graft may be an alternative to saphenous vein and inorganic tubular grafts for femoro-popliteal arterial bypass operations in cases where autologous veins are not available.As evidenced by the patient cohort and early period results, this alternative may be particularly useful for patients which (a) are be reoperated due to obstruction; (b) who had gone through coronary bypass and have no saphenous veins; or (c) whose saphenous vein quality and/or diameter are inadequate where Dacron® saphenous vein or PTFE were used.

**Keywords:** femoro-popliteal bypass, bovine internal mammary artery graft, xenograft

## PP-200

# Iloprost Treatment for Superficial Frostbite Injury; The Satisfactory Results of Our Institution in Four Cases

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**Introduction:** Frostbite is a thermal injury that can occur when the temperature decrease enough to freeze the tissue. The spectrum of injury can change from frostnip to more severe, 3rd and 4th degree frostbite, which almost causes tissue lost. In this study, we aimed to present the efficiency of iloprost treatment on moderate frostbite injuries.

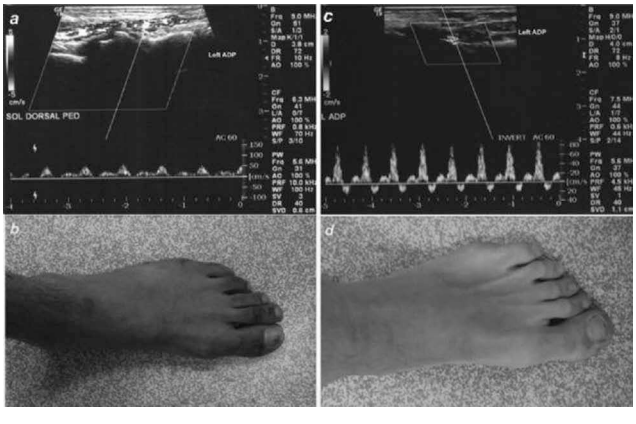
**Patients:** Patients, who were admitted to our department with frostbite injury within last year were enrolled the study. Demographic data's, co-morbid disorders, mean cold exposure time, ultrasonographic patterns and flow rates of affected arteries, treatment periods and control ultrasonographic data's were recorded. Patients with superficial (1st and 2nd degree) injury were included while patients with other injuries were excluded.

**Results:** Four patients with superficial injury were included. Mean age was 27 (21–37), mean exposure time was 14, 25 ± 4, 79 hours.One patient was treated for hypertension with lisinopril, while other three patients had no co-morbid disorders.Lower extremities especially foots were affected mostly. Two patients had monophasic flow pattern, and other two patients had biphasic flow pattern on doppler ultrasonography with mean flow rate of 26 ± 16, 08 cm/s at initial examination.Iloprost trometamol was infused intravenously to all patients at maximum dosage, which is regulated according to patients' tolerability. The mean treatment period was 13, 75 ± 4, 78 days, with average dosage of 30 ± 10 µg/day. The flow patterns were all triphasic and, mean flow rate was 47 ± 25, 54 cm/s at first control visit.One of these patients' images and ultrasonographic data were shown in Figure I.

**Discussion:** Although frostbite injuries, especially high grade forms, associated with high morbidity with tissue lost, most of such injuries can treated more effectively today. Many alternatives such as hemodilution, platelet-aggregation inhibitors, anticoagulants, calcium-channel inhibitors, hyperbaric oxygen and the others have been suggested throughout the time. Prostacyclin analogues are relatively new generation drugs, which are suggested as effective treatment for frostbite injuries in some small retrospective studies. Although larger series are necessary, based on our results, we strongly recommend to use iloprost treatments with combination of other treatment modalities in moderate frostbite injuries.

**Keywords:** superficial frostbite injury, iloprost treatment, cold injuries and iloprost

**Figure I**




*a. Biphasic flow pattern of left ADP after cold injury, b. Left foot of patient after cold injury, c. Triphasic flow pattern of left ADP at 2nd month of treatment, d. View of same foot at 2nd month of treatment.*

## PP-201

# Does the Ankle Brachial Index Correlate with the Functionality of the Upper Extremity Following the Surgery for Vascular Trauma?

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[3]Tokat Gaziosmanpaşa University, Department of Cardiovascular Surgery, Tokat

**Aim:** The vascular systems in upper extremity get injured very often during the accidents. We searched the functionality of the surgical results, besides the protection of follow-up patients' organs.

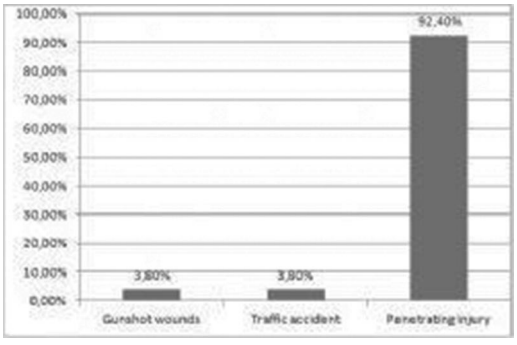
**Material Methods:** In between November 2008 and December 2011, 26 patients, who came to our emergency service because of vascular injuries caused on upper extremity after trauma, were evaluated retrospectively. The first aid applied to the patients, detections and variations in treatment were evaluated. After the discharging from the hospital, patients were followed by doppler ultrasonography and ankle brachial index.

**Results:** The average follow up duration was 33.5 ± 10.8 months. During the follow ups, right (1.05 ± 0.09) and left (1.04 ± 0.08) brachial indexes were measured. In doppler ultrasonography, arterial occlusion was observed in 4 patients. On account of collateral circulation, there was observed near normal ankle brachial indexes in all four patients who had occlusions in the upper extremity arteries but have problems while using their arms for the daily work. The result of the ankle brachial index does not correlate with the functionality.

**Conclusions:** Penetrating traumas are often observed in young adults. Those young patients should quickly be healed and brought in back to their jobs. The treatment should be planned multidisciplinary regarding the problems in other tissues.

**Keywords:** arterial injury, trauma, upper extremity, ankle brachial index, multidisciplinary approach

Figure 1




*Variety of upper extremity trauma*

## PP-202

# Surgical Approach to Children Operated Emergently for Vascular Injury

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**Aim:** Majority of the vascular injuries either due to trauma or invasive procedues in children requires emergent intervention. This study presents surgical procedures carried out in children who were prone to vascular injury regardless of the reason.

**Material-Method:** 17 patients who were operated emergently for vascular injury between January 2002 and December 2012 were included in the study. 11 of the patients ( 64%) were females and the mean age was 60.5 ± 54.2 months. 14 of the vascular injuries (82%) were due to angiographic procedures, 1 (6%) was due to external trauma and the last 1 (6%) was due to invasive arterial followup in the intensive care unit. 11 of these injuries (64%) were at right femoral artery, 3 (18%) were at left femoral artery, 2 (12%) were at left brachial artery and 1 (6%) was at left external iliac vein.

**Results:** Local anestesia was applied in 5 patients ( 30%) and 12 patients were operated under general anestesia. While 15 injuries (88%) were repaired primarily, end-to-end anostomosis in 1 patient (6%) and saphenous vein interposition in another 1 patient (6%) were required. Additionally, embolectomy was performed in 15 of the cases (88%). Neither patient death nor loss of an extremity nor any other complication was seen. Mean hospital stay was 2.7 ± 1.4 days and mean stay at intensive care unit was 1.1 ± 0.4 days.

**Conclusion:** The results of emergent surgical interventions at vascular injuries in children are satisfying.

**Keywords:** emergent vascular injury, surgery

## PP-203

# Hybrid Procedure Intervention for Critical Limb Ischaemia

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**Aims:** Endovascular is a rapidly evolving field with tremendous advances in techniques and devices technology. In intervention of critical limb ischaemia, endovascular intervention has gained much popularity with open surgery appears to be a less favorable

option to many clinicians. We believe that both procedures can be complimentary to each other in treating certain complex lower limb diseases such as those involving common femoral artery (CFA) and superficial femoral artery (SFA) origin. Disease of CFA is often bulky and heavily calcified rendering effective endovascular treatment difficult.

**Material and Methods:** We looked at our experience using hybrid procedure, which include common femoral or superficial artery endarterectomy and endovascular technique for inflow or outflow diseases, in treating complex lower limb vascular diseases.

**Results:** In 2013, we have performed hybrid procedure for 3 patients with critical limb ischaemia. All of them are male and diabetics with mean age of 57.3 years old. They presented with Rutherford 5 disease secondary to underlying severe disease of CFA or SFA origin together with inflow and outflow diseases. Endarterectomy with PTFE patch repair of CFA and SFA were performed with balloon angioplasty of associated inflow and outflow lesions (Patient 1-common iliac artery, SFA, popliteal artery (PopA), posterior tibial artery (PTA); Patient 2-SFA, PTA; Patient 3-SFA, PopA). Technical success was achieved in all patients with target lesion revascularization rate (TLR) at 100%. There was no significant complication with the procedures. At mean follow up duration of 6 months, patency and limb salvage rate are at 100%.

**Conclusions:** Hybrid procedure in treating complex lower limb diseases involving CFA or SFA origin is safe and effective. It combines the merits of both interventions for a favorable clinical outcome.

**Keywords:** hybrid procedure, endarterectomy, endovascular

## PP-204

### Surgical Treatment of Iatrogenic Femoral Artery Pseudoaneurysms

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Bursa YUksek Ihtisas Education and Research Hospital

**Background:** In the era of rapidly advancing technology, there is a large increase in the number of catheter based procedures. This increase lead to an increase in catheter based complications such as femoral artery pseudoaneurysm. The purpose of this study was to analyze the outcomes of surgically treated patients with a iatrogenic femoral artery pseudoaneurysm due to cardiac catheterization.

**Methods:** We reviewed the outcomes of 26 surgically treated patients that suffered iatrogenic femoral artery pseudoaneurysm through January 2011–June 2013 at our clinic.

**Results:** There were 26 patients, 15 women and 11 men, with a mean age of 63 ± 12. All pseudoaneurysms were successfully treated surgically without recurrence.

**Conclusions:** If cannot be treated with compression patients suffering iatrogenic femoral artery pseudoaneurysm due to cardiac catheterization can be treated surgically with a very low morbidity.

**Keywords:** cardiac catheterization, pseudoaneurysm

## PP-205

### Acute Occlusion of Aortobifemoral Bypass Graft: Percutaneous Transcatheter Thrombolytic Treatment

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**Objectives:** To present a successful percutaneous transcatheter thrombolytic treatment for acute occlusion of right limb of the aortobifemoral bypass graft.

**Methods:** A 56-year-old male who underwent aortobifemoral bypass grafting six months ago in our hospital, complained of right lower extremity pain occurring during walking for last 3 days. Doppler ultrasonography (USG) revealed total occlusion of right limb of the aortobifemoral bypass graft, then percutaneous transcatheter thrombolytic treatment was planned.

**Results:** A 6 Fr short sheath was inserted retrograde fashion via the right superficial femoral artery under USG guidance, and then 5000 IU heparin was administered for anticoagulation. Abdominal aorta was reached, passing through the occluded aortobifemoral limb by using 5 F Bern catheter and 0.035-inch guide wire under fluoroscopic guidance. Afterwards, Cragg-McNamara® valved infusion catheter (length of side holes: 30 cm) was placed to occluded segment over the guidewire. A recombinant tissue-type plasminogen activator (2 mg bolus; 1 mg/h infusion) as a thrombolytic therapy was given through the infusion catheter, simultaneously; 500 IU/h heparin infusion was started through the femoral sheath. DSA examination obtained on the fourth day revealed complete dissolution of the thrombus. Dual antiplatelet therapy with clopidogrel and aspirin in postthrombolytic period was given and the patient was discharged. Third month clinical control was uneventful.

**Conclusion:** Percutaneous transcatheter thrombolytic therapy for acute bypass graft occlusion is an effective and feasible treatment option with low morbidity.

**Keywords:** aortobifemoral baypass graft, thrombolytic treatment, acute occlusion

## PP-206

### Iliac Branched Endograft: Initial Experience

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**Objectives:** Iliac branched endograft, also called as iliac bifurcation device, has been recently developed to preserve internal iliac artery

flow in treatment of common iliac artery aneurysms. Herein, we aimed to present our initial experience with iliac branched endograft.
**Methods:** We placed 4 Zenith® iliac branched endograft in 3 male patients for common iliac artery aneurysms extending to the iliac bifurcation between January 2013 and June 2013. One patient underwent iliac branched endograft for isolated iliac artery aneurysm, the rest of two patients for iliac artery aneurysm in conjunction with abdominal aortic aneurysm.
**Results:** Iliac branched endograft was undertaken for only right common iliac artery aneurysm in 2 patients, for bilateral common iliac artery aneurysms in 1 patient. While Atrium® iCast, which is a balloon-mounted, covered stent, was used in a patient with bilateral common iliac artery aneurysms for internal iliac arteries, self-expandable Fluency® covered stent was used in the rest of two patients. In order to avoid a possible break and/or bend in the self-expandable Fluency® covered stent, a second bare stent was also placed inside. Intraluminal thrombus formation was observed during the iliac branched endograft placement in a patient with aortoiliac aneurysm. Thrombus formation was dissolved with an intra-arterial recombinant tissue-type plasminogen activator followed by heparin infusion for the next 24 hours. Dual antiplatelet therapy with clopidogrel and aspirin in postoperative period was given. Abdominal CT angiographies showed no aneurysm or endoleak and the internal iliac arteries were intact.
**Conclusion:** Iliac branched endograft seems to be an effective and feasible alternative treatment option in order to avoid pelvic ischemic complications in the management of common iliac artery aneurysms.

**Keywords:** iliac branched endograft, iliac bifurcation device, iliac artery

## PP-207

## Combined Revascularization and Free Tissue Transfer for Limb Salvage

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**Aim:** To evaluate our experience of the management for critical limb ischemia (CLI) with free tissue transfer (FTT) and revascularization.
**Material and Methods:** From January 2010 to December 2012, 7 lower extremities in 7 patients who were treated by revascularization and FTT for CLI with extensive tissue loss. Six patients underwent bypass surgery, and 1 patient underwent endovascular treatment for revascularization. All patients underwent FTT using latissimus dorsi muscle simultaneously and separately in 2 and 5 patients, respectively.
**Results:** Five of 7 patients had flap patency and flap survival. One patient gained flap survival and limb salvage; even though flap graft was occluded after the patient achieved limb salvage. One patient had partial flap necrosis requiring skin grafting, who acquired limb salvage. The flap survival and limb salvage rates were 85% and 100%, respectively.
**Conclusions:** FTT with revascularization achieves successful wound healing and limb salvage.

**Keywords:** critical limb ischemia, bypass surgery, endovascular treatment

## PP-208

## Saphenous Vein Interposition Technique in Ruptured Popliteal Artery Aneurysm

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**Background:** Popliteal artery aneurysms can successfully be treated by surgical and endovascular methods. However strategy for the treatment of ruptured popliteal artery aneurysm is still uncertain. We investigated the clinical results of ruptured popliteal artery aneurysms that we surgically treated using saphenous vein interposition.
**Methods:** Seven patients (all of whom were male with an average age of 59 [range: 43-71]) with ruptured popliteal artery aneurysm who underwent emergency surgical treatment between January 2007 and November 2012 were included in the study. The patients were controlled after one, 6 and 12 months postoperatively.
**Results:** All included patients underwent ''saphenous vein graft interposition'' using medial approach. No complications or graft

**Figure 1. (b)**

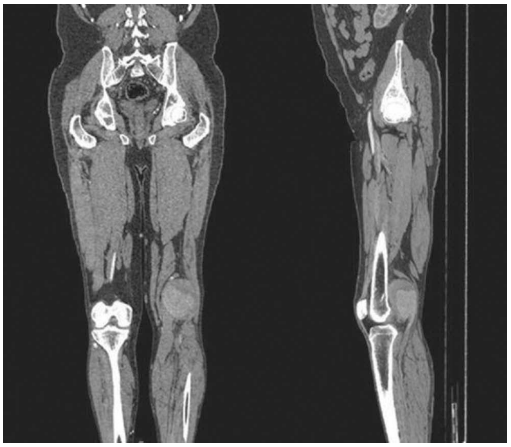

*Figure 1. Image of a 60-year-old male patient's ruptured left popliteal artery aneurysm prior to surgical treatment: (a) CT angiography axial cross-section image; (b) CT angiography MPR coronal and sagittal cross-section image; (c) color Doppler ultrasonography gray scale image following surgical treatment. CT; Computed tomography; MPR: Multi-planar reformatting.*

**Table 1.**

| | Age (years) | Extremity | Symptoms | Aneurysm diameter (cm) | Crural artery status | Surgical treatment | Duration of follow-up (months) | Patency on follow-up | Status of extremity |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 71 | Left | Popliteal swelling, pain, and cold feet | 5 | Occluded | Saphenous vein graft interposition | 52 | Open | Normal |
| 2 | 66 | Right | Popliteal swelling, pain, erythema, | 10 | Open | Saphenous vein graft interposition | 31 | Open | Normal |
| 3 | 60 | Left | Popliteal swelling, pain | 9 | Open | Saphenous vein graft interposition | 27 | Open | Normal |
| 4 | 43 | Left | Popliteal swelling, pain, and cold feet | 9 | Occluded | Saphenous vein graft interposition | 26 | Open | Normal |
| 5 | 66 | Left | Popliteal swelling, pain, and cold feet | 8 | Occluded | Saphenous vein graft interposition | 2 | Open | Normal |
| 6 | 47 | Left | Popliteal swelling, pain, erythema, | 5 | Open | Saphenous vein graft interposition | 28 | Open | Normal |
| 7 | 63 | Right | Popliteal swelling, pain, erythema, | 5 | Open | Saphenous vein graft interposition | 60 | Open | Normal |

*Clinical information and surgical treatment outcomes of the patients.*

thromboses were seen in the immediate postoperative period. The patients were discharged on an average time of 4 days postoperatively (range 3–5 days). The patients were followed for an average time of 32 months (range 2–60 months). Medium term graft patency was found to be 100%. No patients exhibited early or medium term limb loss or mortality.

**Conclusion:** Results of surgical treatment of ruptured popliteal artery aneurysm is satisfactory. Saphenous vein graft interposition should be kept in mind as the first choice for surgical treatment.

**Keywords:** ruptured popliteal artery aneurysm, surgical treatment, saphenous vein graft interposition.

## PP-209

## Fate of Ischemic Limbs in Buerger's Disease: 30-Year-Experience in a Single Centre

***Masayuki Sugimoto,*** *Mitsunori Tabata, Shunsaku Tokunaga, Hiroki Miyachi, Noriko Takahashi, Yoshio Watanabe, Hirofumi Morimae, Akio Kodama, Hiroshi Narita, Kiyoto Yamamoto, Kimihiro Komori*

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**Introduction:** Buerger's disease (thromboangiitis obliterans) is a peripheral arterial occlusive disease that typically affects young male smokers and is becoming rare even in Japan, formerly known as a high prevalence country. In contrast to arteriosclerosis obliterans (ASO), the medical therapy and smoking cessation are sometimes sufficient for the remission of ischemic symptoms in Buerger's disease. We herein review the long-term results of our series of critical ischemic limbs in Buerger's disease, whose fate is clearly different from atherosclerotic ischemia.

**Materials-Methods:** Between 1980 and 2010, 103 patients with critical limb ischemia were diagnosed with Buerger's disease by Shionoya's criteria and retrospectively reviewed.

**Results:** Age of onset was 38.0 ± 9.7 years (mean ± SD). The median follow-up was 97 months (range, 2-390 months). 33 patients had rest pain. 65 patients presented with ischemic ulcers in their toes and/or fingers. Necrosis or gangrene existed in 5 patients. 16 patients achieved remission with medical therapy and smoking cessation. 66 patients underwent sympathectomy. Bypass to the crural arteries was performed in 23 limbs, with the assisted primary patency rate 67.0% and 45.6% at 5 and 10 years. Graft failure caused major amputation in 2 limbs among 10 smokers, but no limb was lost in 12 ex-smokers in spite of graft failure. Therapeutic angiogenesis by cell transplantation achieved improvement in 3 ex-smokers, however, resulted in major amputation in a smoker. Overall, the cumulative limb salvage rate at 20 years was 90% in ex-smokers and 69% in smokers ($p = 0.15$).

**Conclusions:** This study demonstrated no significant difference of long-term limb salvage rate between ex-smokers and smokers. One explanation for this finding is the patients in the long-term remission, who start smoking again. Possibly smoking doesn't induce the relapse once the complete remission was achieved.

**Keywords:** buerger's disease, critical limb ischemia, thromboangiitis obliterans

## PP-210

# Skin Perfusion Pressure Measured Using a Thermostatic Heating Probe

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**Aim:** Skin perfusion pressure (SPP) measurement using a laser Doppler perfusion monitor is useful for evaluating limb ischemia. However, SPP is usually difficult to detect in ischemic limbs. We assessed the characteristics of SPP measurement using a thermostatic heating probe in the feet of patients with peripheral artery disease (PAD), and evaluated whether a thermostatic heating probe can improve SPP detectability.

**Methods:** We measured SPP in 130 feet of the patients with PAD aged 78 years (range 50–93). We initially measured SPP using a plain laser Doppler probe at the dorsum and plantar aspects and then measured similarly using a thermostatic heating probe that heats up to 44 ºC. Results were expressed as median (interquartile range). Comparisons were analyzed using a non-parametric test.

**Results:** When measured using a plain probe, the SPP value was 22 (12.8–36) mmHg at the dorsum and 26 (15.8–46) mmHg at plantar aspects of the feet. The SPP detection rate was 89.2% at the dorsum and 90.8% at plantar aspect of the feet. When the thermostatic heating probe was used, both SPP values at the dorsum and plantar aspects of the feet increased significantly (37 [26-53.3] mmHg and 48 [31–71] mmHg; $p < 0.001$ for both), and the detection rates were improved to 95.4% and 99.2%, respectively. There were 31 feet with ischemic ulcer among them. The SPP values measured using the heating probe in the feet without ulcer were higher than those in the feet with ulcer.

**Conclusion:** In the feet of patients with PAD, the SPP values were increased using the thermostatic heating probe. The thermostatic heating probe was shown to be useful for improving the detectability of SPP. An increase in SPP as induced by heating may be used as a parameter for evaluating the skin reserve capacity.

**Keywords:** skin perfusion pressure, skin temperature, thermostatic heating probe, response by heating, peripheral artery disease

## PP-211

# Factor-Xa Inhibitors Reinforces Cardioprotection and Systemic Antioxidant Response Against Peripheral Ischemia-Reperfusion Injury

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Dicle University Medical School

**Objective:** Factor-Xa inhibitors are important agents in prophylaxis and treatment strategies of thrombotic vascular disorders. However, other beneficial mechanisms of these agents are still unknown when the thrombotic vascular segment is recanalized and tissue reperfusion is provided.

**Method:** Thirty rats were included to the study. Rats were randomly divided into five equal groups. First group was created as a control group to obtaining basal oxidant and antioxidant parameters. Second group were created for sham group without any drug application and blood and cardiac tissue samples were taken without any ischemia-reperfusion and peripheral ischemia was created for six hours and cardiac and plasma levels of nitric oxide (NOx), prolidase and malondialdehyde (MDA) was obtained at 6th hours of reperfusion. Oral 3 mg/kg Rivaroxaban was administrated to Group II, intraperitoneal 150 IU/kg Enoxoparine Sodium 115 IU/kg Bemiparine Sodium was administrated to Group III and intraperitoneal Bemiparine Sodium was administrated to Group V for one week before peripheral ischemia (for six hours)—reperfusion created. At sixth hours of reperfusion blood samples and cardiac tissue samples were obtained for detecting NOx, prolidase and MDA levels in these groups and rats were sacrificed.

**Results:** NOx levels were higher in Group II ($18.51 \pm 14.16$) and III ($10.66 \pm 11.79$) when compared with control group ($9.42 \pm 6.0$). However, these elevations were not statistically significant. Differently, lower NOx levels were detected in Grouo VI ($7.28 \pm 2.92$) according to control group ($p < 0.05$). Prolidase levels were higher in Group II ($3618.62 \pm 4147.72$), III ($2654.36 \pm 1541.88$) and Group IV ($18.41.64 \pm 1247.97$) when compared with control group ($1253.83 \pm 550.14$).

**Conclusion:** Ischemia-reperfusion events are possible conditions in prothrombotic disorders. In these conditions prophylactic or therapeutic factor-Xa inhibitors can protect against both thrombosis and oxidative reperfusion injury. Especially, new oral factor-Xa inhibtor rivaroxaban, seems to provide adequate antioxidant support as previous injectable low molecular weight heparins (LMWH).

**Keywords:** ischemia-reperfusion injury, oxidative damage, LMWH, rivaroxaban

## PP-212

# The Effect of Combined Hyperbaric Oxygen and Iloprost Treatment on the Prevention of Spinal Cord Ischaemiañreperfusion Injury: An Experimental Study

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**Objectives:** Hyperbaric oxygen (HBO) has been shown to be effective in preventing neurological injuries in animal models of ischaemia, whereas iloprost (IL) prevents ischaemia-related mitochondrial dysfunction and reduces infarction size after focal cerebral ischaemia in animal models.

**Methods:** Eighty New Zealand white male rabbits were randomly allocated into one of five study groups. The HBO group received a single session of HBO treatment and the IL group received an infusion of 25 ng/kg/min IL; the HBO + IL group received both HBO and IL and the control group received only 0.9% saline; the fifth group was the sham group. Levels of S100fl protein, neuron-specific enolase (NSE) and nitric oxide (NO) were measured at onset, at the end of ischaemia period and at the 24th and 48th hours of reperfusion.

Physical activity was assessed using Tarlov criteria 24, and the spinal cords of the sacrificed rabbits were evaluated histopathologically.

Additionally, tissue malondialdehyde (MDA) and antioxidant enzyme activities [total superoxide dismutase, SOD; catalase, CAT; and glutathione peroxidase, GSH-Px] were assessed.

**Results:** Neurological scores in the HBO, IL and HBO + IL groups were statistically significantly better compared with the control group at the 24th (P = 0.001 for all) and 48th hours (P = 0.001 for all). Histopathological scores in the HBO, IL and HBO + IL groups were also significantly better compared with the control group (P = 0.003, 0.001 and 0.001, respectively). Whereas MDA, NSE, S100ß protein and NO concentrations were significantly lower, CAT and GSH-PX levels were significantly higher in either sham or treatment groups compared with the control group.

**Conclusions:** Since we demonstrated beneficial effects on spinal cord IR injury, we think that both HBO and IL, either alone or in combination, may be reasonable in the treatment of IR injury.

**Keywords:** spinal cord, ischaemia–reperfusion injury, hyperbaric oxygen, iloprost

## PP-213

# Peripheral Arterial Disease in Diabetics: An Asian Perspective

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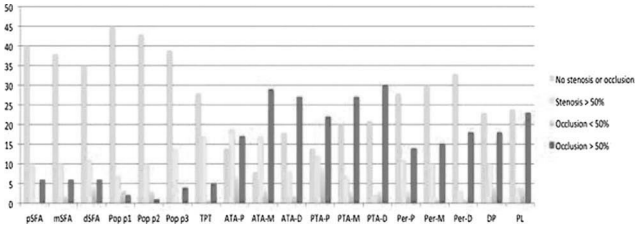
**Introduction:** The prevalence of peripheral arterial disease (PAD) is higher in diabetics. To date, there is limited data on the arterial disease distribution in diabetic patients in the Asian population. Similar European studies have shown that the arterial disease pattern in diabetics tend to be confined to the infrapopliteal vessels.

**Objective:** To evaluate the anatomical localization of peripheral arterial disease in diabetics in an Asian population.

**Methods:** A retrospective study of consecutive diabetic patients with critical lower limb ischaemia who underwent endovascular revascularisation between September 2010 to February 2011 in Changi General Hospital was carried out. Arterial disease pattern was classified as no stenosis or occlusion, stenosis, short segment occlusion and long segment occlusion. All angiograms were subsequently reviewed and classified accordingly to the severity and segment of arteries involved.

**Results:** 57 subjects were enrolled in the study. The mean age of patients was 70 years old with a male predominance (60%). 58% of

**Categorization of arterial disease pattern according to individual vessels with further subdivisions of each vessel into proximal, middle and distal segments**




*This figure shows progressive change of arterial disease pattern from stenosis in above knee vessels to predominantly long segment occlusions in below knee (infrapopliteal) vessels*

**Level of disease and disease pattern**

| Presence of stenosis or occlusion/Level of disease | No stenosis occlusion (%) | Stenosis (%) | Long segment occlusion (%) |
|---|---|---|---|
| Femoral-popliteal vessels | 78 | 17 | 5 |
| Tibio-peroneal vessels | 8 | 34 | 58 |
| Pedal vessels | 5 | 25 | 70 |

*Percentage of patients with above knee (femoral-popliteal vessel) and below knee/infrapopliteal (tibio-peroneal and pedal vessels) disease.*

the subjects enrolled were Chinese followed by Malay (30%), Indian (7%) and others (5%). Of all co-morbidities, 35% of subjects had end stage renal failure. 75.5% of subjects had minor to major tissue loss (Rutherford Grade IV and V). Arterial disease was predominantly confined to the infrapopliteal vessels with significant percentage of patients having long segment occlusions in this group (occlusion >50% of vessel length). There was also significant disease involving the pedal vessels as well (dorsalis pedis and plantar artery).
**Conclusion:** This study has shown that infrapopliteal vessels were more commonly diseased in diabetics and tend to present with long segment occlusions. As such, this would pose a higher technical difficulty in terms of revascularization, be it endovascular or open bypass procedures where there would be limited availability of appropriate distal arteries to bypass to.

**Keywords:** diabetics, vascular, infrapopliteal, pedal, occlusions, stenosis

## PP-214

## The Upper Extremity Arterial Occlusive Disease: Case Report

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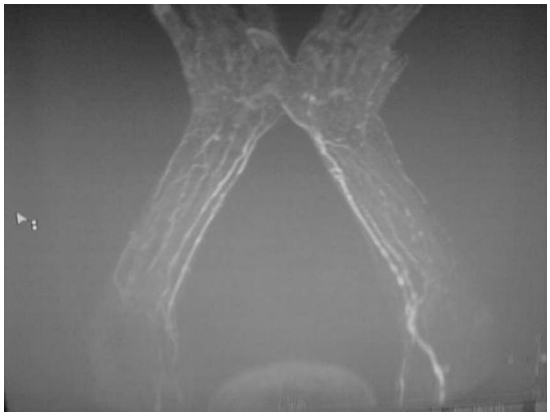
Various factors play the role in etiology of the upper extremity occlusive disease. While the incidence of arterial thrombosis due to atherosclerosis is %10–30 but this rate is around 80% in embolies. Because the atherosclerosis of upper extremity is less seen as well as due to the prevalence of collaterals, the upper extremity arterial occlusive disease is milder symptoms. Although there are various factors in etiology, treatmet choices are restricted. İn this study, we represented the case who we operated because of the upper extremity arterial occlusive disease.

**Keywords:** arteriosclerosis, upper extremity

**Figure 1**



*Postoperative imagine*

## PP-215

## Excellent Long Time Patency of 8 mm ePTFE Prosthetic Graft in Above-Knee Bypass Grafting

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**Aim:** To know the long time patency of 8 mm prosthetic graft for above-knee femoro-popliteal (AK-FP) bypass grafting and compare that of endovascular intervention.
**Material-Methods:** A retrospective review of AF-FP bypass patients treated for intermitted claudication between July 2006 and January 2013 was conducted at one institution. Patient characteristics and outcome were reviewed. Kaplan-Meier curves were used to estimate patency rates and that was compared with endovascular revascularization patients during same period.
**Results:** A total of 47 patients, 52 limbs took AK-FP bypass surgery. The primary patency rate was 91.2% at two years and 95.9% at five years, and the secondary patency rate was 82.0% and 95.9%, respectively. In contrast, the primary patency rate of endovascular method was 78.2% at two year and 73.3% at five year.
**Conclusion:** AK-PF bypass using 8 mm ePTFE prosthetic graft for intermitted claudication patients showed excellent long term patency rate and surpass endovascular intervention.

**Keywords:** femoropopliteal bypass, 8 mm ePTFE graft, long time patency, comparison of endovascular intervention

## PP-216

## A Rare Complication of Iliac Artery Stenting: Acute Lower Extremity Ischemia Secondary to Early Stent Fracture

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**Background:** Balloon expanded stents are commonly used in the treatment of iliac artery occlusion in recent years. Many studies reported complication rates from 8% to 12% in stenting process (3) This complications may be procedure-related or due to a technical failure of the used stent.
**Case:** A 57 years old male patient was admitted in another center with complaints of claudication two weeks ago and a right iliac artery stenosis was treated with a balloon expandable stent, after 10 days of his discharge he came to our hospitals emergency department with complaints of pain and coldness in his right leg. In the examination of the

**Figure 1**


*İliac artery stent fracture.*

left lower extremity signs of digital artery embolism with cyanosis on the toes was observed with palpabl distal pulses, the right lower extremity was cold, pale, there was cyanosis on the toes and the distal pulses were not present. CT angiography showed a stent in the right iliac artery and hematoma around it. Under general anesthesia, Endovascular stent-graft was implanted (Medtronic Endurant ® Medtronic Vascular, Santa Rosa, California, USA). After the procedure, the patients ischemic complains regressed. Fall of hemoglobin was not observed during follow-up. The patient was discharged with cure, his therapy at home was planned and periodic follow up was recomended.

**Discussion:** Balloon expanded stents are made of tantalum or stainless steel and are less flexible then others. In addition, distal embolization, arterial rupture, pseudoaneurysm formation, arterial dissection during the placement of stents in atherosclerotic iliac artery stenosis are reported as rare but serious complications in the literature with self-opening as well as balloon expandable stents. In order to avoid complications, balloon expandable stents placed in a group of patients is very important to choose the best.

**Keywords:** iliac artery, balloon expandable stent

## PP-217

### Pseudoaneurysm of the Femoral Artery: An Unusual Complication of Using Kirschner Wire

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**Objective:** Kirschner pins are being used by orthopedic surgeons in the bone lenghtening operation. Pseudoaneurysm of the popliteal artery due to Kirschner pin in the late postoperative period has been reported rare.

**Case:** 24 years old man presented with hematoma and bleeding in his left leg. He had presented four months before to another institution with bone lengthening surgery of the lower extremity that required a Kirschner wire (KW) insertion. Examination of the patient, the right thigh was bleeding from Kirsner wire insertion site. Doppler Ultrasoun imaging revealed a 3 x 4 x 3 cm heterogeneous mass along the left superficial femoral artery. Emergency surgery using a medial approach to the superficial femoral artery aneurysm was done. The superficial femoral artery was clearly exposed.

After systemic heparinization, the proximal and distal superficial femoral artery was clamped. Aneurysm was excised and saphenous vein interposition performed. The patient was discharged home on the 3th postoperative day. Upon discharge, the patient had palpable equal distal runoff in lower extremities.

**Conclusion:** Surgeons should be aware of the development of pseudoaneurysm after installing Kirsner wire.

**Keywords:** kirschner wire, femoral artery, pseudoaneurysm.

## PP-218

### Effective Causes Early Prescription of Streptokinase in Myocardial Infarction in Patients with History of Previous Peripheral Cascular Diseases

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**Intruduction:** Cardiovascular incident are the most common cause of deaths in the whole world, in this case MI is the most life threatening occurrence which is mostly caused by plaque rupture or erosion with superimposed non occlusive thrombus, so early treatment with antithrombotic agents plays an important role in reducing the number of deaths caused by MI.

**Material-Methods:** This study is an interpretive-descriptive in a form of cross sectional study, is carried out on 110 patients admitted to nemazi hospital emergency department in the year 2013 with myocardial infarction with underline peripheral vascular diseases and comparisation it with patients other group (myocardial without underline vascular diseases. The data were obtained through checklists, were filled by patients families or the emergency staffs. To compare the average and results T-Student test and variant analysis is us.

**Results:** In 110 case 31 case were female, 79 case were male, the mean time was 66/39 minute and was 73/74 minute for female patient, 63/5 minute for male patient, in addition 49/92 minute in morning shift, 69/78 minute in the after noon shift and 72/68 minute in the night shift, which has significant analytical diversity. In more than 87 present of first group (myocardial infarction with underline disease) prescription of streptokinase had no bad effect on peripheral underline diseases in comparison second group.

**Conclusion:** This mean time called Door To Needle time in valid scientific leagues in the whole world is just 30 minute. In

comparison with our study, it is obviously 2 times faster and also is more in female than males and in the afternoon and night more than morning shift. We concluded that early prescription of streptokinase in patients with myocardial infarction and underline vascular diseases is not contraindicated and its very usefully.

**Keywords:** streptokinase, peripheral vascular diseases, emergency

## PP-219

## A Comparison of Effects of Early Plevix Treatment with Dosage of 150 Milligrams and 300 Milligrams in Emergency Wards in Patients with Past History of Previous Vascular Diseases

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**Introduction:** Considering the high rate of cardiovascular disease in Iran and the high morality rate related to such conditions its imperative to allocate resources to treat those already affected while continuing the current trend of emphasis on disease prevention tactics. Because most of the patients have concurrent vascular diseases despite of coronary conditions (from un stable until MI) and treatment should be done in a manner consistent with the syndrome observed, a quick diagnosis should be a priority for the medical staff in emergency wards.

**Method:** First of all we choose shiraz hospitals which received a great number of cardiovascular patients (namazi Hospitals). Early doses of Plavix was administered to patients with cardiovascular and privies vascular conditions. In 50 patients in namazi hospital the initial dose was chosen at 150 milligrams while in 50 patients in emergency room it was decided to set the initial dose at 300 milligrams. This drug is found in the market in two forms. One Iranian made and the other made by the original manufacturer. Patients given the initial dose were given an constant daily dose equal to the initial dose during their staying in the hospital.

**Results:** Patients suffering from acute coronary condition and concurrent vascular diseases, which given a dose of 150 milligrams, were hospitalized for 48 to 72 hours and then discharged while patients of a similar condition who were not given the shot or recived 300 miligram were usually hospitalized for 96 hours before being discharged.

**Conclusion:** It could be concluded that taking special circumstances of our country into account, administering an early low dose of Plavix (at emergency ward stage) is preferable to a later administration after thorough medical examination and it is also preferable to the administration of high doses in patients with concurrent coronary disease and previous vascular diseases.

**Keywords:** emergency wards-patients-previous vascular diseases

## PP-220

## Comparing Results of Autologous Saphenous Vein to ePTFE Graft for Femoro-Popliteal Bypass in a Multi Surgeon Single Center

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**Background:** Reversed saphenous vein graft is the first choice graft for below knee level femoro-popliteal artery bypasses. Although a recently published review advocates saphenous vein is superior over synthetic grafts above knee level, proper graft is doubtful. We investigated our results comparing saphenous vein and PTFE used for femoro-poplieal bypasses.

**Methods:** This was a retrospective review of a patients's underwent femoral-popliteal bypass (above knee) data. Redo cases and below knee bypasses excluded. Patients grouped into two according to graft choice. Saphenous vein used patients included into Group I and PTFE used patients included into Group II.

**Results:** From January 2008 to January 2013, 28 patients had PTFE graft for femoro-popliteal reconstruction and thirty-three patients had an Autolog Venous (AV) conduit. The AV group was a lower median age than the ePTFE group (62.40 ± 10.93 vs. 66.50 ± 5.74 years p >0.05). The two Groups were otherwise similar in comorbid conditions of diabetes mellitus (12.2% vs. 14.4%; P >0.05), smoking (18.1% vs. 19.2%; P >0.05), and coronary artery disease (24.2% vs. 21%; P >0.05). The saphenous vein group patients had higher ischemic wounds rates (9% vs. 6.7% p >0.05) but there were no significantly difference in baseline characteristics such as claudication distance (33.33 ± 10.86 vs. 45.30 ± 12.56, P >0.05). ePTFE graft group had more bilateral bypass rates (42.8% vs. 4.71%, p <0.05). None of the patients had 30 day mortality and postoperative wound infection rates were similar (6.1% vs. 10.0%; P >0.05). A log-rank test comparison of outcomes for the reversed saphenous vein and ePTFE groups found sapheonous vein is superior (53.00 ± 5.19 and 32.53 ± 16.62 respectively p <0.05).

**Conclusions:** We advocate reversed autologous sapheonous vein conduit is the first choice conduit comparing to ePTFE grafts for femoro-popliteal bypass because of low complication rates and high rate of long term patency.

**Keywords:** peripheral bypass, ePTFE graft, saphenous vein

## PP-221

### Quality of Life in Patients with Lower Extremity Bypass, Before and After Surgery

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**Background:** The purpose of this study was to comparing "quality of life and health of patients with the lower limb artery bypass surgery, before and after surgery.
**Method:** This study was a cross-sectional study that conducted from 2011 to 2012. For all patients who have coronary bypass surgery. And had inclusion criteria were including in study. SF-36 questionnaire (quality of life questionnaire) was completed. The survey questionnaire with ABI (Ankle Brachial Index) and patency status of graft and patient symptoms 3 months after discharge and 6 months after discharge was completed Data were analyzed by SPSS19 software and paired t test, repeated measurement tests.
**Results:** In this study, improvement in physical activity, functional limitations due to physical problems 3 months after surgery. Public healths, energy, health, social well-being, were evaluated in follow-up meetings. Physical pain, 3 months after surgery showed a significant reduction and in the 6 months after surgery showed a significant increase in. In general 7 patients died in this study.
**Conclusion:** Quality of life was improved in patients that undergoing lower extremity vascular bypass surgery in comparison to before surgery, but this procedure must be examined in next studies with more than patients.

**Keywords:** SF-36, bypass, quality of life, claudication, ischemia

## PP-222

### Isolated Bilateral Superficial Femoral Artery Aneurysm: Case Report

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[2]Department of Cardiovascular Surgery, Education and Resourche Hospital, Konya, Turkey

Isolated aneurysms of the superficial femoral artery are rare. They are commonly seen in elderly men, predominantly affecting the right thigh, and they are most of ten seen in the middle-third of the artery. In general, these aneurysms are presented with distal embolization, localized pain in association with a pulsatile mass or acute thrombosis. We report a case of an 69-year-old male patient with true isolated bilateral superficial femoral artery aneurysms. He went coronary artery bypass surgery seven years ago. The clinical and radiological examination did not reveal any other aneurysms of the abdominal aorta or the arteries of the limbs. The aneurysm size was 3.6 cm on the right side and 3.3 cm on the left side. The hematological and biochemical parameters were within normal limits. The patient was operated under genereal anesthesia. After controlling the vessels proximal and distal to the aneurysm, femoropopliteal bypass was performed with PTFE graft and the proximal and distal neck of the aneurysm ligated. The patient was discharged on postoperative day 5 without any problem. As a result, timely diagnosis, and immediate surgical reconstruction necessary for a good prognosis in these patients.

**Keywords:** superficial femoral artery, isolated bilateral femoral aneurysm, pulsatile mass

## PP-223

### Surgical Procedures in Subclavian Steal Syndrome

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**Aim:** In this study 16 patients undergoing surgery for subclavian steal syndrome were evaluated restrospectively.
**Material and Methods:** Left carotico-subclavian bypass was performed in 6 patients, aorto-left subclavian bypass in 5, subclavian-subclavian bypass in 3, aorto-bisubclavian bypass in 1 and aorto-brachiocephalic-left common carotid artery bypass was performed in 1 patient between January 2005 and December 2012. 11 were male and 5 were female (mean age of 55.8 ± 9.9 years, range from 32 to 72 years). 10 patients presented with claudication of the left arm, 3 with numbness of the left arm, 2 with angina pectoris and 1 with presyncope. 1 of the patients presenting with coronary steal syndrome had a history of coronary artery bypass grafting. In all cases, doppler ultrasonography followed by aortography of the aortic arch demonstrated diffuse segmental occlusion of the proximal subclavian artery. All patients underwent bypass using grafts.
**Results:** There was only 1 in-hospital mortality in a patient with a previous history of coronary bypass grafting. 1 patient underwent postoperative exploration due to bleeding. All patients showed symptomatic improvement following surgery. The mean follow up period was 28.58 ± 26.92 months, ranging from 7 to 95 months. 3 patients were lost to follow up. 12 patients could came to the out patient clinic for clinical assesment. 9 patients were symptom free, 2 had mild symptoms and 1 had claudication of the arm on the unoperated side which was also present preoperatively. Doppler ultrasound of 11 patients revealed patent grafts whilst in one patient stenosis of the right subclavian artery was identified.

To date, one patient continues to complain of mild headache and 2 patients have pain of the forearm and elbow which are not vascular in origin.

**Conclusion:** We believe that such bypass procedures are appropriate in patients with subclavian steal syndrome who are not eligible for angioplasty.

**Keywords:** subclavian steal syndrome, surgery, vascular surgical procedures

## PP-224

### Bilateral Pseudoaneurysm Secondary to Intraarterial Tianeptine Abuse: A Case Report

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We present a case of bilateral femoral pseudoaneurysm secondary to intraarterial administration of tianeptine in a patient with drug abuse, and successful treatment of this type of pseudoaneurysm. A 32-year-old male patient with a history of treatment for heroin abuse admitted to our emergency clinic with complaints of fever, malaise, swelling, pain, rash, and bleeding in right inguinal region. The patient confessed dissolving tianeptine tablets in warm water and administering by intraarterial puncture. Doppler ultrasonographic examination demonstrated a femoral artery pseudoaneurysm. Following exploration of the aneurysmal sac, hematoma was completely evacuated and interrupted integrity of the femoral artery was repaired by interposition using autogenous saphenous vein graft. Two months later, the patient was referred with the same complaints, conversely in left inguinal region, and again treated by interposition with a saphenous vein graft.

**Keywords:** Aneurysm, pseudoaneurysm, tianeptine, drug abuse

## PP-225

### Hybrid Thrombectomy in Patients with Arterial Thromboemboli

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**Aim:** Endovascular procedures such as catheter-assisted thrombectomy and percutaneous aspiration thrombectomy as well as surgical thrombectomy has been introduced in the acute arterial occlusion resently. While these procedures are recently performed by radiologists, it's predictable that the vascular surgeons performed these procedures more frequently parallel to the increasing numbers of hybrid operating rooms. In this study, the two cases of peripheral arterial disease who underwent hybrid thrombectomy procedure were presented.

**Keywords:** peripheral arterial disease, hybrid thrombectomy, acute arterial occlusion

## PP-226

### The Distribution Pattern of In-Stent Restenosis in Superficial Femoral Artery After Stent Implantation

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**Aim:** This study sought to explore the distribution pattern of in-stent restenosis (ISR) in superficial femoral artery (SFA) after stent implantation.

**Material-Methods:** From January 2012 to June 2013, 176 patients had stent implantation in lower extremities underwent ultrasonography during follow-up. SFA was divided into 3 equal parts for analysis the distribution patter and recorded as S1, S2 and S3 from proximal to distal. Total occlusions involving 2 adjacent parts were excluded. Finally, 70 parts (39 males, 31 females) first diagnosed as restenosis with a mean follow-up of 10.9 months (1 month–43 months) were investigated.

**Results:** Mean age was 75.2 ± 10.5 years (range, 37–90 years). ISR in S1, S2 and S3 parts was 19 (27.1%), 29 (41.4%) and 22 (31.4%), respectively. Restenosis was largely emerged at 4–6 months period and declined since then. After 24 months, ISR fell rapidly and no more S3 ISR was observed. ISR in S1 had exceeded S2 while S2 was dominant before 24 months period. No significant risk factors associated with distribution patter of ISR was identified (hypertension and diabetes, $P > 0.05$).

**Conclusions:** The stents in mid part of SFA had a tendency to develop ISR then proximal and distal parts. Follow-up is strongly encouraged for 4–24 months period, especially for stent in mid SFA. No significant risk factors related to distribution pattern were found in this study.

**Keywords:** restenosis, stent, peripheral artery disease, femoropopliteal

## PP-227

### Case Report: Right Femoral Artery Embolism Detected in Diagnostic Tests

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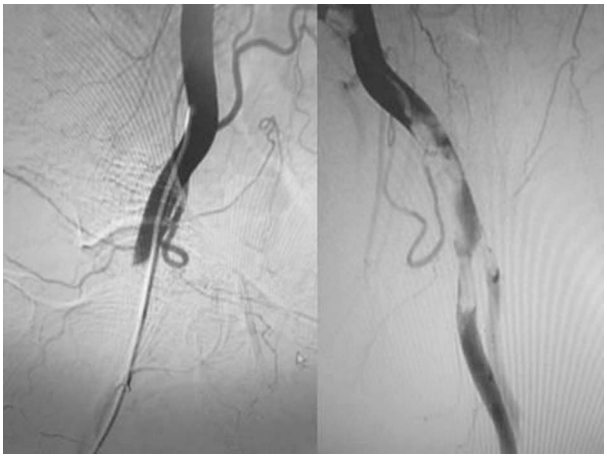
**Aim:** In this paper we planned to present a 85 year-old female patient with left femoral arterial embolism that was suspected through physical examination in emergency ward. Embolism was also detected in the right femoral artery through preoperative bilateral aortofemoropopliteal anjiography although there was no symptom or finding of ischemic limb injury on the right side.

**Case:** 85 year-old female with diabetes mellitus and hypertension presented with pain and purple color change in the left leg. Bilateral femoral artery pulses were palpable while bilateral popliteal and distal pulses were non-palpable in physical examination. Left lower extremity reflected ischemic changes like coldness, paleness and slow capillary fill. There was no ischemic change on the right lower extremity despite of pulselessness. Her heart rhythm was atrial fibrillation. There was no intracardiac trombus on transthoracic echocardiagraphy. According to the anamnesis and physical examination, left femoral arterial embolism was suspected and embolectomy was planned. Regarding her age, physical findings and anamnesis, aortofemoropopliteal anjiography was planned with suspect of acute arterial occlusion on chronic atherosclerosis background. Bilateral femoral arterial embolism was detected on anjiography (Figure 1). Bilateral femoral embolectomy was planned although there were no ischemic symptoms on the right lower extremity. Bilateral anterior and posterior tibial artery pulses were palpable.

**Discussion:** Anamnesis, physical examination and doppler ultrasonography is usually enough for diagnosis of acute peripheral arterial occlusion. Anjiography was planned considering atherosclerotic background due to anamnesis and physical examination. Although there were no symptoms or complaints about right side, right femoral arterial embolism was seen in addition to left femoral arterial embolism. Surgical therapy was planned due to anjiography and successful results were taken. In unilateral acute arterial occlusion, if pulses of the other extremity are non-palpable and can not be detected by dupplex ultrasonography, anjiography is useful for planning a successful surgical approach.

**Keywords:** femoral artery embolism, anjiography, treatment

**Figure 1**



*Preoperative Anjiography*

## PP-228

### Different Endovascular Procedures in the Treatment of Bilateral Popliteal Artery Aneurysms

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Endovascular treatment (ET) of popliteal artery aneurysm (PAA) is an alternative in high-risk surgical patients. With the limitation of the caliber of stent-grafts, some giant PAAs have to suffer severe complications if underwent open surgery. We used Excluder stent-grafts to treat a giant PAA with amounts of thrombus within the aneurysm sac and used Viabahn stents to repair a relatively small one in the contralateral leg. Both procedures were successfully accomplished without any complication. We achieved a

**Figure**

*Computed tomography angiogram at 6 months showed 100% patency of the stent-grafts, well aneurysm exclusion and a three-vessel runoff peripherally.*

primary patency rate of 100% at 6 months' follow up. However, the long-term results need a close surveillance.

**Keywords:** popliteal artery, aneurysms, endovascular therapy, stent grafts

## PP-229

### Obturator Foramen Bypass in the Management of Arterial Groin Infection

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**Introduction:** Complications and morbidity associated with vascular graft infections and infectious aneurysms continue to be a major clinical problem. Remote bypass followed by complete removal of the infected prosthesis or aneurysms has proven to be a satisfactory method of treatment. The obturator foramen bypass has been described as an alternative procedure to solve complicated vascular problems in the groin. We evaluate the results of obturator foramen bypass for the arterial groin infection in our hospital.
**Methods:** From April 2010 to November 2012, five patients (all male) underwent obturator foramen bypass due to arterial infections in the groin. Circumventing the infected femoral triangle, an extra-anatomic ilio-popliteal bypass via the obturator foramen using 7 or 8 mm ringed ePTFE graft (Advanta VXT™) was established followed by simultaneous resection of the infected aneurysm or prosthesis. The clinical manifestations, operative results, and serial follow-up studies were retrospectively reviewed.
**Results:** Infections occurred as a consequence of an isolated vascular graft infection in two, and after a percutaneous interventional femoral access procedure in three patients. Four patients presented pseudo-aneurysm formation, in which one patient presented sepsis and hemorrhage due to aneurysmal rupture. The organisms responsible for infection included Staphylococcus aureus, Streptococcus agalactiae, and Pseudomonous aeruginosa. Three patients who could primarily close femoral wound discharged at 15, 21, 30 days after the operation. Two patients who required open femoral wound management underwent postoperative irrigation, debridement and needed prolonged admission (61, 76 days). No patient demonstrated signs of graft infection and all groin incision healed. With a mean follow-up of 23 months, all patients are alive and all grafts are patent with no signs of limb ischemia.
**Conclusion:** We conclude that the obturator foramen bypass seems to be an effective and durable means of revascularization in the presence of the septic groin.

**Keywords:** obturator foramen bypass, graft infection, infectious aneurysm

## PP-230

### Emergent Lower Limb Embolectomy in Octogenarians

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**Background:** Increasing longevity of population has led to an increase in elderly patients undergoing for emergent vascular procedures. The purpose of this study was to analyze the 30-day outcome of patients in their 9th decade of life undergoing lower limb embolectomy due to acute lower limb ischemia.
**Methods:** We reviewed the outcomes of 23 patients in the 9th decade of life that underwent emergent lower extremity embolectomy at our clinic in the last five years.
**Results:** There were 23 patients, 13 women and 10 men, with a mean age of 84, 04 ± 3, 08 (range 80–89) undergoing 28 vascular operations for acute lower limb ischemia. Overall morbidity and mortality rates were comparable as well as the return to preoperative functional status.
**Conclusions:** Patients in their 80's can safely undergo emergent lower limb embolectomy with reasonable early outcomes. Most patients return to their preoperative status. Age alone should not be a determinant in refusing surgery in this age group.

**Keywords:** acute ischemia, embolectomy, octogenarian

## PP-231

### Should LMWH be Used in the Treatment of Testicular Cancer with Cisplatinum?: A Case Report

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Testicular germ cell neoplasms (GCN) are prototypes of curable carcinomas. A combination of cisplatinum (CP), etoposide and bleomycin (BEP) agents are very well tolerated contrast to their well known toxicities in treatment of the GCN. In this present study we report a lower extremity amputation after BEP treatment for metastatic testicular mixt GCN.

Fifty-eight years old male patient presented with left hydronephrosis caused by a 14 cm retroperitoneal mass. Post-operative BEP treatment was started. After 1st cycle of BEP, bilateral lower extremities (LE) were mildly cyanotic, cold and hyperemic. Circulation of

**Figure 1**

*Peripheral angiography*

both LE were normal in Doppler US. Raynaud's syndrome was diagnosed and calcium channel blocker diltiazem 30 mg started. After 2nd cycle of BEP the main complaints were severe pain and coldness on the bilateral LE. A Doppler US showed acute bilateral popliteal artery thrombosis. Bilateral popliteal arterial embolectomy was performed and LE reperfusions have been completely restored. Low molecular weight heparin (LMWH) prophylaxis started. In follow-up LE circulations were normal before and after 3rd cycle of BEP chemotherapy (CTx) under LMWH medication. LMWH was stopped 4th cycle of BEP CTx was administered by a different medical center. Patient presented to our center with acute left LE ischemia and pain. Superficial femoral artery occlusion was detected in peripheral angiography. Depending on late ischemia, superficial femoral arterial occlusion and poor distal artery structure thrombolytic and anti-coagulators treatment was started (Fig. 1). Ptx did not respond to medical treatment. Left lower extremity was amputated below knee.

In patients with high risk of cardiovascular disease prophylactic anticoagulation may be recommended. Further prospective studies are needed to evaluate the risk of causing factors of thromboembolism in patients with GCN.

**Keywords:** testicular germ cell neoplasms, cisplatinum, low molecular weight heparin

## PP-232

# Use of a Superficial Femoral Artery Autograft as a Femoral Vein Replacement

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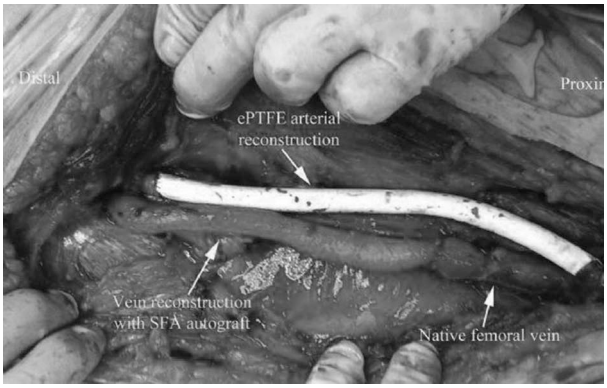
59 year old woman refered to our department with history right lower extremity claudicatio and gun shot injury 42 years ago. Physical examination revealed poor distal pulses in the right lower extremity and thrill heard on the middle thigh with auscultation. Venous doppler ultrasonography (VDUS) revealed arteriovenous fistula (AVF) between superficial femoral artery (SFA) and vein with flow rate over 4000 cc/min. Superficial femoral vein (SFV) diameter measured 4, 5 cm and there are calcifications on venous wall. SFA was dilated longitudinaly. Computerized tomography confirmed AVF. The patient undervent surgery. After standart anesthesia, anterior longitudinal incision was performed. SFA and SFV were harwested proximal to the adductor hiatus. Following the administration of 6000 IU heparin, proximal and distal part of the SFA and SFV clamped. AVF reconstructed. SFV was dilated and resected. We decided to use SFA to restore continuity between the common femoral and the distal superficial femoral veins because of inadequate caliber contralateral vena saphena magna and unreliable long-term performance of synthetic venous conduits with risk of thrombosis. SFA was reconstituted using a 7 mm expanded polytetrafluoroethylene graft (Figure 1). The wounds were closed over suction drains. The patient was maintained on 7500 U tinzaparin once daily for one month, followed by aspirin 300 mg daily. The patient was discharged after 5 days. Duplex scans at discharge and at 3-month follow-up showed normal venous and arterial flow.

**Keywords:** femoral artery, femoral vein, autograft

**Post operative autograft**



## PP-233

# Endovascular Treatment of Heavily Calcified and Obstructive Disease of the Aortoiliac Lesion with a Directional Atherectomy Device and the Kissing Stent-Graft Technique

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A 52 years old male patient with a long-standing history of smoking, hypertension and cardiopulmonary disease presented with complaints of severe claudication and impotence. In the physical examination, the peripheric pulses were absent including the femoral arteries. The patient had aorto-iliac TASC-D lesion. The patient's resting ankle-brachial index on the left was 0.32 and on the right was 0.18. The patient did not have a history of previous surgical or endovascular intervention in the aortic or iliac vessels. Angiography demonstrated a total aortoiliac occlusion on the right and a critical stenosis of common iliac artery on the contralateral side (Figure 1). Open surgical repair was not preferred because of the patient's severe cardio-respiratory dysfunction. This procedure was performed by cardiovascular surgery department. The patient underwent cardiac and pulmonary monitoring during the procedure.Heparin was administered. The procedure was performed in hybrid room under sedo-analgesia and local anaesthesia. Bilateral femoral incision was made and a percutaneous access to superficial femoral artery was achieved using a 10-F intraducer sheath. The total occlusive lesion was crossed via a retrograde approach using a 0.014 inch, 300 cm long totally occlusion guide-wire (Terumo, Tokyo, Japan) and a 2.7F micro catheter (Terumo, Tokyo, Japan). Iliac artery stenting without atherectomy was not attempted because of the heavily calcified plaques and total occlusion inside the artery. Atherectomy (SilverHawk, FoxHollow Technologies, Redwood City, California, USA) was performed (Figure 2). The bifurcation, where the calcification was more dense, was predilated with kissing-baloons and reconstructed with polytetrafluoroethylene (PTFE) covered baloon-expandable stent-grafts (Advanta V12, Atrium, USA) placed with the kissing technique (Figure 3). Subsequent angiography revealed no residual stenosis.Following the revascularization of the aortic bifurcation, bilateral common and external iliac arteries were oversized with heparin bonded self-expandable PTFE grafts (Viabahn, Goretext, USA) (Figure 4). PTA was performed to restore the occluded segments.

**Figure**

*Angiogram of the patient showing the reconstruction of the aortic bifurcation with baloon-expandable stent-grafts.*

**Keywords:** heavily calcified lesion, atherectomy, kissing stent-graft technique

## PP-234

# Recurrent Upper Extremity Chronic Thromboembolism in a Smoking Patient with Chronic Obstructive Pulmonary Disease, Hypertension, and Atrial Fibrillation

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İzmir Katip Çelebi University Atatürk Training and Research Hospital

**Aim:** In upper extremity arterial thromboembolism requiring surgical bypass, the patients are elderly and have a wide range of comorbidities. We presented a patient having right upper extremity chronic thromboembolism.

**Material-Methods:** A 74-year old men was referred to the emergency departement of our hospital because of pain, pallor, and coolness in the right upper extremity. He had hypertension, chronic obstructive pulmonary diease, and atrial fibrillation. He had recurrent emboli in this extremity. Two months ago, this extremity was performed a embolectomy with a Fogarti catheter. Right upper extremity pulses were nonpalpable. There were no audible signals with the hand Doppler in the right upper extremity.

**Results:** Arteriography showed total occlusion of the right axillary artery. The subclavian brachial bypass was done with a 6 mm PTFE graft. The saphenous veins were no apropriate for use as graft. Radial and unlar pulses recovered immediately. Low-molecular-weight heparin was given to prevent graft thrombosis. The patient was discharged 6 days after operation with oral anticoagulant (warfarin) and antiplatelet drug.

**Conclusions:** Although use of bypass graft in the upper extremity thromboembolism remains rare, the procedure is safe and effective.

**Keywords:** upper extremity, thromboembolism, graft bypass

## PP-235

# Evaluation of Severity of Intermittent Claudication Based on Recovery Time After 1 min-ExABI

***Yashiro Ozeki*[1], *Kazuo Tsuyuki*[1], *Kenji Kohno*[1], *Kunio Ebine*[1], *Susumu Tamura*[1], *Masashi Yokomuro*[1], *Toshifumi Murase*[1], *Kenji Ninomiya*[1], *Naoya Moriki*[1], *Kenta Kumagai*[1], *Itaru Yokouchi*[1], *Shinichi Watanabe*[2]**

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**Aim:** Recently, it was established that the accuracy of 1-minute walking on the treadmill exercise-ankle brachial pressure index test (1 min-ExABI) is almost equal to 5 min-ExABI as a standard screening method for peripheral arterial disease (PAD), and it was useful to diagnose PAD in low exercise-tolerance patients. However, the relationship between the recovery time after 1 min-ExABI as an evaluation of the severity of intermittent claudication and information provided by the walking impairment questionnaire (WIQ) is not known.

**Material-Methods:** The 1 min-ExABI and WIQ were performed in 31 patients who had PAD based on positive criteria of 5 min-ExABI and significant stenosis on computed tomographic angiography. An exercise test involved a computerized treadmill system inclined by 12% at a speed of 2.4 km/h on 1 and 5 min-ExABI. The brachial and ankle systolic pressures were measured using the oscillometric method at just before and 1 minute after walking. Then, the measurement was continued every 2 minutes. The ABI recovery time was determined by following 2 diagnostic criteria: (1) the time for the ABI to increase to more than 95% before walking, (2) the time for the ABI to increase to more than 85% before walking and the time that a steady state of at least 4 minutes begins. The WIQ evaluation method incorporated total scores for pain, distance, speed, and climbing.

**Results:** The recovery time after 1 min-ExABI was 4.1 ± 2.8 minutes, being significantly shorter than for 5 min-ExABI ($p < 0.001$). However, there was a strong correlation between the recovery times after 1 and 5 min-ExABI ($r = -0.82$, $p < 0.001$). The recovery times after 1 min-ExABI ($r = -0.67$, $p < 0.001$) and 5 min-ExABI ($r = -0.62$, $p < 0.001$) were negatively correlated with the WIQ score.

**Conclusions:** The recovery time after 1 min-ExABI was useful to evaluate the severity of intermittent claudication.

**Keywords:** peripheral arterial disease, exercise, diagnosis, intermittent claudication, recovery time, WIQ

## PP-236

# Anterior Tibial Artery Pseudoaneurysm and Cutaneous Fistulization Following Outside Vehicle Traffic Accident

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Pseudoaneurysms of the anterior tibial artery are rare vascular disorders. Etiology is a penetrating trauma in most of the cases. Pathology is usually treated with surgical measures by resection of the pseudoaneurysm and ligation of the anterior tibial artery.

In this report, we present a 22-year-old male patient in whom anterior tibial artery pseudoaneurysm developed after outside vehicle accident and treated by resection of the pseudoaneurysm together with arterial reconstruction.

**Keywords:** anterior tibial artery, pseudoaneurysm, resection, patchplasty

## PP-237

# External Ilio-Deep Femoral Artery Bypass Using the Small Saphenous Vein for a Patient with Refractory Critical Lower Limb Ischemia to Repeat the Bypass Occlusion

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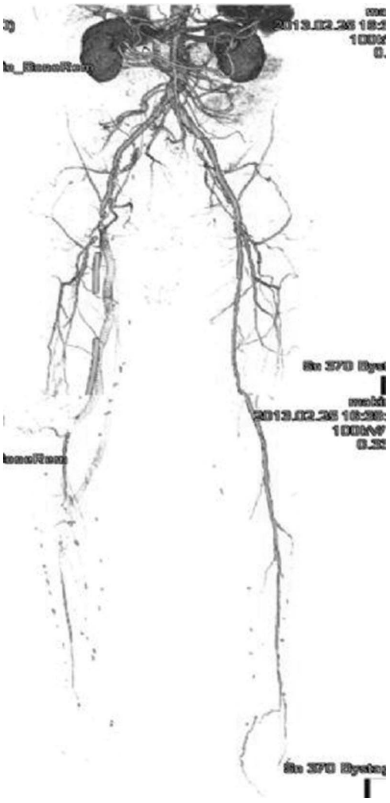
We report a clinical case of an external ilio-deep femoral artery bypass using the small saphenous vein for refractory critical lower limb ischemia to repeat the bypass occlusion.

**Case:** A 69-year-old man presented with a chronic critical lower limb ischemia of the right foot. He had undergone three times right femoro-popliteal bypass surgery previously and all bypass graft had occluded. Donor path of his right foot was deep femoral artery only. He was referred to hospital urgently with his right foot pain. CT angiography showed total occlusion of the right SFA and bypass graft. Deep femoral artery was also occlusive and the anterior and posterior tibial artery and peroneal artery were not contrast. Because there were only access sites, we performed the external ilio-deep femoral artery bypass. As there was no available autogenous great saphenous vein graft, we used small saphenous vein graft.

**Results:** After a period of 6 months of follow-up the patient is asymptomatic and walks with a cane on his own.

**Fig. 1: CTA**



**Keywords:** small saphenous vein graft, chronic critical lower limb, external iliac-deep femoral artery bypass

## PP-238

### What is the Ultimate Point for Extremity Salvage in Patients with Peripheral Arterial Disease: Is Late Admission a Predictive Criteria?

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**Aim:** Aim of this study is to report the extreme surgical approach for extremity salvage of the lower extremities with arterial disease in emergent circumstances.

**Material and Method:** 23 patients were chosen for this study. All of them have serious arterial occlusive or traumatic arterial disease in lower extremity. Half of patients were referred to our institute from other center. Patients were sellected when they had been performed infrapopliteal surgical procedure. 14 cases was performed axillofemoral bypass, femoro popliteal bypass and a.tibialis posterior bypass and a.tibialis anterior bypass. Nine patients had femoropopliteal bypass after reconstruction a.iliaca externa for antegrade flow, a.tibialis posterior and anterior bypass and plantar bypass but three patients.

**Results:** All patients had fasciotomy that were localized in leg for eight patients. Dorsal and ventral plantar fasciotomy were added in three patients. There was one mortality occurred because of renal failure and general faint. Amputation was needed for three patients.

**Conclusion:** Plantar arterial bypass should be added to infrapopliteal bypass for salvage the extremity if the patient has serious calcification in lower extremity arteries.

**Keywords:** extremity salvage, infrapopliteal bypass, plantar arterial bypass

## PP-239

### True Brachial Artery Aneurysm in a 21-Month-Old Child Repaired by Saphenous Vein Interposition Graft

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Upper extremity arterial aneurysms are rare. True brachial artery aneurysms are rarer [1]. They mostly occur after trauma [2]. Their occurence in children is also even rarer. We report on a true brachial artery neurysm which developed in a child with no history of trauma or inflammatory disorder. There have been very few reports about true brachial artery aneurysms [3]. Moreover use of saphenous vein interposition in such a young child has only been priorly reported once and we present such a rare case.

A 21-month-old male child with a swelling in his left arm was referred to our hospital. Magnetic resonance angiography showed true aneurysm of the brachial artery. There was no history of trauma. Further investigation revealed no connective tissue or other inflammatory disease. The aneurysm, which was accepted as idiopathic, was surgically excised and autologuous saphenous vein was used as an interposition graft. The patient is asymptomatic with good distal arterial perfusion as of postoperative eleventh month.

Surgical treatment with saphenous vein interposition is a lasting treatment in children with true aneurysms of the brachial artery if end-to-end anastomosis is precluded because of aneurysm size. The patient is asymptomatic with good distal arterial perfusion as of postoperative fourth month.

**Figure 1–2**

*Figure 1: Surgical exposure of the left brachial artery showing the true aneurysm of the brachial artery. Figure 2: A: A full thickness histologic section of the narrow part of the excision material revealing the detachment of tunica media from tunica adventisia (HE X40) B: Lymphocytic inflammatory infiltrate throughout the vessel wall ( HE X100) C: Bright, black short fibers are representing the fragmentation in elastic fibers (Elastic van Gieson ×200) D: Mucinous degeneration (pink/purple staining) of the vessel wall (Mucicarmen ×40)*

**Keywords:** childhood aneurysms, true brachial artery aneurysm, surgical treatment

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## PP-240

# Long-Term Results of Endovascular Recanalization with Surgical Decompression as a Primary Treatment Method for Popliteal Artery Entrapment Syndrome

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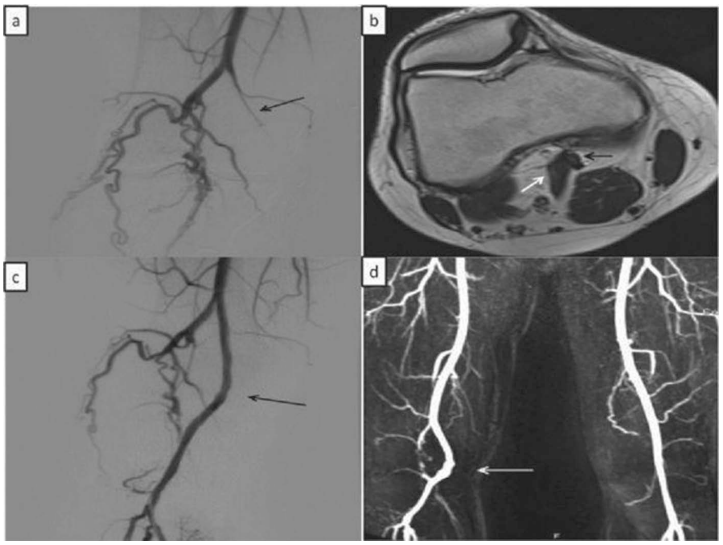
The aim of this study was to report the long-term results of endovascular recanalization and surgical decompression for popliteal entrapment syndrome (PAES). Five patients (all male; mean age, 33 years; range, 21 to 55 years) who underwent endovascular recanalization combined with surgical decompression for PAES in a 3-year period were reviewed retrospectively. Balloon angioplasty was used for all patients, and manual aspiration thrombectomy was used when required to remove thrombus and to restore blood flow in the popliteal and crural arteries. Musculotendinous resection and popliteal artery release was performed surgically in all patients after the endovascular treatment.

Endovascular techniques and surgical decompression were successful in all patients with an initial technical success rate of 100%. Primary and secondary patency rates were 60% and 60% respectively, at a median follow up of 64 months (range, 41–100 months). Three of five patients had an uneventful long-term follow-up. After treatment, thrombosis of the popliteal artery was observed in two patients, one of which underwent endovascular treatment again at 4 and 18 months. After these secondary interventions, the patient was asymptomatic. However he presented with a delayed thromboembolic occlusion in his follow-up, therefore below knee amputation was performed 30 months after the third intervention. Another patient with rethrombosis of the popliteal artery refused additional endovascular intervention, and underwent bypass surgery.

Endovascular treatment with surgical decompression is a potential alternative treatment for popliteal artery entrapment syndrome. To date, long-term event-free success was 60% was achieved. This therapeutic approach, which is less invasive, offers an alternative to conventional bypass surgery especially for young patients. It should be born in mind that careful follow-up of these patients is needed because reocclusion is a possibility.

**Keywords:** popliteal entrapment syndrome, endovascular recanalization, surgical decompression

**Figure 1. a, b, c, d.**




*A 29 year-old man with right lower extremity claudication due to popliteal artery occlusion (PAES Type I). (a) Selective right lower limb DSA shows medial deviation and occlusion of the popliteal artery (arrow). (b) Axial T2-weighted MRI image shows lateral dislocation of the medial head of the gastrocnemius muscle (white arrow), which crosses the popliteal artery (black arrow). (c) Final arteriography shows recanalization of the popliteal artery (arrow). (d) Control MRI angiography at 2 years after endovascular recanalization with surgical decompression reveals a patent popliteal artery with deviation and aneurysm (arrow).*

**Table 1.**

| | Age | Site | PAES type | Distribution of arterial disease | Endovascular treatment | Timing of surgery | Successful recanalization | Primary patency | Secondary patency | Patency on follow-up |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 21 | R | I | Occlusions of popliteal and proximal parts of crural arteries | PTA of popliteal and crural arteries | 1 week | yes | 41 months | — | Patent |
| 2 | 38 | L | III | Occlusion of popliteal artery with patent crural arteries | MAT and PTA of popliteal and crural arteries | 2 weeks | yes | 62 months | — | Patent |
| 3 | 55 | L | III | Stenosis of popliteal and femoral arteries and occlusions of distal part of all crural arteries | Stenting of SFA and PTA of popliteal artery | 1 week | yes | 4 months | 53 months | Occluded |
| 4 | 29 | R | I | Occlusion of popliteal artery with patent crural arteries | PTA of popliteal artery | 2 weeks | yes | 100 months | — | Patent |
| 5 | 22 | R | II | Occlusion of popliteal artery with patent crural arteries | PTA of popliteal artery | 2 weeks | yes | 1 months | — | Occluded |

*Patients' demographics, procedure details, outcomes, and follow-up. PAES: Popliteal artery entrapment syndrome, R: Right, L: Left, PTA: Percutaneous transluminal angioplasty, MAT: Manual aspiration thrombectomy, SFA: Superfiscial femoral artery.*

# Peripheral arterial disease

## PP-241

### Management of Acute Lower Limb Ischaemia in Infants and Children (<5 yr Age) Secondary to Femoral Catheterisation

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**Aim:** To report an experience of management of acute lower limb ischemia in infants and children (<5 yrs) following catheterisation of Femoral artery in a setting of a tertiary care paediatric cardiology/cardiac surgery hospital.

**Materials-Methods:** Prospective data for this study was collated between March–July 2013. There were 15 children (<5 yrs) with acute lower limb ischemia referred to the Vascular Institute following a femoral artery catheterization (Femoral arterial line 22G and Sheth size 4 or 5F). There were 11 males and 4 females (M:F = 2.75:1) with a mean age of 22 months. Seven (46.6%) patients were less than 1 year old. Six (40%) patients had limb ischemia post femoral arterial line insertion while 9 (60%) patients presented with limb ischemia post arterial sheath insertion. Most common presentation was absent pulses in 7 patients (46.6%), cold limb in 3 patients (20%), foot and toe pre-gangrenous changes in 5 patients (33%). All patients were examined for hourly distal pulses, toe pO2 and investigated with arterial duplex scan for 3 days followed by clinical examination and arterial duplex scan after 1 and 3 weeks.

**Results:** All children were treated successfully with 100% limb salvage. Average duration of retention of arterial line was 9.5 days and 6 hours for sheath. All patients were treated with IV heparin infusion, Aspirin and limb warming. No patient required any surgical intervention. On a mean follow up of 3 weeks, no patient had any complication or limb loss or any further progression of pregangrene.

**Conclusion:** Infants and children presenting with limb ischemia from femoral arterial catheterization can be successfully managed with anticoagulation and supportive care, rarely needing surgical intervention.

**Keywords:** catheter induced limb ischemia, children, management

## PP-242

### Hematocrit Level Below 25% is an Additional Risk Factor to Well Known Predictors of Wound Infection After Major Amputation for Critical Limb Ischemia

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**Aim:** Patients with end-stage critical limb ischemia have already suffered from wound complications after a major amputation. The objective of this report was to determine critical factors leading to wound complications following major amputation.

**Material and Methods:** One hundred and sixty two patients with ipsilateral below or above-knee amputation for critical limb ischemia between 2001 and 2013 were retrospectively reviewed. Peripheral vascular disease was assessed by using computerized tomography angiography and doppler ultrasonography studies. The primary outcome was wound occurrence and defined by findings of superficial infection, deep infection, and/or wound disruption. After collecting the data, predictive factors was identified.

**Results:** Wound infections occured in 45 patients. Staphylococcus aureus was the leading pathogen cultured from the wound. Predictors for wound occurance were obesity (n = 11), diabetes mellitus (n = 16), preoperative infection in the ipsilateral extremity (n = 9), advanced age (n = 6), wound hematoma (n = 18), prior prosthetic bypass grafts (n = 16) and active smoking (n = 25), chronic obstructive pulmonary disease (n = 9), hemodialysis (n = 8), history of myocardial infarcation (n = 11), and congestive heart failure (n = 12). There were 26 patients with hematocrit levels below 25% at the time of amputation and 80% (n = 21) of these patients developed wound complications. All the patients received appropriate antibiotherapy and further surgical intervention for the treatment of the wound infection.

**Conclusion:** Incidence of wound complications after major amputation is high. Wound infenctions increases morbidity and costs of treatment. The results of current study showed that preoperative low hematorit value is also a risk factor for wound infections. Further multicenter studies and results of larger cohorts are warranted in order to increase the sensitivity of low hematocrit level as a risk factor for wound infections after major amputations and define treatment protocols as well.

**Keywords:** amputatin, wound Infection, wound complication

## PP-243

### Spontaneus Superficial Femoral Artery Aneursym in a Patient With Behcet's Disease

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**Aim:** Vascular, especially arterial involvement of Behcet's Disease can affect any vessel of any size and is the major cause of mortality and morbidity. The frequency of vascular lesions ranges from 7 to 29%. Arterial pseudoaneurysms are rare but mortal components of the disease.

**Material and Methods:** A 45-year-old male patient was admitted to the emergency department with sudden onset of swelling on his left thigh. He did not define any trauma to his leg. In his history, he was diagnosed as Behcet's Disease 3 years ago but had never received regular treatment.

**Results:** Doppler ultrasonography of the thigh indicated a mass sizing 117 * 63 * 63 mm in diameter and was considered as a pseudoaneurysm due to the vicinity to the superficial femoral artery. Computerized tomography angiography clearly indicated the anatomy as well as the pseudoaneurysm confined to the middle segment of the superficial femoral artery. He was consulted with the rheumatology department and appropriate immunosuppressives were initiated prior to the operation. At the second week of his medical treatment he received pseudoaneurysm resection together with reconstruction of the superficial femoral artery with a graft. At surgery, we interposed a 6 mm biosynthetic graft to the left SFA. After the surgery the pedal pulses were palpable and symptoms of the patient was gone. After the surgery CRP level was 3.7 mg/L and he was discharged on the 8th day postoperatively.

**Conclusions:** Mortality in Behcet's Disease mostly is because of vascular involvement. Arterial aneurysms are especially important in the disease as they indicate poor prognosis after a probable rupture. Surgery is not always rational due to the recurrence of the lesions, the risks of the surgery and the anaesthesia, and the patient related comorbidities; however, should be performed when it is inevitable with precise precautions and immunosuppression.

**Keywords:** behcet's disaese, pseudoaneurysm, superficial femoral artery

## PP-244

### Peripheral Vascular Incury, Six Month Experiment

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Tokat State Hospital between January 2013-June 2013 presenting with peripheral vascular injury and surgery, etiology and treatment of the patients and to investigate the terms of the accompanying damage to other organs.

Tokat State Hospital Department of Cardiovascular Surgery of January 2013-June 2013 peripheral arterial injuries of examined 32 patients who applied.

Causes of injury, 18 (56%), stab wounds, seven (22%) of five gunshot wounds (15%), blunt trauma was determined to be the result. as a result of a broken blood vessel injury was present in two patients. 24 (75%) had upper extremity, eight (25%) cases were detected in the lower extremity arterial injury. As a treatment, 19 patients (59%) primary anastomosis, and 3 (9%), lateral suture, 10 patients (31%), vein graft interposition was performed. The mean duration of hospital arrival 1.4 hours (range 10 minutes to 4 hours). 8 days after the operation was a case of amputation All patients were discharged from the hospital. Vascular injury, tendon and nerve injuries were the most common concomitant lesions.

The type and site of injury, existence of accompanying lesions, and early surgical intervention are the most important factors affecting morbidity and mortality of peripheral vascular injuries.

**Keywords:** peripheral vascular injury, arter, experiment

## PP-245

### Modified Obliterative Endoaneurysmorrhaphy with Revascularization for Treatment of Popliteal Artery Aneurysms

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**Purpose:** Surgical treatment of popliteal arterial aneurysms (PAAs) is important for prevention of distal embolization and rupture. However, the best procedures to treat PAAs are controversial. Many surgeon have applied ligation and bypass but it leaves some risk of sac enlargement from collateral arteries and may result in rupture.

To avoid this risk and simplify procedure, we performed modified obliterative endoaneurysmorrhaphy with revascularization for PAAs. In this study, we evaluate efficacy of our surgical technique.

**Patients and Method:** A retrospective review of 10 patients undergoing surgery for PAA from 1997 to 2013 was carried out.

Postoperative CT scan and/or duplex scan was performed to investigate the fate of aneurysm sacs and patency of bypass grafts.
**Surgical Technique:** The medial approach was used in all patients. Anterior aneurysm wall was exposed as extensively as possible. The aneurysm sac was opened and the possible feeding vessels were ligated. The opened aneurysm sac was sutured in 2 layers to obtain hemostasis and to reduce the aneurysm size. Then, revascularization procedure was performed by bypass or interposition of a prosthetic graft.
**Results:** There was no limb loss in any patients. Excluded popliteal aneurysms were completely thrombosed and reduced in size postoperatively. Bypass grafts and interposed grafts were patent in all patients during follow up period.
**Conclusion:** We believe that modified obliterative endoaneurysmorrhaphy with revascularization is one of the useful surgical procedures for popliteal artery aneurysms.

**Keywords:** popliteal artery aneurysm, modified obliterative endoaneurysmorrhaphy, surgical treatment

## PP-246

### Anatomical Popliteal Artery Entrapment Syndrome

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**Background:** We would like to emphasize aberrant plantaris muscle as a cause of PAES and the efficacy of direct repair of the occluded artery followed by myotomy of the anatomically deranged muscle via posterior approach in PAES.
**Methods:** 35 anatomical PAES legs in 23 consecutive patients treated at Division of Vascular Surgery, Asan Medical Center, Seoul, Korea between 1995 and 2011.We retrospectively analyzed patients' records, MRI and/or CT scan of the knee joint, doppler pressure study, CT angiography, and conventional transfemoral arteriography of the lower extremities.
**Results:** All except one patient were male with median age of 28 (16–53) years old. There were 26 symptomatic PAES legs in 23 patients.We found asymptomatic PAES legs with muscular derangement in 9 patients incidentally while studying contralateral symptomatic legs. As for arterial lesions, popliteal or tibial artery occlusion was noted in 19 out of 23 (82.6%) patients and 19 out of 26 (73.1%) symptomatic PAES legs. In 7 PAES legs (26.9%) with patent popliteal artery, provocation positive leg was noted in 5 (71.4%).Regarding incidentally found asymptomatic 9 PAES legs, 55.6 (5/9) % of provocation positive and 44.4 (4/9) % of provocation negative were noted. Among 26 symptomatic PAES legs, Gastrocnemius medial head anomaly was noted in 19 legs (73.1%), while aberrant plantaris muscle was noted in 7 (26.9%). Type II anomaly, III anomaly, and aberrant plantaris muscle were noted in 51.4 (18/35)%, 20 (7/35)%, and 28.6 (10/35)%. Treatment was decided according to the arterial pathology and symptoms.The result was excellent so any leg symptom or arterial pathology has not appeared during the study period in any of the patients in this asymptomatic group.
**Conclusions:** Aberrant plantaris muscle is another mechanism of PAES. Regarding treatment policy, treatment should be individualized and if the occlusive lesion confined to the popliteal artery, direct repairment of the popliteal artery followed by myotomy of the anatomically deranged muscle via posterior approach would be recommended.

**Keywords:** popliteal artery, anatomy, aberrant muscle

## PP-247

### Popliteal Artery Pseudoaneurysm Associated with Solitary Osteochondromatosis

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**Aim:** Osteochondroma is the most common benign tumor of the bone and is generally seen during adolescence. Osteochondromas are usually asymptomatic but neurological, skeletal or vascular complications such as pseudoaneurysm, claudication, acute ischemia, arteriovenous fistulae, and phlebitis may occur. Herein, we present a male patient with popliteal artery pseudoaneurysm secondary to distal femoral osteochondroma.
**Material Methods:** A 19-year-old male patient was admitted with a two week history of pain and swelling of the medial side of his right thigh just above the knee. On physical examination, a non-pulsatile 8-cm diameter mass was found on distal medial region of right thigh. Doppler ultrasonography revealed a false aneurysm, originating from the anterior aspect of the popliteal artery. CT angiography demonstrated a popliteal artery pseudoaneurysm and its close relationship to the exostosis of distal femoral bone.
**Results:** Surgery was performed through a medial incision above the knee. Local thrombus was removed after opening of pseudoaneurysm. A small hole on the anteromedial side of the popliteal artery which was closely related to a spike of the distal femoral osteochondroma was seen. The artery was repaired directly with a 6/0 polypropylene suture, and the exostosis was completely removed with an osteotome after vascular repair. The histopathological examination of the resected bone revealed osteochondroma.
**Conclusion:** Primary vascular disease is not very common in young people and the their presence should alert the surgeon the possibility of a vascular injury. In the absence of history of trauma, surgical interventions or penetrating injuries, the presence of an osteochondroma should be suspected and a CT angiography should be the preferred imaging modality with its excellent viewing of bony structures. Surgical treatment is recommended as an urgent procedure once the diagnosis is established. The excision

**Popliteal pseudoaneurysm with osteochondromatosis**


of the osteochondroma should be part of surgical treatment to prevent recurrence of vascular injury.

**Keywords:** osteochondromatosis, popliteal artery, pseudoaneurysm

## PP-248

## Carotico Subclavian Bypass in Coronary Subclavian Steal Syndrome: Case Report

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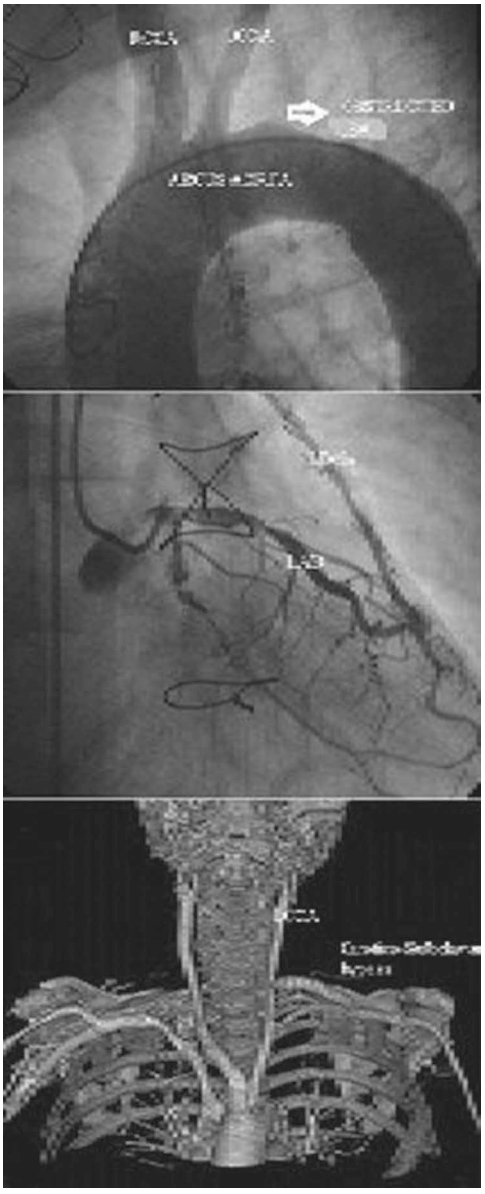
Subclavian steal syndome is known as reverse flow from vertabral artery to subclavian artery due to occlusion of proximal subclavian artery. Occlusive process leading to syndrome is common in left subclavian artery. Coronary-subclavian steal syndome may happen by reverse flow in left internal thorasic artery with occlusion in subclavain artery of patients who were performed coronary artery bypass grafting surgery using left internal thorasic artery. Subclavian steal syndome may occur during coronary artery bypass grafting surgery or postoperatively with progression of lesion. We want to represent a cases who has carotico-subclavian steal syndrome of which one was detected before and the other one was detected after the coronary artery bypass grafting (CABG) surgery.

**Keywords:** subclavian, steal, coronary heart disease, carotico-cubclavian bypass

**Resim görüntüsü**



## PP-249

## An Unusual Case of Cardiac Thromboembolism

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**Aim:** Intracardiac thrombus is the common cause of arterial embolism. Intracardiac thrombus may occlude any artery but multiple arterial embolisms are very uncommon. Here we present a case of multiple embolisms that affected the four extremities of a patient at the same time.

**Case:** Seventy-two years old female with a history of cerebrovascular event admitted to our institution with ischemic symptoms of all four extremities. The patient was hospitalized and left brachial and bilateral femoral embolectomy was performed. The postoperative echocardiography revealed a left ventricular aneurysm and intraventricular thrombus. Ischemia of the left leg was not resolved and she undergone minor amputation of the left foot. Anticoagulant therapy was initiated and the patient was discharged.
**Conclusion:** To our knowledge and as far as our review in the literature this is the first case arterial embolism that affects all of the four extremities. Early surgical intervention and adequate medical treatment was lifesaving in this increased aged multiple arterial embolism case.

**Keywords:** embolism, cardiac thrombus

## PP-250

## Acute Arterial Obstruction in a Patient with Left Atrial Myxoma and Chronic Lower Extremity Ischemia-Case Report

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Peripheric embolies, norologic disorders and symptoms of the mass in the left atrium and mitral leaflet are often in left atrial myxoma.

A patient who is 55 years old and female, admitted to our hospital with diagnosis of the left atrial myxoma and bilaterally resting leg pain as a complain. She has no pulse on below the left femoral artery and no pulse on right femoral artery.

We planned directly coronary artery and peripheric angiography via right radial artery. 70% stenosis of the left anterior descending artery (LAD) found in coronary artery angiography. Long segment obstruction in rigth iliac artery and no flow in below the left common femoral artery in peripheric angiography as a result.

A patient was strong left leg pain, pallor and coldness on left leg after angiography, a patient operated urgently with general anesthesia, because of acute arteriel obstruction. Profunda femoral artery was obstructed with thrombus and fibinouse tissue, 4 5 F fogarty catheter was not proceeded and thrombo endarterectomy was done. After this procedure back-flow was good. Superficial femoral artery was excessive fibrotic. 4–5 F fogarty chateter was not proceeded more than 10 cm. It was thought acute obstruction in addition to chronic obstruction and popliteal artery was prepared. Proximal of the popliteal artery was no flow, back-flow in distal of the popliteal artery was good. First saphenouse venouse patch angioplasty was done in origine of the profunda femoral artery, and than reverse saphenouse venouse femoropopliteal bypass was done. Pathological result of the embolectomy was myxoma tissue and fresh thrombus.

After two days, a patient operated for left atrial myxoma and LAD bypass with cardiopulmonary bypass.

A patient was discharged from hospital on sixth day with no morbidity and mortality with acetyl salisilic acid 300 mg. No morbidity and mortality were seen postoperatively during 2 month.

**Keywords:** acute arterial obstruction, myxoma

## PP-251

## Hybrid Approach via Surgical Access in Critical Limb Ischemia

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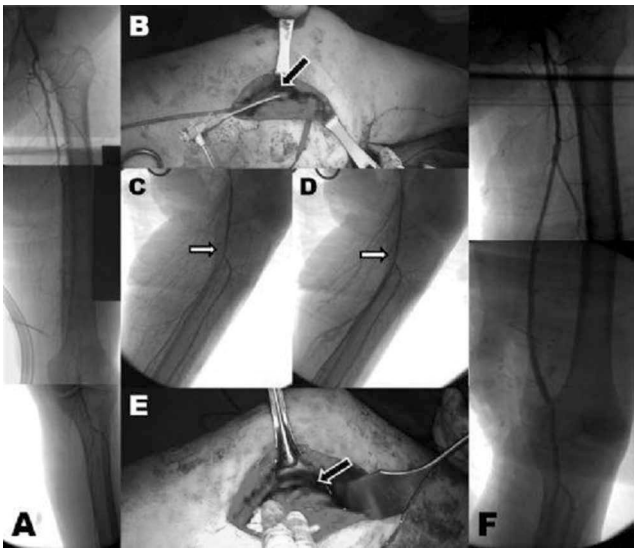
**Aim:** Peripheral arterial disease is usually presented with multisegmental lesions and occlusions especially in diabetic patients. In such cases, superficial femoral artery (SFA) occlusions are generally accompanied by below-the-knee critical lesions. Determining the correct revascularization strategy is essential for saving the extremity in patients with critical limb ischemia. What is pointed out here is that if a femoropopliteal bypass is to be performed, infragenicular lesions can easily be treated using endoluminal techniques via the popliteal artery already exposed during the surgery.
**Material and Methods:** In the endovascular operating room, arterial lesions were initially viewed under fluoroscopy. Since SFA occlusion showed to be unrecanalized, endovascular treatment plan was abandoned and the treatment proceeded with femoropopliteal bypass surgery. Following was the surgical exploration of the femoral artery and the popliteal artery. Under real visualization, the popliteal artery was punctured antegradely. Infragenicular arteriogram revealed that the preocclusive lesion was suitable for transluminal balloon angioplasty. Endovascular treatment was performed for below-the-knee critical lesion. Arteriogram following the intervention showed no stenosis and the infrapopliteal flow improved. Hybrid revascularization completed with the femoropopliteal bypass was checked by a control arteriogram via the common femoral artery.
**Results:** In cases which present multilevel arterial lesions, a hybrid revascularization can be a good alternative. We believe that below-the-knee endovascular intervention should be performed right before surgery via popliteal artery exploration since it is technically easier and the graft will not be jeopardized.
**Conclusions:** In selected cases in which femoropopliteal bypass surgery is going to be used, popliteal artery that has already been exposed for distal anastomosis is a technically safe access for endovascular approach for below-the-knee lesions. The main advantage presented in this approach is that it allows for semi-percutaneous intervention to the access artery during surgery. In

**Infragenicular Transluminal Anjioplasty Via The Surgically Exposed Popliteal Artery During Femoropopliteal Bypass**




such cases, hybrid revascularization approach presented here can be preferred.

**Keywords:** peripheral arterial disease, critical limb ischemia, hybrid treatment, endovascular treatment, vascular surgery, surgical access

## PP-252

## Our Biodegradable Stent Experience in 5 Patients for Therapy of Peripheral Arterial Disease

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Between November 2011-January 2012 4 patients referred to our clinic with chronic arterial obstructive disease and 1 patient with thrombosis after surgery for vascular trauma, treated with biodegradable stent. Mean age was 52.4 (16–70) and all patients were male. 2 patients has rest pain, 3 patients had claudicatio intermittans. 2 patients were diabetic. Dopler ultrasound and peripheral angiography used for diagnosis. Lesions located at left superficial femoral artery in 3 patients, at rigth superfisial femoral artery in 2 patients and at common iliac artery and rigth external iliac artery in 1 patient. Procedure applied under local anesthesia at angiography laboratory with seldinger technique from common femoral artery. 7 stents used, 5 were 78 mm long, 2 were 36 mm long and all of them were 6 mm in diameter. 2 patients had 2 stents and 3 of them had 1 stent. Residual stenoses treated with baloon. During procedure, all patients heparinized, and 24 hours postoperatively heparin infusion adminestered. Patients dicharged at second day postoperatively. Heparin infüsion stopped on discharge and clopidogrel 75 mg, and acetylsalysilic acid (ASA) 100 mg. Theraphy started orally. Postoperative follows on first and third month no complaints and no clinical problems seen. On sixth month, doppler ultrasound showed that normal flow pattern in stented areas. Clopidogrel and ASA theraphy continued 1 year postoperatively and then discontinued.

İn conclusion biodegradable stent as a new type of stent, has good results on mid and long term and we believe if used as a therapy option in selected patients, results will be satisfying.

**Keywords:** peripheral arterial obtructive disease, biodegradable stent

## PP-253

## An Unexpected Brachial Artery Aneurysm Mimicking Arteriovenous Fistula Aneurysm: A Case Report

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Aneurysms on arteriovenous fistula (AVF) site is a common problem in hemodialysis patients but only a few cases of arterial aneurysm formation that is located proximally or distally to AVF site, have been reported to date. We present a case of brachial artery (BA) aneurysm mimicking an AVF aneurysm and diagnosed coincidentally during an urgent operation of AVF bleeding.

A 73 years old patient with chronic renal failure was admitted in our hospital with bleeding on brachiocephalic AVF that was created 2 months ago. There was not any history of trauma or medical procedures in his left arm. Physical examination revealed an mobile, pulsatile, 2, $5 \times 3$ cm mass located just above and medially antecubital fossa and an active bleeding on AVF site. Patient described the mass as rapidly progressive in size during the last 2 months so it is thougt to be an AVF aneurysm. The patient immediately underwent an operation including bleeding control and closure of AVF. Despite the closure of AVF, thrill and pulsation of the mass continued so intraoperative dupplex ultrasonographic investigation was applied. Dupplex examination showed a partially trombosed and calsific aneurysm of BA. Thus the aneurysm was exposed and resected within a new skin incision and a 8 mm PTFE graft was interposed between the proximal and distal end of BA by using end-to-end anastomosis. Postoperative course was uneventful and adequate graft flow determined with dupplex examination before discharge.

BA aneurysms in AVF patients are uncommon entity and are probably a result of local vascular injury and degeneration. Currently surgical procedures are the mainstay choices for treatment compared with endovascular interventions. They are associated with AVFs and

there is some evidence that closure of the fistula does not preclude future aneurysm formation. We recommend periodic follow-up for any patient who has undergone creation of an AVF.

**Keywords:** brachial artery aneurysm, arteriovenous fistula, venosus aneursym

## PP-254

### Our Mid-Term and Long-Term Results in the Extra-Anatomic Bypass Surgery

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**Introduction:** Extra-anatomic arterial reconstruction is especially preferred in the patients wtih comorbid factors. In this study, we are reporting our long term results of extra-anatomic bypass surgery.
**Material and Methods:** We retrospectively analyzed 65 of the 70 patients with extra-anatomic bypass surgery, that we could gained follow up results. There were 54 (83.07%) male and 11 female (16.93% patients with the mean ages of 54.3 ± 4.2 (from 20 to 82) years. Extra-anatomic bypass surgery were peformed to the lower extremity 36 cases (55.3%) and to the upper extremity 29 cases (44.7%). Additional distal bypass surgery was done in 18 of the 36 patients with lower extremity disease.
**Results:** The mean follow of time was 3.6 years (from 3 months to 6 years). There was not any early term morality, but there five re-operations due to graft thrombosis and 2 amputations caused by insufficient arterial flow in the postoperative period. In the long term, the mortality was 6% (n = 4) related to the malignite in 2 patients, pulmonary emboli in one patient and aorta-duodenale fistula in one patient. There two re-operations with the causes of graft thrombosis and graft infection.
**Conclusion:** Extra-anatomic bypass surgery is a surgical procedure in the risky patients with lower mortality and morbidity rates, and accaptable patency rates.

**Keywords:** extra-anatomic bypass, femoro-femoral bypass, axillo-bifemoral bypass, axillo-femoral bypass

## PP-255

### Coronary Steal Syndrome Secondary to Unligated Left Internal Mammary Artery Side Branch: Treatment with Coil Embolization

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**Objectives:** To present a percutaneous coil embolization for coronary steal syndrome secondary to unligated left internal mammary artery (LIMA) side branch in a symptomatic patient with coronary artery bypass graft (CABG).
**Methods:** A 64-year-old male who underwent CABG for triple vessel disease had angina. Coronary angiography revealed 50% stenosis on the left anterior descending artery (LAD) after the anastomosis and unligated side branch arising from the LIMA. Since it was presumed that side branch was exacerbated the ischemic symptoms, side branch embolization was planned.
**Results:** A 6 Fr long guiding sheath was inserted into the left subclavian artery via right femoral artery following heparin administration. Then, a 6 Fr Fargo guiding catheter was placed proximal of the LIMA inside the long guiding sheath, and superselective catheterization of side branch was obtained with use of microcatheter and microwire. Thus, a triaxial catheter system was formed. Side branch was embolized with detachable microcoils. On follow-up, patient's chest pain was relieved significantly. The patient was discharged with clinical control on the first month.
**Conclusion:** Large side branches including intercostal and pectoral arising from the LIMA are ligated during the bypass surgery. These arteries are occasionally overlooked and coronary steal phenomenon may be developed even if the stenosis on the coronary artery is not significant. In such cases, side branch transcatheter embolization with coil is an effective, easy, and feasible technique.

**Keywords:** left internal mammary artery, coronary steal syndrome, coil, embolization

## PP-256

### Treatment of Sequential Renal Artery Aneurysms with Multilayer Flow-Diverting Stent in a Patient with Solitary Kidney

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[2]Atatürk Training and Resarch Hospital, Cardiovascular Surgery Department

**Objectives:** To present a preliminary experience using a multilayer flow-diverting stent for sequential renal artery aneurysms in a patient with solitary kidney.

**Methods:** A 57-year-old hypertensive male with right nephrectomy and having flank pain, was found to have a large saccular aneurysm in addition to parapelvic cysts (the largest one with a diameter of 63 × 48 mm) in the left main renal artery in ultrasonographic examination. The patient was referred to our hospital for CT angiography and further treatment. His blood pressure was under control with single drug.

**Results:** CT angiography showed sequential left main renal artery aneurysms in diameters of 11 × 9 mm, 21 × 13 mm, and 27 × 17 mm extending to the renal hilus. Whole segmental renal arteries originated from the aneurysms and there were stenotic segments between the aneurysms. Endovascular treatment with multilayer stent was planned. Oral anti-aggregates, aspirin and clopidogrel, started 10 days before intervention. A long guiding sheath was inserted into the abdominal aorta via right brachial artery after heparinisation. A 5 Fr headhunter catheter was placed proximal of the left renal artery, and aneurysmatic segments were passed by using microcatheter and microwire. After replacement of 0.018-inch super stiff microwire, a 10 × 80 mm multilayer stent was deployed throughout the renal artery. The patient was discharged with clopidogrel and aspirin. At 1 month, CT angiography showed complete thrombosis of the two aneurysms and nearly completes thrombosis of the last aneurysm; all the segmental branches remained patent.

**Conclusion:** The multilayer flow-diverting stent appears to be an effective and feasible minimal invasive alternative technique for renal artery aneurysms. Further studies and long-term results are required.

**Keywords:** solitary kidney, aneurysm, multilayer stent

## PP-257

### Combined Trombectomy and Transcatheter Thrombolysis in Acute Greft Thrombosis

***Muge Evren Taşdemir,*** *Murat Sargın, Sevinç Bayer Erdoğan, Nehir Tandoğar, Erol Kurc, Onur Sokullu, Gokcen Orhan, Serap Aykut Aka*

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This poster is to report three patients with acute lower extremity thrombosis.

Patients were seen emergency room and hospitalized following diagnosis. All three of them had greft thrombosis. They were operated and thrombectomy was performed. Regarding to their distal vascular disease, distal perfusion was not totally maintained. Thrombolytic treatment was started. An infusion catheter was inserted and anteplase perfusion for thrombolysis was started. The duration of perfusion was limited to 12 hours. After 12 hours, arterial Doppler sonography was performed and all 3 patients had distal perfusion. There were no signs of ischemia. There were no complications such as bleeding. Before discharge, patients were coumadinized.

Acute greft thrombosis is a severe morbid condition. Thrombectomy and thrombosis may be an effective management in patients with acute greft thrombosis and distal vessel disease.

**Keywords:**

## PP-258

### Endothelial Progenitor Cell Differentiation of Induced Pluripotent Stem Cells in Vitro for Critical Limb Ischemia

***Mohammad Reza Dastouri[1],*** *Aynur Karadag[2], Deniz Balcı[3], Günseli Çubukçuoğlu Deniz[4], Serkan Durdu[5], Alp Can[3], Ahmet Rüçhan Akar[4]*

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End-term differentiated somatic cells can be converted to a pluripotent state through transduction of four transcription factors, namely Oct4, Klf4, Sox2 and cMyc. These induced pluripotent stem cells (iPS cells) resemble embryonic stem cells in many aspects while avoiding general ethical concerns. Autologous iPS cells after reprogrammed into endothelial progenitor cell (EPC) may offer several advantages in the treatment of vascular disorders because of their vasculogenic differentiation potential. To reach that purpose, we reprogrammed and then characterized

mouse fibroblast-driven iPS cells into Flk-1/KDR+ (vascular endothelial growth factor receptor-2), a well-recognized EPC marker. Further maturation of EPC was characterized by the expression of CD31 and VE-cadherin, both of which are well-known endothelial cell-specific adhesion molecules.

In the current work, Puromycin-resistant iPS cells (Ng-20D-17) were expanded in culture on the mouse embryonic fibroblasts (MEFs) and then purified from MEFs. Purified iPS cells were differentiated into Flk-1+ cells with the use of differentiation medium (a-minimum essential medium supplemented with 10% fetal calf serum and $5 \times 10–5$ M 2-mercaptoethanol) in the absence of leukemia inhibitory factor (LIF) on type IV collagen-coated dishes. We then analyzed Flk-1 gene expression and protein levels with quantitative real-time PCR (qRT-PCR), Western blot and immunocytochemical methods on days 2, 3, 4 and 5. Morphological changes were evaluated during differentiation process using confocal and scanning electron microscopy. As a first step, Flk-1 expressing cells were selected by fluorescence activated cell sorting (FACS) in each culture day. In the second step, FACS-purified Flk-1+ cells were cultured on type IV collagen-coated dishes in differentiation medium with 100 ng/mL human VEGF165 (vascular endothelial growth factor) to induce EPC formation. On day 2 and 3 following induction, CD31 and VE-cadherin gene expression and protein levels were analyzed with qRT-PCR, Western blot and immunocytochemical methods. As a result of the first step we found that Flk-1 expressing cell number reached to a peak level (24%) on day 4 followed by a progressive decline subsequently. In the second step, CD31 and VE-cadherin positive cells were generated and enriched during day 2–3 of induction. We concluded that optimal time for harvesting Flk-1+ cells on by FACS was is day 4 of initial differentiation. Following isolation of Flk-1+ progenitor cells they were are further matured into functional EPCs by VEGF165 within 2-3 days of induction.

In conclusion, we showed that EPCs could be successfully derived from mouse fibroblast-driven iPS cells. iPS cells may therefore play be used in an important role in the treatment of critical limb ischemia by remodeling the blood vessels and could be considered for an *in vivo* model for the translational research.

**Keywords:** iPS cell, endothelial progenitor cells, angiogenesis, revascularization

### PP-259

## Postoperative Delirium After Major Vascular Surgery: Prevalence and Risk Factors

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**Introduction:** Postoperative delirium (PD) has increased recently along with aging population. Vascular surgery has been reported to be associated with high incidence of PD. We evaluated the prevalence and the risk factors of PD after major vascular surgery.

**Methods and Objectives:** From January 2009 to December 2012, 217 patients who underwent major vascular surgery in DSMC were retrospectively analyzed. Prevalence, onset, duration, and risk factors of PD were analyzed.

**Results:** Mean age was 67.1(SD ± 10.5) and male were 84.3%. PD was developed in 59 (27.2%) and mostly postoperative 1 to 2 day (1.58 ± 0.62). Mean duration of PD was 2.25 ± 1.42 days. The highest incidence (43.5%) of PD was found after surgery for critical limb ischemia (P = 0.010).

Logistic regression analysis identified the following risk factors: old age (OR; 1.139 95% CI; 1.061 to 1.224; P <0.001), low BMI (OR; 0.796, CI; 0.666 to 0.952; P = 0.012), loss of hearing function (OR; 20.479; CI 1.616–259.537; P = 0.010), alcohol consumption (OR; 3.706, CI; 1.094–12.557; P = 0.035), duration of ICU stay (OR; 2.043, CI; 1.156–3.611; P = 0.014), reduced activity (OR; 4.078, CI; 1.121–14.843; P = 0.033), albumin (OR; 0.020, CI; 0.001–0.392, P = 0.010), cholesterol (OR; 0.973, CI; 0.954–0.993; P = 0.007).

**Conclusion:** The prevalence of PD was high after major vascular surgery. Current study identified eight risk factors for PD. Patients having these risk factors need to monitor closely to prevent or mitigate PD after major vascular surgery.

**Keywords:** postoperative delirium, major vascular surgery, prevalence

# Thoracic Vascular Disease

### PP-260

## Surgery for Acute Type A Aortic Dissection in Octogenarians

***Shigeyoshi Gon*, *Yasuyuki Yamada, Ikuko Shibasaki, Toshiyuki Kuwata, Takayuki Hori, Go Tsuchiya, Masahiro Seki, Yuriko Kiriya, Takashi Kato, Hirotsugu Fukuda***

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**Background:** Emergency surgery for type A aortic dissection (AAD) in elderly patients is controversial because surgery is associated with high mortality and morbidity rate. This study aimed to identify the outcomes in octogenarians who underwent surgery for AAD.

**Methods:** 70 patients underwent surgery for AAD between June 2008 and May 2013, of which 12 patients were older than 80 years. All patients underwent corrective surgery using moderate hypothermic circulatory arrest with selective antegrade cerebral perfusion. The surgical outcomes were compared between octogenarians and patients aged less than 80 years (control group).

**Results:** The two groups had similar preoperative characteristics

and intraoperative data. All patients underwent replacement of the ascending aorta, and octogenarians extended to the arch in 3 patients (25%), and control groups underwent total or hemi-arch replacement in 9 (15.5%), root construction in 5 (8.6%), root construction and total arch replacement in 2 (3.4%). The rate of neurologic deficit (33.3% vs. 15.5%, p = 0.16), hospital mortality (25% vs. 6.9%, p = 0.06), the length of hospital stay (47.6 ± 29.7 days vs. 34.9 ± 39.6 days, p = 0.15) did not have significant differences in two groups, but octogenarians group had significantly longer ventilator time (561.3 ± 745.5 minutes v.s. 152.9 ± 420.1 minutes, p = 0.005) and longer length of stay in the intensive care unit (10.4 ± 10.6 days vs. 5.4 ± 4.6 days, p = 0.005), and tracheotomy was significantly required in octogenarians (41.7% vs. 6.9%, P = 0.001). Overall survival rates in octogenarians were 66.7% at 1 year and 55.6% at 3 years. Among discharged patients, survival rate were 88% at 1 year and 74% at 3 years.

**Conclusion:** Surgical treatment for AAD in octogenarians shows satisfactory midterm results among survivors. Larger series will be needed to define the optimal management for octogenarians presenting with AAD.

**Keywords:** acute aortic dissection, octogenarians, surgical outcomes

## PP-261

# 30 Patients Experience of Traumatic Thoracic Aortic Rupture

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**Aim:** We investigated the relation between clinical findings and outcome of traumatic thoracic aortic rupture (TTAR) in 30 patients who were treated at our Trauma and Critical Care Center, Tokyo Metropolitan Bokutoh Hospital.

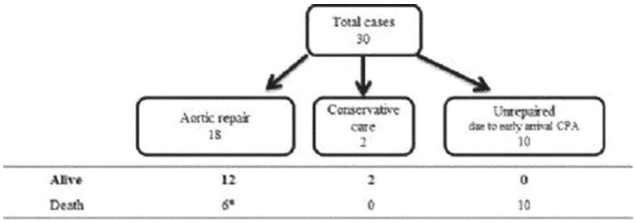
**Material-Methods:** Thirty patients (men, 24; women, 6; average age, 47.5 ± 19.9 years) who were diagnosed with TTAR from 1999 to 2011 were studied. We classified patients into groups based on outcome (survival or death) and conducted the relationship between outcome and the following factors: cause of injury, vital signs, other combined injuries, injury severity score (ISS), revised trauma score, and probability of survival (Ps).

**Results:** Of the 30 TTAR patients, 18 underwent aortic repair, 2 received conservative treatment, and 13 suffered cardiopulmonary arrest (CPA) immediately after consultation and died. Of the 15 patients who underwent TTAR repair avoiding CPA, 12 patients survived. Patients who underwent TTAR repair had a relatively good prognosis. Evaluation of the relation between clinical data and prognosis showed that young age, blood pressure, and Fibrinogen was significantly correlated with survival, and that Glasgow Coma Scale, heart rate, and hemoglobin, were not significantly related to prognosis. The Abbreviated Injury Scale (AIS) was used to score the severity of multiple injuries, and the ISS was calculated from the AIS score. The ISS was significantly high in the death group (P = 0.006). Logistic regression analysis on ISS of other combined injuries showed that the extremity injury affected more fatal than those of other injury (P = 0.062). The Ps values calculated by the Trauma Score and Injury Severity Score method were significantly high in the survival group (P = 0.007).

**Conclusions:** To treat TTAR, it is important to adequately evaluate the damage due to other combined injuries and to apply treatment with appropriate order. ISS and Ps were effective for TTAR treatment with multiple injuries.

**Keywords:** injury severity score, percutaneous cardio pulmonary support, probability of survival

**Treatment and outcome of TTAR**




| | | | |
|---|---|---|---|
| Alive | 12 | 2 | 0 |
| Death | 6* | 0 | 10 |

** Included 3 cases after resuscitation for CPA*

**The relationship with the prognosis of TTAR and parameters**

| Parameter | Survival (n = 14) | Death (n = 16) | P value |
|---|---|---|---|
| Age | 39.6 ± 20.7 | 53.8 ± 17.2 | P = 0.039 |
| Sex (M/F) | 11/3 | 13/3 | P = 0.783 |
| Cause (TA/Fall) | 9/5 | 8/8 | P = 0.484 |
| GCS | 10.07 ± 4.48 | 9.44 ± 4.66 | P = 0.708 |
| Heart rate | 115.4 ± 22.4 | 110.7 ± 29.8 | P = 0.776 |
| Respiratory rate | 25.8 ± 3.6 | 26.2 ± 8.6 | P = 0.188 |
| Blood pressure | 133.4 ± 51.0 | 90.3 ± 47.9 | P = 0.041 |
| SpO2 | 88.9 ± 7.4 | 80.8 ± 23.9 | P = 0.362 |
| Hb | 12.5 ± 2.2 | 11.5 ± 1.7 | P = 0.197 |
| CK-MB | 177.6 ± 108.0 | 190.2 ± 81.4 | P = 0.555 |
| FDP | 97.7 ± 95.3 | 209.9 ± 199.9 | P = 0.199 |
| Fibrinogen | 231.9 ± 97.2 | 151.8 ± 82.6 | P = 0.030 |
| ISS | 35.4 ± 16.6 | 54.9 ± 17.6 | P = 0.006 |
| RTS | 6.24 ± 1.66 | 5.42 ± 1.06 | P = 0.087 |
| Ps | 67.9 ± 36.4 | 26.9 ± 22.8 | P = 0.005 |

*TA; traffic accident GCS; Glasgow Come Scale SpO2; percutaneous oxygen saturation ISS; injury severity score RTS; revised trauma score*

## PP-262

# Risk Factors Analysis of Late Reoperation in Patients with Acute Type a Aortic Dissection

***Hideyuki Kunishige,*** *Yoshimitsu Ishibashi, Masakazu Kawasaki, Kiyotaka Morimoto, Nozomu Inoue*

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**Aim:** Aortic dissection is an evolving process that may require one or several reoperations after its initial repair. In this study, we evaluated the risk factors for reoperations after repair of acute type A aortic dissection.

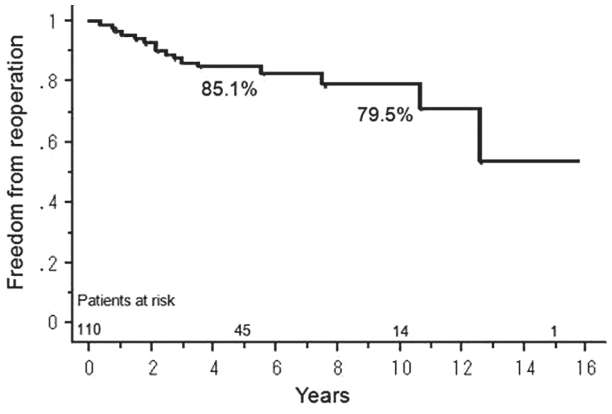
**Material-Methods:** From January 1996 and December 2012, 110 consecutive patients underwent repair of acute type A aortic dissection at our institution. Sixteen patients required 17 reoperations at a mean interval of 3.9 ± 3.5 years after initial surgery for the correction for type A aortic dissection. Reoperation included 4 procedures on the proximal aorta (ascending aorta, aortic root, or valve) and 13 procedures on the distal aorta (arch, descending, thoracoabdominal, or abdominal aorta).

**Results:** Freedom from any reoperation for all cases estimated by actuarial methods was 85.1% at 5 years and 79.5% at 10 years (Figure). Freedom from proximal reoperation was 98.6% at 5 years and 94.5% at 10 years, with age as the main risk factor ($p = 0.05$). There was no association between use of GRF glue and the need for proximal reoperation. Freedom from distal reoperation was 86.3% at 5 years and 82.7% at 10 years, with age ($p = 0.005$), patent false lumen ($p = 0.044$), and Marfan syndrome ($p = 0.034$) as significant risk factor for reoperation.

**Conclusion:** Age, patent false lumen, and Marfan syndrome influence the risk for surgical correction in patients undergoing surgery for acute type A aortic dissection. Meticulous operative technique depending on the individual pathophysiology of the aorta is required at the time of reoperation. Careful postoperative follow-up allows early identification of potentially risk factor and permits elective reoperation with an acceptable mortality rate.

**Keywords:** acute aortic dissection, reoperation, aortic surgery

**Figure**




*Kaplan-Meier estimate of freedom from any reoperation for all cases.*

## PP-263

# Intermedin (IMD/AM2) Dilates the Pig Coronary Vascular Bed Through Release of Nitric Oxide

***Mehmet Özülkü,*** *Murat Günday, Hakan Bingöl*

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**Background:** This study investigated the effects of intermedin/adrenomedullin-2 (IMD/AM2), an endogenous agonist for calcitonin-like calcitonin receptors, on coronary and systemic hemodynamics.

**Methods:** Ultrasonic transit time flow probes were placed around the left anterior descending (LAD) artery in the anesthetized, open-chest pig ($n = 6$). A catheter was placed into the proximal LAD. Intracoronary arterial bolus injections of IMD, adrenomedullin (hADM13-52) and calcitonin gene related peptide (CGRP) (1, 3, 10 μg) were performed and the changes in the velocity of coronary blood flows were continuously recorded.

**Results:** Intracoronary artery bolus injections of IMD, hADM13-52 and CGRP increased coronary blood flow in a dose-dependent manner. At the studied doses, IMD was more potent than CGRP and hADM13-52 and did not alter systemic arterial pressure, cardiac output and cardiac index. Intracoronary artery injection of NG-Nitro-Larginine-methyl ester (L-NAME) significantly decreased the coronary vasodilator response (CVR) to IMD.

**Conclusion:** The present data suggest that IMD possesses marked vasodilator activity in the pig coronary vascular bed. The present data further suggest that IMD acts on a receptor in the coronary vascular bed that is coupled to endothelial nitric oxide release. The degree of the CVR to IMD may serve as functional marker for the integrity of endothelial cells in resistance segments of the coronary circulation.

**Keywords:** coronary vascular bed, intermedin, nitric oxide, vasodilatation

## PP-264

# Management of Stanford Type A Dissecting Aneurysm in a Patient With Right Sided Aortic Arch

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**Aim:** We report a case of Stanford Type A dissecting aneurysm in a patient with right sided aortic arch (RAA).

**Materials-Methods:** A 62-year-old male admitted to our clinic with chest pain. His computed tomography revealed dextraposition of the aortic arch and descending aorta with a dissection extending from above the right coronary ostium to the right subclavian artery. The diameter of the ascending aorta was 5.7 cm. He underwent successful repair of the ascending aorta through median sternotomy under cardiopulmonary bypass and 15 minutes of total circulatory arrest. The right subclavian artery was anastomosed to the aortic graft via an 8 mm PTFE graft. The postoperative condition was well and the patient was discharged without any complications.

**Results:** Right-sided aortic arch is an uncommon aortic anomaly with an incidence of 0.1%. The dissection of RAA is even more uncommon and its management is complicated requiring both cardiopulmonary bypass and deep hypothermic circulatory arrest as in our case.

**Conclusions:** This case demonstrates that management of complex pathologies of aorta as dissecting aneuysm of the RAA is feasible with careful preoperative imaging and intraoperative management.

**Keywords:** thoracic aorta, dissecting aneurysm, right arcus aorta

## PP-265

# Type A Aortic Dissection Following Thoracic Endovascular Aortic Repair

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**Subject:** To report our patients who developed type A aortic dissection (AD) following thoracic endovascular aortic repair (TEVAR).

**Methods:** Since 1997 through 2013, 424 patients underwent TEVAR in our hospitals. Nine patients of them (2.1%) developed type A AD following TEVAR. They were analyzed retrospectively.

**Results:** There were 4 men and 5 women. The mean age was 67.8 + 9.2 years old. All patients had past history of aortic dissection. Eight patients of them had dilated ( >4.0 cm) ascending aorta. TEVAR was performed for the treatment of retrograded acute type A AD in three patients, acute type B AD in 2, and dissecting thoracic aortic aneurysm in 4. Seven patients underwent TEVAR with hand-made devices, one with TALENT, and one with TX2.

Touch up with a balloon catheter at the proximal neck was done in three patients. In all of three patients with acute retrograde type A AD, type A AD with new entry tear developed in a year after TEVAR. Type A AD developed in two patients with acute type B AD in 2 and 13 years after TEVAR, respectively. Touch up with a balloon catheter at the proximal neck was presumed to have caused type A AD during TEVAR in three patients. The bare stent at the top of TALENT was presumed to have caused type A AD during TEVAR in one patient.

**Conclusion:** The proximal edge of the devices or touch up with a balloon catheter at the proximal neck can lead to retrograde type A AD. To avoid this, improvement of devices and careful manipulation during the procedure are demanded. Besides this type of AD it should be reminded that it can spontaneously develop during follow-up in patients with aortic dissection. Therefore, close follow-up of them should be mandatory even if TEVAR is seemingly successful.

**Keywords:** retrograde type A aortic dissection, TEVAR, endovascular

**The cases of type A aortic dissection following TEVAR**

| Case | Age | Sex | AD type | Graft | Proximal landing zone | Proximal balloon touch up | Interval between OP and onset of type A AD | Cause of type A AD |
|---|---|---|---|---|---|---|---|---|
| 1 | 57 | M | Retrograded acute A | Hand-made | 4 | N | <1 Year | Spontaneous |
| 2 | 66 | F | Acute B | Hand-made | 4 | N | 13 Years | New lesion |
| 3 | 54 | M | Acute B | Hand-made | 4 | N | 22 Months | New lesion |
| 4 | 74 | M | Retrograded acute A | Hand-made | 3 | N | 7 Months | Spontaneous |
| 5 | 60 | F | Chronic B | Hand-made | 4 | Y | 17 Days | Edge injury |
| 6 | 72 | F | Retrograded acute A | Hand-made | 3 | N | 4 Months | Spontaneous |
| 7 | 71 | F | Chronic B | Hand-made | 2 | Y | 3 Months | Edge injury |
| 8 | 74 | F | Chronic B | TX2 | 2 | Y | 0 Day | Edge injury |
| 9 | 82 | M | Chronic B | TALENT | 1 (Bare stents in Z0) | N | 0 Day | Edge injury |

## PP-266

# Endovascular Aortic Aneurysm Repair of Abdominal and Thoracic Aort Aneurysm at the Same Time in One Patient

***Mehmet Salih Aydın*[1]**, *Aydemir Koçarslan*[1], *Abdussemet Hazar*[1], *Ahmet Kucuk*[2], *Mustafa Göz*[1]

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Endovascular stent treatment options which have taken place between Thoracic and Abdominal aortic aneurysm (TAA, AAA) has a low morbidity and mortality in mid-term results (1). We report a case of combined AAA and TAA with successful endovascular aneurysm repair.

A 68-year-old male patient presented with symptoms of chest and abdominal pain. Physical examination disclosed non-laboured breathing, with equal breath sounds bilaterally, abdominal examination was normal. Laboratory tests showed only leucocytosis. Chest radiography showed a peripheral right and left infiltrate. Results of electrocardiography and other laboratory tests were unremarkable. The initial abdominal Ultrasonograph (USG) detected the Abdominal Aort Aneurysm. A computed tomography (CT) angiography of the chest and abdominal aort was performed (Figure 1A), showing the thoracic (70 mm) and abdominal aort (50 mm) aneurysm. The diameter of the aorta at the level of the renal artery was 35 mm. To the patient under general anesthesia EVAR and TEVAR was performed in the same time. Memory loss has occurred follow-up of patients in the postoperative period than improved. After 6 months, a follow-up CT scan showed Figure 1B. Endovascular aneurysm repair is an alternative treatment especially for high risk selected older patients both thoracic and abdominal aort aneursym and to the best of our knowledge, this is the first report of endovascular aortic repair (EVAR) and thoracic endovascular aortic repair (TEVAR) performed in same patient.

**Keywords:** abdominal aort aneursym, thoracic aort aneursym, tndovascular repair

**REFERENCE**

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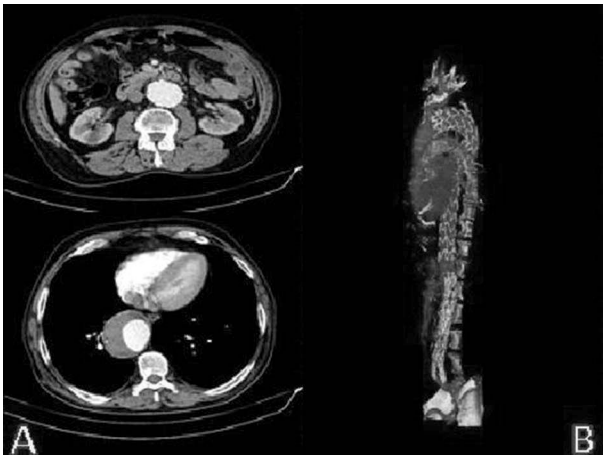
**Figure 1**




*A—Abdominal and Toracic aort aneursym B—EVAR and TEVAR was performed*

## PP-267

# Type B Interrupted Aorta in Adults

*Ahmet Özkara*[1], ***Mehmet Ezelsoy*[2]**, *Levent Onat*[3], *Ilhan Sanisoğlu*[2]

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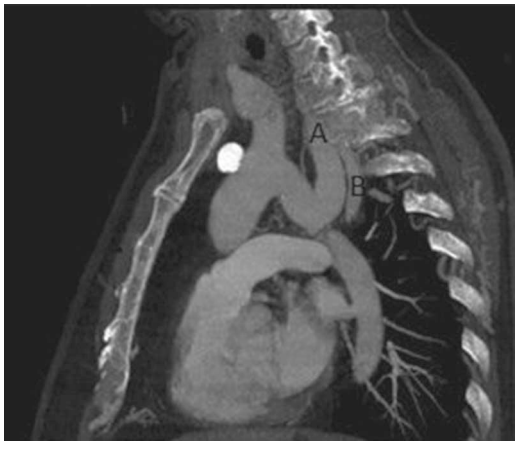
Interrupted aortic arch is a rare and severe congenital heart defect characterized by a complete loss of luminal and anatomic continuity between the ascending and the descending aorta. It is often diagnosed and repaired during the neonatal period. The prognosis for this anomaly depends on the associated congenital anomalies, but the outcome is usually very poor unless there is surgical treatment. Survival into adulthood is depend on to the development of collateral circulation. We presented; a 51 year-old male patient with interrupted aortic arch type B who was treated successfully with posterolateral thoracotomy without using cardiopulmonary bypass.

**Keywords:** IAA, type B IAA, adults, interrupted aorta

**Figure 1-Cardiac MRI indicate type B IAA**




*A—Left common carotid artery B—Left subclavian artery*

## PP-268

### Reconstruction of Aorta with Direct Suture of Four-Armed Graft and Distal Thoracic Stent Graft in Acute Type A Aortic Dissection Patients

***Kuo Chen Lee,*** *Yi Cheng Chuang, Chuang Yi Chang, Jeng Wei*

Heart Center, Cheng Hsin General Hospital, Taipei, Taiwan

**Aim:** We aimed to present hybrid technique with direct suture of four-armed Hemashield graft and the antegrade deployed thoracic stent graft in patients with type A aortic dissection.

**Material-Methods:** From September 2011 to January 2013, seven patients with type A aortic dissection were enrolled in this study. Four-armed graft was used to reconstruct the ascending aorta and arch vessels. The distal end of four-armed graft was suture to the antegrade deployed stent grafts (frozen elephant trunk) directly. Bentall's operation was indicated in patients with significant aortic regurgitation or severe aortic root dissection. The fluoroscopy was not used during all procedures.

**Results:** Six male and one female patient were presented in this study. Their mean age was 62.5 ± 12.1 years, and the preoperative LVEF was 58.5 ± 5.3%. There were four patients received Bentall's operation for their significant aortic regurgitation and diseased aortic root. One patient was died in his uncontrolled mediastinitis three weeks later. There was no complication of heart failure, respiratory failure, mediastinal bleeding, stroke or paraplegia. No complications of endoleak, pseudoaneurysm formation, or distal break (re-entry) of thoracic aorta during follow up. Good thoracic aortic remodeling was also achieved.

**Conclusions:** Without fluoroscopic support, direct suture of four-armed Hemashield graft and the antegrade deployed thoracic stent graft in patients with type A aortic dissection represents a feasible and efficient treatment. Strict monitoring of the patient has to be carried out in order to detect possible evolution of the aortic lesion.

**Keywords:** aortic dissection, hybrid TEVAR, stent grafting

## PP-269

### Superior Vena Cava Syndrome: Successfully Treated with Mechanical Thrombectomy Device

***Letisya Melengiç,*** *Ahmet Ümit Güllü, sahin Şenay, Cem Alhan*

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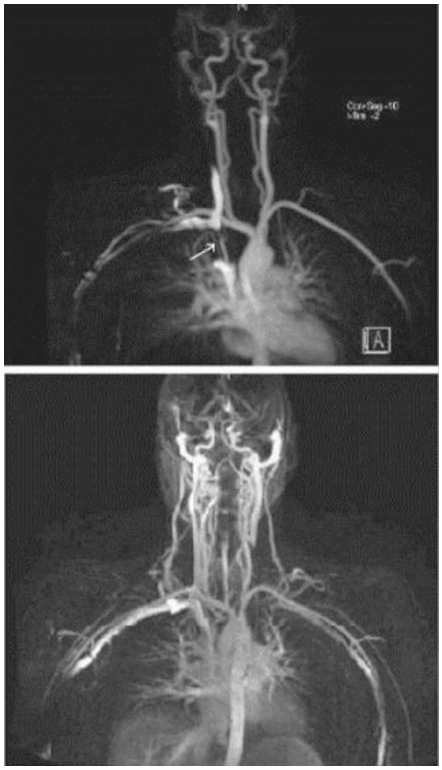
Central venous catheter related thrombotic complications may cause superior vena cava syndrome (SVCS) which is life-threatening. In this case report we present a 34 year old woman with Chron's disease and central venous catheter related SVCS. The thrombosed segment was removed and the patient with totally occluded superior vena cava successfully treated with catheter based mechanical thrombectomy device.

**Preop (Fig 1a) and postop (Fig 1b) MRI**



*Preoperative MR showing the totally occluded superior vena cava (arrow) Fig 1a postoperative day 5 MR showing the patent SVC Fig 1b*

**Keywords:** superior vena cava syndrome, thrombosis, central venous catheters

## PP-270

### Neurological Recovery of Paraplegia After TEVAR in Stanford Type B Acute Dissection

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**Background:** Thoracic endovascular aortic repair (TEVAR) is a good option in acute thoracic dissections and aneurysms. We hereby present a case of Stanford Type B acute dissection with neurological deficits, almost completely resolved after TEVAR intervention.

**Case:** A 35-year-old man, with previous history of uncontrolled hypertension was admitted to our hospital with complaints of sudden onset back pain and paraplegia of both lower extremities. The contrast CT angiography showed intimal flep starting from arcus orta and left subclavian artery, down to infrarenal abdominal

**Figure 1**

*Postoperative CT angiography showing stent graft of descending thoracic aorta.*

aorta. He was immediately taken into catheterization laboratory and thoracic endovascular stent graft implantation was performed from the femoral access, with occlusion of the left subclavian artery (Figure 1). After the operation, he had acute renal failure with requirements of hemodialysis, which completely resolved in 3 weeks. He also had deep vein thrombosis of the left lower extremity, which had signs of recovery with standart and low molecular weight heparin treatment. His weakness in the upper extremities also resolved in 2 weeks. With physiotherapy, the patient started to stand still after 4 weeks of the operation and paraplegia almost completely resolved at the end of 3 months period.

**Conclusion:** TEVAR represents an effective option in the treatment of acute thoracic dissections, even in complicated paraplegic patients. With immediate surgical decision, these patients may turn to life, and good postoperative care, even to their normal daily life.

**Keywords:** TEVAR, paraplegia, aortic dissection, endovascular stent

## PP-271

## Anomalous Origin of the Left Circumflex Coronary Artery from the Right Sinus of Valsalva: CT Angiography Findings

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**Aim:** An anomalous origin of the left circumflex coronary artery (LCX) is a relatively common anatomical variation. The LCX can arise from the right sinus of Valsalva or the right coronary artery (RCA). The LCX always takes a posterior course to the aorta. Our purpose is to present coronary CT angiography findings of the anomalous origin of the LCX from right sinus of Valsalva.

**Material and Methods:** A 37-year-old man, who suffered from chest pain after effort, admitted to our department for coronary CT angiography.

**Results:** The coronary CT angiography demonstrated the LCX originated from the right sinus of Valsalva separately from the RCA and the ostium of the LCX was located at posterior the ostium of the RCA. The LCX coursed posterior to the aorta and followed a normal course after it has entered the left anterior atrioventricular groove. There was no stenosis in the coronary arteries.

**Conclusions:** Most of the congenital coronary anomalies are benign, but a small number cause symptoms ranging from chest pain and dyspnea to cardiorespiratory arrest and sudden death. Therefore, Knowledge of the appearance of these anomalies is very important. Although the LCX anomaly is classified as benign and asymptomatic, it can cause malign reasons such as angina pectoris, myocardial infarction and in a few cases sudden death without of atherosclerotic lesions have been reported. The coronary CT angiography may be an even more useful diagnostic modality for the detection of coronary artery anomalies because of it has high spatial resolution and capability of the three dimensional visualization of the coronary arteries.

**Keywords:** anomalous origin, CT angiography, LCX

## PP-272

## CT Angiography Features of the Ruptured Aneurysm of the Right Sinus of Valsalva

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**Aim:** Aneurysm of right sinus of Valsalva is a rare pathology that it is usually congenital but less commonly is associated with acquired disorder such as endocarditis, atherosclerosis, trauma, syphilis, or aortic dissection. Congenital aneurysms may result from focal weakness of the elastic lamina or an underlying deficiency of normal elastic tissue. Although the prognosis after treatment is perfect, Valsalva sinus aneurysms, ruptured or no ruptured, are associated with potentially fatal complications. In this paper, our purpose is to present a CT angiography findings of the ruptured aneurysm of the right sinus of Valsalva.

**Material and Methods:** A 21-year-old man, who was examined with echocardiography and was found suspect fistula between aortic Valsalva and right atrium, was admitted to our department for cardiac CT angiography before surgery.

**Results:** CT angiography revealed a right sinus of Valsalva aneurysm and defect between right sinus of Valsalva and right atrium. Furthermore, there was patent foramen ovale and ventricular septal defect. There was no origin anomaly of the coronary arteries.

**Conclusions:** A ruptured aneurysm of an aortic sinus is a serious cardiovascular event that requires immediately diagnosis and treatment. The most common site of aortic sinus aneurysm is the right sinus of Valsalva, followed by the noncoronary sinus. Patients are usually diagnosed in the 3rd or 4th decade of life, when rupture occurs and symptoms develop. A diagnosis of a ruptured aortic sinus aneurysm can be verified by transthoracic or transesophageal echocardiography, cardiac catheterization, MRI and CT. ECG-gated multisection CT angiography provides much better spatial resolution of cardiac structures than that attainable with other imaging methods.

**Keywords:** CT angiography, right sinüs of valsalva, ruptured

## PP-273

## Sinus Venosus-Type Atrial Septal Defect Accompanying Persistent Left Superior Vena Cava: CT Angiography Findings

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**Aim:** Sinus venosus-type atrial septal defect (SV-ASD) is a rare cardiac anomaly consisting of an interatrial communication caused by a defect of the common wall between the superior vena cava (SVC) and the right-sided pulmonary veins. This anomaly causes an interatrial shunting, which hemodynamically impact of the left-to-right shunt and associated right-sided cardiac volume overload. SV-ASD is usually underdiagnosed with transthoracic echocardiography because of its far field location. Our purpose is to demonstrate the findings of the SV-ASD accompanying persistent left superior vena cava with CT angiography (CTA).
**Material and Methods:** A 22-year-old man, who has diagnosis of the SV-ASD with echocardiography, was refered to our department for CT angiography to evaluate the accompanying additional cardiac or vascular findings.
**Results:** In CTA right atrial dilatation and connection between left atrium and superior vena cava were seen. There was abnormal drainage of the right upper and middle pulmonary veins to the hypoplastic superior vena cava. Additionally persistent left superior vena cava was demonstrated.
**Conclusions:** The sinus venosus type defect usually occurs in the upper atrial septum and is adjacent with the superior vena cava (SVC). It is usually associated with anomalous pulmonary venous drainage of some or all of the pulmonary veins into the vena cava. SV-ASD is found in 2% to 10% of cases with atrial septal defects. The basic principle of correction is redirection of the anomalous pulmonary venous return through the interatrial communication into the left atrium. Whereas it's difficult to reveal the defect with transthoracic echocardiography, transesophageal echocardiography is generally sufficient for diagnosis. On the other hand, CTA can demonstrate cardiac and vascular anomalies with high accuracy.

**Keywords:** sinus venosus ASD, persistent left superior vena Cava, CTA

## PP-274

## Intravascular Lipoma of the Superior Vena Cava: Case Report

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**Background:** Lipomatous tumors of the heart and major central veins are considered to be unusual pathological findings. Primary venous tumors are unusual in any location and the walls of the veins are rarely the site of origin of a neoplasm. In this case, we report an unusual mass arising from the superior vena cava (SVC), later pathologically described as lipoma.
**Case:** A 48-year-old man, who had nasopharyngeal carcinoma 4 years before admission to our clinics had swelling of the right upper extremity and numbness in his arms. Duplex ultrasonography was performed, and no evidence of deep venous thrombosis in the left arm was found. Upon his control by contrast enhanced magnetic resonance (MR) venography, an intraluminal mass which

**Figure 1**

*Magnetic resonance venography, showing an intraluminal mass which markedly enlarged the lumen of the superior vena cava*

markedly enlarged the lumen of the SVC, partially allowing contrast leakage along the sides of the tumor was found (Figure 1). Since the patient was symptomatic, he was taken into surgery. Through the mini J sternotomy, superior vena cava was explored and by performing venotomy, a 5 × 2 cm of capsulated mass, arising from the lumen of the SVC was taken out. The pathological specimen was reported as lipoma. He was discharged from the hospital without any problem. After 1 week of discharge, he had dyspnea and rehospitalized with the diagnosis of pulmonary embolism and enoxaparin sodium and warfarin treatment was given. He is still under control of our clinic with no other complications.

**Discussion:** This case of a primary intraluminal lipoma directly arising from the SVC is extremely rare. The patient should be operated if symptomatic. In any symptoms of the swelling of the extremity, if there is no major findings in Dupplex scan of the venous system, any mass arising from the lumen of the vein or compression from the surrounding masses should be taken into consideration by the clinician.

**Keywords:** lipoma, superior vena cava, tumor, intravascular lipoma

## PP-275

## TEVDAR (Thoracic EndoVascular Dissecting Aneurysm Repair) Application for Secondary Type B Aortic Dissection

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[1]Medical School of Dicle University

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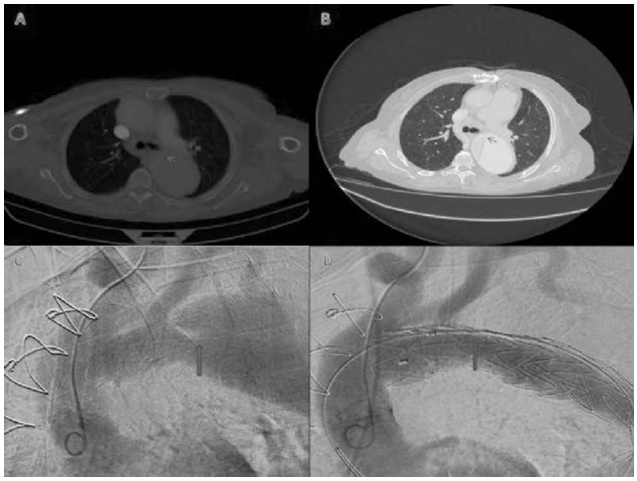
Aortic dissection is an important life threatening cardiovascular emergency. Type A Dissection involved the whole body of aorta and usually treated with ascending aorta replacement. However Type B dissection (involvement of descending aorta) might be occurred after such these operations. A 66 years old woman patient with Type A Aortic dissection (Figure 1. A) whom Type B Aortic dissection (Figures 1. B, C) developed at the 6th months ascending aorta replacement, reported in this paper. The patient admitted to hospital with backache. There was an ascending aorta replacement operation in her medical history. Thoracic EndoVascular Dissecting Aneurysm Repair (TEVDAR) operation (Figure 1. D) was applied to patient immediately. There was no problem observed in early postoperative period and patient was discharged after postoperative fourth day.

To sum up, ascending aort replacement can treat only ascending aortic flap and dissection flap which progressed to descending side of aorta is neglected without surgical application in Type A Dissection. Therefore simultaneous or consecutive TEVDAR application with ascending aort replacement might be helpful for total recovery in patients with Type A Dissection.

**Keywords:** type A dissection, type B dissection, aorta, TEVAR

**Figure 1**




*A. Dissection flap was detected without tear while the first diagnosis of patient as Type A Aortic Dissection. B. Dissection flap was detected with tear (flow can be observed between true and false lumens) after sixth month of ascending aortic replacement operation. C. View of flap tear just distal side of subclavian artery. D. Closed flap tear after TEVDAR application.*

## PP-276

## Complications After Endovascular Repair of Stanford Type A Aortic Dissection

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**Objective:** To summarize the experience of the complications after endovascular treatment of Stanford type A aortic dissection (TAAD).

**Methods:** The data from 58 consecutive TAAD patients treated by endovascular aneurysm repair from January 2001 to May 2012 were analyzed retrospectively. The mean age was 54.3 (41~79) years. Direct stent—graft deployment was performed on 35 patients. Hybrid procedure was performed on 23 patients, including ascending aorta (AO)—left common carotid artery (LCCA)—left subclavian artery (LSA) bypass (n = 3), LCCA—LSA bypass (n = 3), right common carotid artery (RCCA)—LCCA bypass (n = 15), LSA-LCCA-RCCA bypass (n = 2).

**Results:** The technical success rate was 98.3% (57/58). The complications included endoleak (n = 14), stroke (n = 50), stent—graft induced new entry (n = 1), bypass anastomotic pseudoaneurysm (n = 2). All patients were alive except 7 perioperative death and another 2 death in the follow-up (average, 35.5 ± 5.4 months).

**Conclusion:** Complications are more common in TAAD endovascular repair compared with that in descending aorta. Stoke is a significant lethal complication and should be attached importance.

**Keywords:** type A aortic dissection, stent-graft, endovascular repair, complications

## PP-277

### Thoracic Endovascular Repair of Type B Dissection After Aortic Arch Debranching: Case Report

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Aortic dissection is a life threatening disease. Open surgical techniques have been associated with high rates of morbidity and mortality. The hybrid procedures (aortic debranching and thoracic endovascular aortic repair-TEVAR) developed in last years may improve the morbidity and mortality of these patients. We report a case of an 69-year-old male patient with type B dissection. He went ascending aort replacement two years ago for type A dissection. The patient was referred to our clinic with a diagnosis of type B dissection, this time. We treated him with a debranching of aortic arch vessels with aorto-bicarotid bypass and one week later deployment of enodgraft in two staged operations. The patient was discharged on postoperative day 6 without any problem. We consider, hybrid procedure may represent an alternative option in the treatment of complex aortic diseases and it is associated with acceptable rates of mortality and morbidity.

**Keywords:** debranching, aortic arch, hybrid procedure, TEVAR

## PP-278

### Postoperative and Midterm Outcomes of Thoracic Endovascular Aneurysm Repair in the Treatment of Aortic Arch Aneurysms: A Single Center Experience

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[2]Department of Cardiac Surgery, Nagoya University, Nagoya, Japan

**Purpose:** We reviewed our experience of TEVAR including Hybrid approach in the treatment of aortic arch aneurysms.

**Methods:** Between October 2008 and April 2013, 140 consecutive patients underwent TEVAR at our unit. Of these, 59 patients (47 men; mean age 73.6 ± 7.7years, range 43–85) had elective treatment for an aortic arch aneurysm (Zone 0–3). Preoperative, perioperative, and follow-up data were collected retrospectively in the database.

**Results:** Sixteen patients had total debranching TEVAR for zone 0, 21 patients had long elephant trunk (ET) with or without total arch replacement (TAR) followed by secondary retrograde TEVAR, and 22 patients had retrograde TEVAR for zone 1–3. Technical success rate was 100%. The paraplegia rates in total debranching TEVAR, long ET TEVAR and TEVAR for zone1–3 were 6.5%, 9.5%, and 4.5%, respectively. The stroke rates in total debranching TEVAR, long ET TEVAR and TEVAR for zone1–3 were 18.8%, 9.5%, and 0%, respectively. Overall 30-day mortality and in-hospital mortality were 0% and 3.4% (n = 2), respectively. There were no perioperative endoleaks which required secondary intervention. The mean hospital stay was 15.8 days. The median follow-up was 309 ± 303 days. Overall freedom from all-cause mortality rate at 1, 3, 5 years were 94%, 71%, and 57%, respectively. No aneurysm related death was occurred during follow up. One patient had a type 1b endoleak which required distal cuff extension at 42 days postoperative day.

**Conclusions:** Hybrid approach can be safely performed with good technical success and midterm results. Although our results of hybrid approach with TEVAR demonstrated comparatively to be acceptable concerning postoperative major complication rates such as paraplegia and stroke, present available devices are not morphologically suitable for aortic arch to make adequate proximal seal and cerebral perfusion. Development of new alternative device for aortic arch pathologies such as branched stentgraft which eliminate extra-anatomical bypass is expected.

**Keywords:** TEVAR, hybrid, aneurysm

## PP-279

### Early Outcomes of Hybrid Endovascular Repair of Aortic Arch Aneurysms Compared with Open Repair

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**Objective:** Hybrid endovascular repair has been introduced as a primary treatment modality for aortic arch aneurysms in high-risk patients, in whom open repair (OR) can be technically challenging. This study aimed to assess the early morbidity and mortality of thoracic de-branching endovascular repair (TEVAR) compared to OR in patients with isolated aortic arch aneurysms.

**Methods:** A total of 40 patients with isolated aortic arch aneurysms were admitted to our institution from April 2006 to April 2013. Patients were divided into de-branching TEVAR group (Group 1, n = 17) and OR group (Group 2, n = 23). In Group 1, 6 patients underwent TEVAR with the chimney technique, 7 patients underwent 2 supra-aortic de-branching procedures, and 4 patients underwent 1 de-branching procedure. Early outcomes were compared between the two groups.

**Results:** No significant difference in mean age was found between Group 1 and Group 2 (72.1 vs. 74.6 years). There was no 30-day mortality in either group. In Group 1, 1 patient with old myocardial infarction died due to worsening heart failure during hospitalization,

and 6 neurological evens occurred, including 5 minor strokes and 1 paraplegia. In Group 2, 3 neurological events occurred, including 1 minor stroke, 1 paraplegia, and 1 paraparesis with partial recovery. Seven patients in Group 1 and 16 patients in Group 2 required prolonged hospitalization due to rehabilitation. Significant decreases were observed in operating time (227 vs. 447 min.), blood loss (905 vs. 1160 ml), transfusion volume during and after operation (0 vs. 2385 ml), ICU stay (1 vs. 5 days), and hospital stay (27 vs. 34 days) in Group 1 compared to Group 2.
**Conclusion:** Hybrid endovascular repair of an isolated aortic arch anomaly can yield comparable results to open surgical repair, although the risk of cerebrovascular events remains a challenge that needs to be addressed in future.

**Keywords:** endovascular repair, aortic arch aneurysm, hybrid procedure

## PP-280

### Endovascular Repair in Management of Type 3 Aortic Disection

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**Purpose:** Type 3 Aortic Disection is still potentially life-threatening situation. The conventional operation is still associated with morbidity. Endovascular stent graft repair offers an alternative to conventional operation for management of these aortic disease. Our aim was to report our experience with endovascular stent graft repair of ype 3 aortic disection.
**Methods:** Between April 2010 and March 2013, endovascular stent graft repair was performed in 8 patients of type 3 aortic disection. The lesions were in the thoracic aorta in 5 patients and thoracoabdominal aorta in 3 patients. In 2 of the 8 patients there were emergent situations. In the postoperative period control CT scans were evaluated in the day of discharge, 3rd and 6th months after the procedure.
**Results:** All 8 patients were male and the mean age was 57.2 ± 8.3 (27–77) years. The deployed stent graft systems were Talent-Medtronic (n = 3), Excluder-Gore (n = 5). Successful deployment of the stent grafts in the appropriate position was achieved in all patients. There hospital mortality occured in 1 patients and have no hemiparesis in patients. There was no conversion to open surgery. Mean follow up time was 11.2 ± 3.4 months. The total number of endoleaks were 2 (25%).
**Conclusion:** Endovascular stent graft placement is a feasible and effective approach in the treatment of patients with complicated pathologies of type 3 aortic disections even in emergent pathologies. The endoluminal approach can avoid the major trauma of surgical therapy. However the long term results will determine the future of this treatment despite the encouraging short and mid-term results.

**Keywords:** endovascular treatment, type 3 aortic disection

## PP-281

### Retrospective Analysis of Variables Related to the Early Mortality and Morbidity After Aortic Root Replacements

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**Objective:** To determine the risk factors for early mortality and morbidity after aortic root replacement. Patients and
**Methods:** Between November 2002 and June 2012, 134 consecutive patients (116 male) underwent aortic root replacement in our clinic. The aortic pathology was acute aortic dissection in 27 (19%), chronic dissection in 25 (18%), degenerative aneurysm in 61 (44.5%) and other causes (endocarditis, vasculitis) in 24 (17.5%) patients. Mean age was 51.8 ± 13.9 (18–78) years. Preoperative, intraoperative and postoperative variables of these patients were retrospectively analyzed by using univariate and multivariate logistic regression analysis. Button Bentall technique in 118 (86%) and Cabrol technique in 19 patients (14%) were used. The aortic arch was replaced in 27 patients (19.7%). Deep hypothermic circulatory arrest was used in 57 (42%) patients.
**Results:** Overall mortality was 5.1% (7/134). The mortality in elective cases was 1.04% (1/96). Temporary neurological dysfunction in 6 (4.4%), stroke in 2 (1.5%) excessive bleeding in 6 (4.4%), respiratory failure in 6 (4.4%), cardiac failure in 9 (6.6%) and renal failure in 8 (6%) patients were seen. In multivariate analysis, hemodynamic instability (p = 0.029) and coexisting systemic disease (p = 0.048) emerged as independent risk factors for mortality. Multivariate analysis did not reveal any risk factors for stroke. In multivariant analysis for morbidity; temperature (<26 °C) (p = 0.018) and pericardial effusion (p = 0.037) for bleeding, gender (p = 0.031) and operation type (0.022) for respiratory failure, hemodynamic instability (p = 0.034) and smoking (p = 0.016) for renal failure emerged as risk factors.
**Conclusion:** Aortic root replacement, especially in elective cases has a very low mortality and morbidity. The emergence of hemodynamic instability and coexisting systemic diseases like diabetes as incremental risk factors for mortality made us to think that mortality is determined by the factors related to the presentation of the patient rather than the operative technique.

**Keywords:** aortic root, replacement, early mortality

## PP-282

### Endovascular Stent Treatment for Distal Malperfusion That Developed After Ascrendan and Totally Aortic Arch Replacement

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**Aim:** In this article we present endovascular stent repair of distal malperfusion that occurred after ascendan and arcus aorta replacement for type I aortic dissection.

**Case:** A 38 year-old male referred to our hospital with a DeBakey Type I aortic dissection diagnosed with multislice tomography. The patient was on steroids for 15 years because of systemic lupus erythematosus. The patient underwent an uneventful ascendan and totally aortic arch replacement. In 8th hour post-operative abdominal pain, anuria and lower extremity ischemia occurred. Occlusion of the distal thoracic aorta to the celiac trunk was detected by right brachial angiography. Aortic occlusion is repaired with a naked stent that involved the entire thoracic aorta and proximal segment of the abdominal aorta to the celiac trunk, with the right brachial and left femoral approach.

**Conclusion:** If distal malperfusion occurs after aortic dissection surgery, the cause of the malperfusion should be revealed with angiography. And endovascular stenting might be one of the treatment choices.

**Keywords:** arch replacement, distal malperfusion, endovascular stent

## PP-283

### Surgical Intervention for Aortopulmonary Fistula Detected 38 Years After Ventricular Septal Defect Closure

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**Aim:** Aortopulmonary Fistula (APF) is a rare clinical entity seen in the course of congenital and adult cardiovascular pathologies. In this case, we present a patient whose APF was diagnosed and surgically treated years after venticular septal defect (VSD) closure.

**Materials and Methods:** A 49 years old male patient admitted to our clinic with complaints of palpitation, chest pain and shortness of breath. In his medical history, he had been operated for VSD in 1975 and the defect was repaired with patch. Physical examination revealed a mild to moderate systolic murmur at the right side of sternum. The patient had been put on oral anticoagulation due to intermittent atrial fibrillation attacks. Echocardiography was performed and a residual VSD was suspected. There was also enlargement of right and left atria with mild tricuspid insufficiency. Transesophageal echocardiography revealed an aortopulmonary flow without any residual VSD. Computed tomographic angiography and cardiac catheterization documented the APF between the ascending aorta and main pulmonary artery. Pulmonary artery pressure was 45/25/32 mmHg (systolic/diastolic/mean). Coronary angiography did not reveal any stenosis. Following unsuccessful percutaneous intervention for APF closure, the patient was operated. The APF between ascending aorta and right pulmonary artery was successfully repaired with bovine pericardial patch under mild hypothermic cardiopulmonary bypass. Postoperative course was uneventful and control echocardiography revealed a pulmonary artery pressure of 20 mm Hg.

**Result:** In this case, we present a middle aged patient with symptoms of pulmonary hypertension years after initial cardiac surgery for VSD closure. The patient is successfully diagnosed and treated in our hospital.

**Conclusion:** APF is a rare complication which can be encountered years after initial cardiac surgical intervention. Prompt surgical treatment in the case of unsuccessful percutaneous interventions is important in order not to expose the patient to long term effects of pulmonary hypertension.

**Keywords:** aorta-pulmonary artery fistula, venticular septal defect

## PP-284

### Our Experiences with Surgery in Patients with Aortic Arch Aneurysm

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**Aim:** Although the outcomes of total aortic arch replacement (TAR) has been improved recently due to the progress in surgical techniques, organ protection strategies and perioperative management, TAR is still a highly invasive procedure. TAR is the first line operation for aortic arch aneurysm in our institute. But, we perform debranching TEVAR (d-TEVAR) on elderly patients and patients with severe comorbidities. The aim of this retrospective study is to compare the outcomes of TAR and d-TEVAR.

**Material-Methods:** Sixty-two patients underwent surgery for aortic arch aneurysm in our institute between April 2010 to March 2013. Their records were retrospectively analyzed about perioperative factors.

**Results:** Forty-eight patients underwent TAR, whereas 14 patients underwent d-TEVAR. The mean age of TAR group was

64.8 ± 9.9 years old and that of d-TEVAR group was 77 ± 5.5 years old (P <0.01). Two groups were not statistically different in terms of gender ratio, EuroSCORE II. Operation time was shorter in d-TEVAR group (437.5 ± 119.5 vs. 315.7 ± 171.2 minutes, p = 0.02). Blood loss, amount of given blood transfusion were statistically less in d-TEVAR group(p <0.001). There was no statistically significant difference in duration of mechanical ventilation support, duration of ICU stay, morbibity rate, 30-day mortality rate (93.7% vs. 78.6, p = 0.32) and one-year mortality rate (80.6% vs. 64.3%, p = 0.13).

**Conclusion:** The short term outcomes of d-TEVAR compare favorably with that of TAR, even though sicker and older patients received d-TEVAR. We are going to perform d-TEVAR to patients who are at high risk and cannot withstand TAR. The mid and long term outcomes of d-TEVAR should be further evaluated to perform d-TEVAR as the first line operation for aortic arch aneurysm.

**Keywords:** TEVAR, aortic arch aneurysm, total aortic arch replacement

## PP-285

### Scope-Guide Implantation of Stented Elephant Trunk in Arch Replacement

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**Aim:** Aortic arch replacement is technically demanding procedure. We have been using stented elephant trunk during surgical repair. To secure the procedure, we have been employed the endoscope that controls the proper position and inflation of stent under direct vision. This study is designed to reveal the risk and benefit of our procedure for the patients with aortic dissection and those with aortic aneurysm by over viewing 33 patients.

**Material-Methods:** Stented elephant trunk procedure was performed in 33 patients (22 cases of aortic dissection and 11 cases of aneurysm). Median sternotomy and deep hypothermic circulatory arrest were used. The stented elephant trunk was composed of woven graft and Gianturco stent (Cook Inc., IN. USA), or GORE TAG (W.L.Gore & Associates, Inc. AZ. USA.) in the latest four cases, and introduced distally from the aortic arch. Thereafter, the conventional arch replacement with three branched graft was performed.

**Results:** Stented elephant trunk procedure was performed in 33 patients (22 cases of dissection group and 11 cases of aneurysm group). Endoscope guide was useful for surgeons to control the procedure under the direct vision. The proper position and expansion of stent inside the descending Aorta was clearly visualized and controlled by endoscope in all cases. Two patients were dead after the operation (2 cases in aortic dissection and 0 cases in aneurysm, p >0.05), caused by ischemia of abdominal organs. As for the neurological complication, one case in dissection group manifested permanent paraplegia after the operation, and another had temporary paraplegia. One patient in aneurysm group had cerebral infarction.

**Conclusion:** Although our experience is limited, the scope guided technique allows the safe implantation of the stented graft into descending aorta. In our experience, no special technique is needed for this scope guide. All surgeons could become easily accustomed to the technique.

**Keywords:** stent graft, endoscope, arch aneurysm, elephant trunk

## PP-286

### Late Reoperations After Repaired Acute Type A Aortic Dissection

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**Aim:** We often experience the case which needs a re-operation after the operation of type A aortic dissection.The purpose of this study is to evaluate the incidence and risk of after repair of acute type A aortic dissection retrospectively.

**Material and Methods:** Between January 2000 and December 2012, we performed the emergency surgery for type A aortic dissection in 101 patients. 6 patients needed redo surgery because of late complications (mean age: 54.1 ± 13.1 years, 5 men and 1 woman). The mean interval between redo surgery from initial operation was 5.7 years. Initial operative methods were ascending aorta replacement in 4 cases, Aortic arch replacement in 2 cases.

**Results:** The indication for reoperation after type A aortic dissection were dilatation of the aortic root and progression of aortic regurgitation in 2 cases, pseudoaneurysm formation at the anastomosis in 2 cases, aortic arch aneurysm in 1 case, and re-dissection in 1 case.

Four of the 6 patients had composite graft replacement, one had aortic arch replacement and one had re-ascending aorta replacement.

Two patients died in hospital (hospital mortality rate: 33%), one patient who underwent the emergent operation had multiple organ failure, and the other had mediastinitis.

**Conclusions:** It seems that our operation results are appropriate.

From our data, even if it was in case of re-operation, the operation results of young patients were good, but it was bad in elderly people and emergent operation.

**Keywords:** aortic dissection, late complications, reoperation

## PP-287

### Left Subclavian Artery Coverage During Endovascular Repair of Thoracic Aorta in a Patient with Patent Arteriovenous Fistula

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Derince Training and Research Hospital

**Aim:** We report a case of a patient with thoracoabdominal aneurysm having patent hemodialysis arteriovenous fistula of Brescio-Cimino type on the left arm treated with endovascular stent graft.
**Material-Methods:** A 60-year-old patient was admitted to our clinic with a pulsatile mass in the abdomen. His past history revealed type II diabetes mellitus, hypertension and chronic renal failure. He was in hemodialysis programme 3×/week through a radiocephalic arteriovenous fistula on the left arm. His computed tomography revealed a 40 mm thrombosed saccular thoracic aortic aneurysm and a 67 mm abdominal aortic aneurysm located in infrarenal position. His bilateral carotid and vertebral artery duplex ultrasonography demonstrated that the lumens and the flow velocities were satisfactory. We planned TEVAR and EVAR and if necessary, a carotico-subclavian bypass graft.
**Results:** Left subclavian artery was occluded during TEVAR procedure. However, due to the satisfactory flow through the vertebral artery, we did not perform a carotico-subclavian bypass. The patient was able to have his hemodialysis on the postoperative day one.
**Discussion:** The incidence of left subclavian coverage is approximately 40% during TEVAR procedures, however there is an ongoing debate about selective revascularization of left subclavian artery. Preoperative evaluation of carotid and vertebral arteries is necessary for the safe of the patent hemodialysis accesses and carotico-subclavian bypass requirement should be kept in mind during TEVAR procedures in these chronic renal failure patients.

**Keywords:** thoracoabdominal, aneurysm, fistula

## PP-288

### Results of Arch Replacement for Arch Aneurysm After Introduction of Debranch TEVAR and Hybrid Procedure

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**Backgrounds:** Indication of open surgery for arch aneurysm or chronic aortic dissection is changing after introduction debranch TEVAR. After November 2010, we introduced debranch TEVAR for aneurysm that landing zone is under zone 2, and hybrid procedure (arch replacement and TEVAR for distal extending aneurysm). So we compared results of arch replacement after introduction to that of before.
**Patients and Methods:** Group A (GA): 39 operated arch replacements after introduction of debranch TEVAR (November 2010–April 2013). Group B (GB): 40 before (January 2007–October 2010). Mean age of GA; GB, 71.7 ± 9.4; 73.7 ± 7.6, proportion of women was 20.5; 17.9%, high risk patient (ex. HOT, HD) was 0; 4 (p = .021), chronic dissection was 7; 4 (NS). Reoperations were 3; 1 (NS). High risk patients of GA were smaller than GB. Operative methods were similar between GA and GB. ECC was started with Axillary and femoral perfusion, under separate cerebral perfusion, distal anastomosis was occurred with fourth branch artificial Dacron graft. Then, whole perfusion restarted from fourth branch. Next central and 3 branches anastomosis were occurred. Concomitant procedures were Bentall procedures were 2; 2, valve replacements 3; 2, CABG 3; 3, open stent were 0.2 (NS).
**Results:** Operation, ECC, Cardiac arrest and SCP time were no differences in two groups. Operative mortality was none in both groups, But Hospital mortality was none in GA but three in GB. Paraplegia was occurred two in group B. Cerebral infarction were occurred in 1:3. Mortality and severe morbidity were significantly more in GB to GA. Two stage hybrid operation (first arch replacement and second TEVAR) were occurred 5 in GA.
**Conclusion:** After introduction of TEVAR and hybrid procedure, results of open surgery as arch replacement are improved in short term.

**Keywords:** arch replacement, hybrid procedure, TEVAR

## PP-289

### Hybrid Aortic Arch Debranching and Tevar for Complex Aortic Arch Disease

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Surgical treatment of complex aortic arch and proximal descending thoracic aortic aneurysms and complications of TEVAR are challenging. We report our experience with 2 cases of complex aortic arch and proximal descending thoracic aortic disease that required hybrid debranching of the aortic arch, thoracic endovascular repair (TEVAR), and left carotid-subclavian bypass surgery. A 67-year-old man had two separate degenerative aortic arch (85 × 67 mm) and descending thoracic aortic aneuryms (72 × 60 mm), persistant hypertension and advanced chronic obstructive airways disease. Second patient,

48-year-old man had prior thoracic aortic endograft repair followed by an extension graft implantation and carotid-subclavian bypass surgery. He required surgical treatment of aortic arch for persistant type I endoleak despite the extension graft and further embolization.

Surgical reimplantation of aortic arch vessels were performed under general anesthesia in both cases. We used two-branched Dacron graft, which was sewn to the native ascending aorta just above the sinotubular junction for reimplantation of brachiocephalic and carotid vessels. Subsequently, TEVAR implantation (42 mm–200 mm) was landed at the level of ascending aorta-innominate origin within the first week of surgery. First patient required carotid-subclavian bypass graft surgery for left hand paresis. Second patient already had carotico-subclavian bypass during the previous extension graft implantation.

Both patients were free from stroke, paraplegia as well as endoleak intraoperatively and at 6 months angiographic follow-up. There were no graft or mediastinal infection or thrombosis.

Hybrid approaches should be considered as an alternative in patients with comorbidities or complex aortic disease to conventional surgical repair, which require cardiopulmonary bypass and deep hypothermic circulatory arrest.

**Keywords:**

# Vascular Access

## PP-290

### Transposition of Basilic Vein with Minimal Incision

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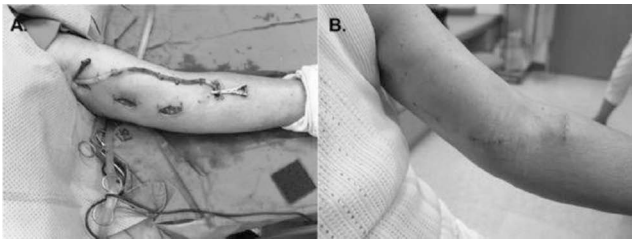
**Background:** It is well known that autogenous vein is the best choice for arteriovenous fistula (AVF) formation to prolong the patency and to maintain with less complication. Unfortunately, not all patients showed good cephalic vein to form AVF. However, few of them showed a good basilic vein to make a transposition, which need a long skin incision along the basilic vein. Herein, we introduce a surgical technique to make a basilic vein transposition with minimally several skin incisions.

**Methods:** Patient should be evaluated by physical examination and/or venography if needed. If the patient shows good basilic vein without a proper cephalic vein to use, the patient can be a candidate for basilic vein transposition. A transverse skin incision is made on the antecubital area to find a basilic vein and brachial artery under local anesthesia. After that, three or four transverse or longitudinal skin incisions about 1.5~2.0 cm in length are made along the basilic vein and the basilic vein is pulled out toward axillary area in sequence (Fig. 1). Full length of the basilic vein is transpositioned toward lateral side of the upper arm by tunneling under the skin with 6 mm tunneler and anastomosed to the brachial artery with end-to-side manner. After anastomosis, skin incisions are subcuticularly approximated with vicryl 4-0.

**Operative and post-operative findings**




*A) Operative findings. Basilic vein was pulled out through small skin incision and transpositioned toward cephalic side of the upper arm. B) Post-operative findings. Well maturing status of transpositioned basilic vein at the post-op 10 days after surgery.*

**Results:** Transpositioned basilic vein was well dilated and showed good flow (Fig. 2). Operation time was around 1½ hours. Transpositioned basilic veins were well matured enough to dialysis.

**Conclusions:** Basilic vein transposition is a feasible and a good method to make AVF with autogenous vein. Small incision can be applied to basilic vein transposition, which can be less painful and more comfortable to the patients.

**Keywords:** transposition, arteriovenous fistula, basilic vein

## PP-291

### Extremity Amputation Due to Complicated High-Flow Fistula

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**Aim:** Arteriovenous fistula (AVF) dysfunction is the most complication for dialysis patients. The aim of this study to explain, a rare AVF complication of extremity amputation which caused from venous hypertension and infection in dialysis patient.

**Material-Methods:** 72 years old female patient admitted with the complaint of swelling like lymphedema, erythema and skin infection in the upper arm. Hemodialysis threaphy was applied to patient from AVF which is created between brachial artery and cephalic vein, for 7 years. Fistula flow was 1800 ml/min. After antibiotic therapy for 4 days, patient was operated on. Brachial artery, cephalic vein and many other superficial and deep venous structures were severe aneurysmal. AVF closure performed. Elevation and elastic compression bandage was applied after operation.

**Results:** Despite the closure of cephalic vein and other venous branches infection, swelling and lymphedema didn't decreased postoperatively. After 1 month, skin infection progressed and upper extremity amputation performed.

**Conclusions:** AVF complications can be easily treated when early intervention performed. Delayed interventions to high-flow AVF may lead major complications, still today.

**Keywords:** high flow fistula, infection, amputation

## PP-292

### Usage of Otogen Saphaneus Vascular Grefts in Arteriovenous Fitulas

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**Aim:** Dysfunction and trombosis of the venous route is the most common and the most competeing complications in Arteriovenous fistula (AVF). In this study we used otogen saphaneus vascular greft for redo brachial AVF operations in 21 patient which have an trombosis in cephalic vein.

**Material-Methods:** From March 2012 to June 2013, secondary AVF's created with SVG in 21 AVF patients. All opetion procedures were planned on the basis of preoperative duplex utrasonographic (USG) scans of arm and forearm veins. 21 of the patients had previous thrombosed upper extremity fistulas. After lower extremity venous doppler investigation SVG was used in the patients who did not have deep venous thrombosis, deep venous failure and sapheno-femoral failure. Functional patency was defined as the ability of succesfull hemodialysis.

**Results:** Mean follow up was 5 months (range 3–15 months). There were 2 (9.5%) infection, 4 (19%) graft thrombosis occured. Functional patency rates were 65% for 6 month.

**Conclusions:** We conclude that secondary AVF creation with SVG is an alternative HD access method in the patient who had lost the chance of fistula creation in their upper extremities with their native vessels.

**Keywords:** otogen, arteriovenous fitula, saphaneus vein

## PP-293

### Bifurcating Radial Artery

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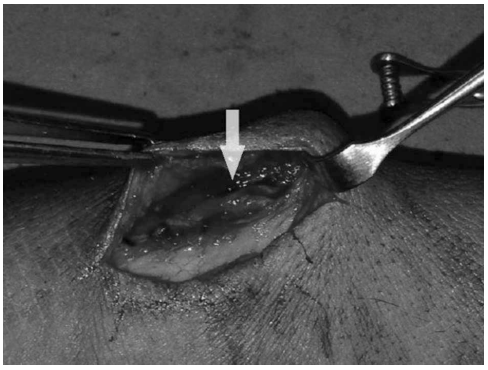
Anomalies of the radial artery are uncommon. A 52-year-old man with a six month history of chronic renal failure underwent arteriovenous fistula operation. His left arm was paralyzed due to gunshot injury and treated with a graft between the left subclavian and axillary artery. Therefore, right upper extremity was chosen for the vascular access operation. Right cephalic vein was measured 2,5 mm in the doppler ultrasound exam prior to surgery. At the operation while preparing the right radial artery, the distal half of radial artery was found to bifurcate into two different parallel branches equal in size. We used lateral branch of the radial artery for arteriovenous fistula. Once the anastomosis completed, a fine thrill was present on the fistula tract. Postoperative arterial doppler ultrasound showed that the right radial artery was bifurcating in the distal half of radius. The branches of bifurcated radial artery can be used safely for vascular access operation.

**Bifurcating radial artery**



*The distal half of radial artery was found to bifurcate into two different parallel branches equal in size.*

**Keywords:** bifurcating radial artery, vascular access, chronic renal failure

## PP-294

### The Natural History of the Arteriovenous Access After Successful Kidney Transplantation

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**Purpose:** After successful kidney transplantation (KT), arteriovenous access (AVA) is neither used nor useful. There are many debates whether to preserve an AVA or to perform a systematic fistula closure. But there is no data concerning the fate of AVA after successful KT. The purpose of this study is to determine the natural history of AVA after successful KT, and to identify the risk factor of spontaneous access closure in KT recipients.

**Methods:** We performed a retrospective review of patients undergoing KT from June 2010 to July 2012. Among them, only 115 patients with functioning AVA on operation day were included. VAA patency was checked and recorded daily in hospital stay and every visit of outpatient clinic.

**Results:** Mean patients age was 46.8 years. There were 71 male. Mean duration from AVA construction to KT was 1937 days and mean follow-up after KT was 385 day. The majority of patients (85.2%) had a native AVA and eighty patients (69.6%) had an AVA at wrist. At the end of follow-up, eighteen (15.7%) AVAs were spontaneously closed.

Mean time to closure was 119 days, and 12 out of 18 were closed within 90 days after KT. AVA was spontaneously closed in 8.5% of male patients and 27.3% of female patients (P = .007), 12.2% of native AVA and 35.3% of artificial AVA (P = .016), and 11.3% of wrist AVA and 25.7% of elbow AVA (P = .049). Spontaneously closed AVA had lower mean access flow when compared functioning access (P = .019). On multivariate analysis, only female gender, and AVA flow volume affected spontaneous AVA closure.
**Conclusions:** This study suggests the surgical closure of a functioning AVA in male patients or high output AVA could reduce unnecessary waiting times requiring spontaneous closure in patients with a high risk of AVA complications.

**Keywords:** vascular access, closure, kidney transplantation

## PP-295

## Brachial Artery Aneurysm Repair with Plegia Sutures After Coronary Angiography

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**Aim:** Various peripheral vascular complications may occur after urgent primary percutaneous coronary intervention (PCI) and brachial artery aneurysm is one of them as an uncommon complication.
**Case:** We present a rare case of brachial artery aneurysm, 65 years old woman, who was underwent primary PCI for ST-Segment Elevation Myocardial Infarction (STEMI). The patient was evaluated with Doppler ultrasonography following PCI and the color arterial doppler ultrasonography revealed a brachial arteryal anevriysm due to left brachial artery injury. The patient underwent brachial arterial aneurysm repair surgery with plegia suturs in our department.
**Conclusion:** The incidence of peripheral artery aneurysm after primary PCI was determined to be 2.3%. The peripheral artery aneurysm-developing group has prolonged hospitalizations compared to the non-peripheral artery aneurysm group, but no differences determined in short and long mortality rates. In the multivariate analysis of a study, female gender and age ( >75 years), after primary PCI, were found to be independent predictors of peripheral artery aneurysm. High incidence of peripheral artery aneurysm was noticed in STEMI patients undergoing primary PCI, which prolonged in-hospital stay. More attention must be paid, to the women, especially to those who are >75 years of age, for this complication. With the increasing use of invasive diagnostic and interventional procedures in cardiovascular diseases, to be aware of the type and frequency of possible complications is important, especially of those late onset. In the present study anticoagulation, coagulation disorders, and cardiac catheterization combined with brachial puncture and angiography all predisposed to a vascular complication.

**Keywords:** brachial arteryal anevriysm, cardiac catheterization, percutaneous coronary intervention

## PP-296

## The Effect of Preoperative Ultrasonographic Examination of Target Vessels on Vascular Access Outcome

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**Aim:** Hemodialysis (HD) used as renal replacement therapy in end stage renal disease (ESRD) patients requires a well-functioning vascular access. Arterio-venous fistula (AVF) created on the forearm is the best vascular access, but it also reveals numerous complications. Many risk factors of fistula dysfunction are still not identified. The aim of this study is to investigate the effect of preoperative ultrasound (US) examination on success of AVF creation and AVF functions.
**Methods:** A retrospective review of ESRD patients undergoing VA procedures was carried out. Eighty patients' vessels were assessed either with US or by physical examination alone to schedule VA surgery. The parameters assessed to study the impact of these two different pre-operative assessment approaches included: i. VA site, ii. VA technique iii. negative surgical exploration rates and iv. surgical outcomes (maturation and patency rates).
**Results:** Successfully created AVF rate increased significantly from 77.5% to 95% (P = .002) with preoperative US examination. In 11 patients (27.5%) the access planned with physical examination was modified based on US examination. In 9 (22.5%) patients, the surgical site for AVF creation and type of surgical procedure were modified based on the US results. All but one patients who underwent vascular US examination had successful VA construction while the physical examination group had a 17.5% negative surgical exploration rate. When fistulas were assessed at six months, the patency rate was 82.5% for the physical examination group and 92.5% for the US examination group. Patients with functioning AVF have significantly larger vessel diameters. In postoperative examination, fistula diameter and flow significantly influenced the risk of AVF thrombosis.
**Conclusion:** US examination of target vessels performed before AVF creation enables identification of patients with greater risk of fistula dysfunction and negative surgical exploration rate. Pre-operative vascular US examination significantly increases the success of AVF construction and patency.

**Keywords:** vascular access, ultrasound, end stage renal disease

## PP-297

# The Demography of Transported Patients with Vascular Injury with Air Medical Transport in Comparisation with Ground Transport

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**Introuduction:** Within the past centry trauma became the leading cause of death and disability in Africa and some part of asia trauma and because there has been much less research efforts in the field of trauma has been termed the neglected disease of modern socicty cause. This phrase may also apply to the status of trauma in most developing nations where expenditure on published health program.

**Methods:** Science the beginning of the month of April in 2013 air ambulance with the purpose of rapid transporting of severe vascular injured patients has been established.

Because this form of transportation involves great budget to government we decide to evaluate such service to patients in the hospital.

In this study the demography of transported patients with hllicopter to imam khmeiny hospital from the beginning of this service with complete check lists.

**Results:** In totall cases of vascular injury due to trauma or non trauma the male to female ratio was 2/8 and the most prevalent age to injury was 30 years old. 50 patients with traumatic vascular injury transported by air medical transport and 50 patients transported by ground ambulance to vascular center. Survival of 41 patients with air medical transport were well but only 21 patients that transported by ground had good prognose of vascular injury.

The most prevalent injured site was extremity followed by head and neck. The most severe injury was seen in patients with injury in head and neck and thorax.

**Conclusion:** The mean of golden time for vascular repair is 6 hours. Then we can conclude from this research that airmedical transport for vascular injury is prefer and is vital role in survival of exterimity. Most patients were treated in general surgery and orthopedy.

**Keywords:** patients, vascular injury, air transport

## PP-298

# Radionuclide Methods in Early Detection of Infection of Arteriovenous Graft for Hemodialysis

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**Introduction and Aims:** The use of arteriovenous graft (AVG) is often the last possibility to ensure the quality approach to hemodialysis (HD). Infection of AVG is a serious complication. Treatment of developed AVG infection is problematic, graft must be removed and access to HD is lost. Therefore, early detection of AVG infection is for the treatment essential. Radionuclide methods are emerging as a promising tool to detect infection of AVG. The aim of our study is to evaluate the options and benefits of PET/CT and labeled leukocytes scintigraphy (LLS) in early detection of AVG infection.

**Methods:** Between 7/2010-1/2013 were 49 AVG inserted in 46 patients. During the first year since the insertion of AVG patients were monitored by protocol-clinical, bacteriological and laboratory. PET/CT and LLS were performed after 10, 30 and 50 weeks from the insertion of AVG.

**Results:** From the group of 46, 8 patients dieed, 4 has to be excluded for non-compliance, in 9 patients there were repeated graft closures and in 1 patient we had to remove the prosthesis due infection progresion. Annual monitoring was closed in 16 AVGs. PET/CT and LLS showed infection in 7 AVGs. All these patients were given antibiotic treatment according to microbiological findings. Clinical manifestations of developed infection occured in 2 AVGs, both grafts had to be removed. In 5 patients was AVG infection treated successfully and access to HD rescued.

**Conclusions:** Evaluation with PET/CT and LLS seems to be sensitive for the detection of early AVG infection with poor or no clinical signs. As for practical use it is necessary to specify the frequency and timing of radionuclide controls. We estimate that 20 and 40 weeks from the insertion of AVG is the best timing for radionuclid control.

The project was supported by grant IGA Ministry of Health 11062-5/2010.

**Keywords:** arteriovenous graft for hemodialysis, infection, radionuclide detection

## PP-299

# Study of the Arrhythmic Complications During Insertion Subclavian Vein and Jugular Catheter

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More than 5 million central venous catheters are placed annually in the United States. Placement of the internal jugular and subclavian catheter can save the life of a patient requiring emergency dialysis. Mechanical stimulation of the heart chambers commonly cause ectopic activities which can be disappeared by omitting the stimulator. However in a life-threatening sustained ventricular fibrillation that do not respond to conventional therapy should consider other arrangements wand.

**Methods:** This study is a clinical trial which investigated 100 patients requiring the placement of central venous catheter or internal jugular and subclavian catheters in vascular surgery ward of Imam Reza Hospital in January 2011 until October 2011.

**Results:** Patients were 54% male and 46% female. 26% of patients had experience the placement of the catheter. 90% replacment were in the right jugular vein and 8% in the left jugular vein. Most arrhythmia during monitoring of patients was Non sustained VT (8% of cases). The relationship between serum sodium and arrhythmia during catheterization is significant (P = 0.016). The relationship between the type of arrhythmia and gender is significant (P = 0.018). There is relation between catheter placement history and the incidence of arrhythmia during catheterization (P = 0.010).
**Conclusion:** We found despite of the replacement of central venous catheter surgery seems to be easy, a little negligence can put the patient in danger and even death. Assessment of risk factors and modification of the causes of arrhythmia and the continuous monitoring of patients could improve the patient's condition.

**Keywords:** arrhythmia, central venous catheter, jugular catheter

## PP-300

### Vascular Complications After Transcatheter Aortic Valve Implantation in Patients with High Risk Aortic Stenosis: The Experience of Inönü University

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**Introduction:** In transcatheter aortic valve implantation (TAVI) in patients with high risk aortic stenosis (especially in the elderly), most frequently, as it is less invasive, the femoral artery is used as the access route. In this study, we present our vascular approach and early vascular results of the patients on which we performed TAVI.
**Method:** Transcatheter aortic valve implantation was conducted on 21 patients with high risk aortic stenosis between October 2012 and June 2013 57.1% (12 patients) of the cases were female. The mean age was 77.3 ± 5.97 years (64–89). In all cases, before the procedure, vascular structures were evaluated with angiography, diameters, calcifications and tortuosities of the iliofemoral artery and calcifications and angulations of thoracic aorta were observed. The left femoral artery was used as vascular access in most of the cases (80.9%, 17 patients).
**Results:** Mortality due to vascular complications was not observed in any case. In one case, a hematoma developed in the femoral region not requiring any intervention, and in one case, a femoral arterial vasospasm developed during the removal of the femoral arterial sheath. In one case that the femoral artery was severely calcified, acute arterial obstruction developed. In this case, embolectomy + femoral arterial endarterectomy and saphenous patchplasty was done. The patient was then disharged without any problems.
**Conclusion:** As the patients on which TAVI is conducted are high risk, elderly and generally severely atherosclerotic cases, they should be evaluated properly in terms of vascular status before the procedure. Being careful in terms of vascular complications and close monitorization of the patients during the procedure and at the early period would minimalize the morbidity and mortality rates in terms of vascular complications.

**Keywords:** transcatheter aortic valve implantation, femoral artery, aortic stenosis

## PP-301

### Endovascular Repair of a Giant Iliac Aneurysm Associated Spontaneous Arteriovenous Fistula

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**Aim:** The arteriovenous fistula that occurs with aortoiliac aneurysms is a clinical entity. Aortoacaval connections constitute most of the cases, ilio-iliac fistula have been reported only occasionally. We present successful endovascular stent-grafting of an octogenarian patient with a giant common iliac artery aneurysm fistulating to common iliac vein.
**Material and Methods:** A 84-year-old man pulsatile left lower abdominal mass and progressive left leg and scrotal swelling was referred to our clinic. No history of any surgery, infection or trauma was noted besides an inguinal hernia operation on the right side. His computerized tomography angiography scan revealed an aortoiliac aneurysm with the left common iliac artery diameter exceeding 8 centimeters with a fistula to left common iliac vein-caval junction.
**Results:** Due to his age and existing comorbidities, an endostenting with local anesthesia was performed. Procedure was complicated with type I endoleak from internal iliac artery to the connections of the left limb extensions. An extension was inserted to cover the overlap areas of the initial extension limbs and internal ilac artery. A persistent filling of the aneurysmal sac and the dilated abdominal veins was present. A thorough observation of the angiographic run led to the decision of a remaining type II endoleak caused all the sac filling which disappeared following clip-ligation of the side branches of left external iliac and distal common iliac arteries by extending the femoral incision proximally into retroperitoneal area under sedation in addition to local anesthesia.
**Conclusion:** Patients with aorto-/ilio- caval/venous connections may manifest a diverse spectrum of symptoms, and diagnosis is often delayed or overlooked. Endovascular therapy methods offer facilitated rapid option for the treatment of such pathologies. Low resistance and high capacitance nature of the venous system

makes a simple straight-forward repair more difficult leading to endoleaks into aneurismal sac and venous system.

**Keywords:** spontaneous arteriovenous fistula, endostent, iliac aneurysm

## PP-302

## AV Fistula Clinic in Patients with Chronic Renal Failure Analysis of Early and Late Complications

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Arteriovenous (AV) fistula is a surgically created connection between artery and vein. Main characteristicses of an AV fistula are long term patency and low complication rate. This sudy aimed to assign the main problems, requiring surgical revision at the early and late stages of procedure.

This study contains 42 patients, who had undergone surgical revision following 97 AV fistula operation between 20012-2013. The operations were performed by only one surgeon. The patients were classified in two groups. First group is consisted of reintervention at the early stage (first 48 hours), and second group is consisted of reintervention at the late stage(term following 48 hours). Surgical reintervention was performed for thrombosis (n:13), bleeding (n:11) and hematoma (n:5) at the early stage to the first goup. At the late stage reintervention was performed to 13 patients totally. Pathologies causing a second intervention were aneurysm (n:7), stenosis (n:4), arterial steal and peripheric ischemia (n:1), bleeding related with infection (n:1).

The strategies improving surgical success of AV fistula procedure would increase the vascular access patency, and this will potentially effect the morbidity and mortality of patients.The rate of short term fistula thrombosis would be minimalized with effective anastomosis techniques, surgical experience, antiaggregant and anticoagulant drug usage, and fistula formation between appropriate vascular structures.

**Keywords:** arteriovenous fistula, reoperation, experiment

## PP-303

## Successful Endovascular Treatment of a Bleeding Aorto-Enteric Fistula

*Firuzan Numan[1], Fatih Gülşen[1], Suat Nail Ömeroğlu[2], Deniz Göksedef[2], Serkan Burç Deşer[2],* ***Berk Arapi[2],*** *Berra Zümrüt Tan[2], Gökhan Ipek[2]*

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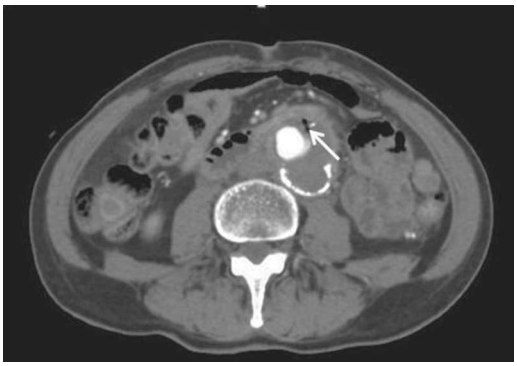
[2]Department of Cardio and Vascular Surgery, Istanbul University, Cerrahpasa Medical Faculty, İstanbul, Turkey

A 68-year old male patient presented with gastrointestinal bleeding. Aortobifemoral bypass had been performed for Leriche syndrome 26 years ago and coronary artery bypass grefting (CABG) had been performed for coronary artery disease 13 years ago. The patient had been admitted to our hospital 2 weeks ago for stomach ache and mesenteric ischemia had been diagnosed with intravenous contrasted computer tomography (CT) and digital substraction angiography. CT had also showed an aneurysm of the abdominal aorta at the proximal anastomosis of the previous aortobifemoral bypass grafting.

**Figure 1. Air bubbles around the abdominal aneurysm**



At his last admission, because of gastrointestinal bleeding the iv contrasted CT wsa redone and air bubbles around the abdominal aneurysm demonstrated the presented of an aorto-enteric fistula (Figure 1). Because of the high operative mortality, endovascular treatment was chosen and successfully performed.

**Keywords:** gastrointestinal bleeding, aorto-enteric fistula, aorto-bifemoral bypass grafting

## PP-304

## Percutaneous Repair of Iatrogenic Hemodialysis Graft Pseudoaneurysm with Ultrasound-guided Thrombin Injection

***Aslihan Küçüker[1],*** *Murat Canyiğit[2],Muhammet Fethi Sağlam[1], Veli Atalay[3],Mehmet Gümüş[2], Mete Hıdıroğlu[1]*

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[2] Department of Radiology, Ataturk Research and Education Hospital

[3] Department of Nephrology, Ataturk Research and Education Hospital

**Objectives:** Report the successful treatment of iatrogenic hemodialysis graft pseudoaneurysm with percutaneous ultrasound-guided thrombin injection.

**Methods:** The pseudoaneurysm was triggered by a puncture into a left forearm hemodialysis graft to perform hemodialysis in a 61-year-old female patient with chronic renal failure. The pseudoaneurysm sac diameter was $29 \times 23 \times 40$ mm with a short neck and partial peripheral intrasac thrombosis.

**Results:** The pseudoaneurysm was occluded with 2 mL bovine thrombin after accurate positioning of the needle by using color

duplex ultrasonography. A compression was applied towards the end of procedure over the sac neck to prevent secure thrombosis. The flow in the sac completely disappeared just after the procedure. The 1-month follow-up was uneventful.

**Conclusion:** Ultrasound-guided percutaneous injection of thrombin is a safe minimal invasive alternative procedure to treat the pseudoaneurysm of the hemodialysis graft.

**Keywords:** arteriovenous fistula graft, pseudoaneursym

# Vascular Imaging

## PP-305

### Travelling Bullet

***Kasim Karapinar,*** *Bahadır Külah, Ali Bulut, Alper Özgür, Cengizhan Bayyurt, Senan Hüseynov*

Dışkapı EAH

We, here present the travelling bullet in the vascular system with the oldest history in the English literature.

28 years old obese female patient presented due to shortness of breath and rarely occurring pain on her back. Physical examination revealed nothing pathological. Chest X-ray showed metallic reflections giving impression of a bullet on right hilus. She had an history of gun shot in right popliteal fossa that happened 14 years ago. The doctors she referred to were in a small town unable to get even X-ray graphies. Since they easily and quickly were able to stop bleeding and the patient had no problem with walking they did not referred her to any other hospital for further investigation. The patient remembered that she sometimes had edema on the affected extremity in the early years of the gun shot.

Doppler USG showed no venous thrombosis or insufficiency in the right lower extremity and even in the iliac and inferior caval systems. Contrast enhanced CT showed that the bullet was in the right pulmonary artery next to upper ascending branch. Minimal perfusion defect in the upper lobe of lung was reported in the ventilation-perfusion scintigraphy. Hearing probable complications of the surgery, the patient refused the operation.

**Keywords:** travelling bullet, pulmonary artery, surgery

## PP-306

### Comparisation Diagnostic Value of Barium Meal and Endoscopy Method in Diagnos of Upper Gastrointestinal Vascular Disease

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[2]Trauma Research Center, Shiraz Medical University

**Introduction:** The upper gastrointestinal disease is the one of common disease in people find the accurate and the correct method to earlier diagnos of this problem is nessesary. In this search we want to comparisation that which method of barium meal and endoscopy have more value in diagnosed upper gastro intestinal disease

**Methods:** At first we consider 60 out patient with GI problems refered to nemazi hospitls during 3 month. Then theses patients under tooke barium meal method after 6–8 hours fast and after 24 hours endoscopy and biopsy (if ulcer vissulised) was performed on these patient.

In this situation endoscopyist have no information about barium meal result. Barium meal result was disscused by at least 3 radiologists and endoscopic method was performed by one endoscopist, (before performed the barium meal and endoscopy method patient was fast).

**Results:** Diagnose of esophageal disease barium meal method have a diagnosis value the same as endoscopy in diagnos 80% of esophageal cancers and polips but in esophagits and candidyasis endoscopy was value better rather than barium. Barium meal of 60% was reported normal by 3 radiologists have a gastric ulcer in endoscopic method and have cancer in biopsy.

Barium meal of 65% and 50% and 100% was reported normal by 3 radiologists have a varicose and the other vascular diseases respectivly in endoscopic method.

**Conclusion:** attention this search endoscopy method have more diagnosis value in diagnosis of vascular diseases in esophagi stomach.

In deodenom barium meal method have a better diagnostic value rather than endoscopy in diagnos of duodenal diverticul. We recommend all the patients wih symptom and sign of upper gastrointestinal vascular diseases should be under endoscopy procidure

**Keywords:** diagnostic value, endoscopy, gastrointestinal vascular

## PP-307

### Persistent Sciatic Vein: Demonstration on Ct Venography

***Gokhan Arslan,*** *Suat Doganci, Erkan Kaya, Kubilay Karabacak, Murat Kadan, Gokhan Erol, Cengiz Bolcal, Ufuk Demirkilic*

Department of Cardiovascular Surgery, Gulhane Military Medicine Academy, Ankara, Turkey

The persistent sciatic vein (PSV), is a rare anomaly originated in the embryonic life and has been described in patients with Klippel-Trenaunay Syndrome (KTS) and in patients with recurrent varicose veins. PSV was found in three anatomic variations and also may cause chronic venous failure in the lower limbs. It is so difficult to visualize the vein using doppler ultrasound (DU) that the operator must be aware of varicose veins in the posterior and lateral aspect of the thigh that suggest PSV. We present a case of a 20-year-old male who has chronic venous failure and a unilateral PSV on the left lower limb diagnosed with CT venography (Figure 1).

**Keywords:** sciatic vein; CT venography; deep venous insufficiency

**Figure 1**

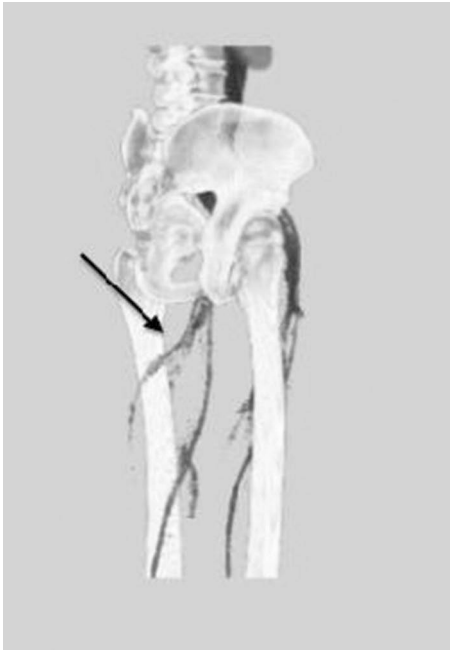

*Figure 13D reconstruction of a CT venography. Persistent sciatic vein is clearly visible (black arrow).*

## PP-308

### Ultrasonographic Features and Differentiation of Common Bare Stents in Peripheral Artery Diseases

***Weimiao Li,*** *Daqiao Guo, Bin Chen*

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**Aim:** This study sought to explore the ultrasonographic features and differentiation points of common bare stents in peripheral artery diseases.

**Material-Methods:** From Jan 2013 to May 2013, totally 116 patients with peripheral arterial occlusive diseases or carotid stenosis were treated with various stents. All patients underwent postoperative ultrasonography for stents scanning. Images were used to seek and compare the different ultrasonographic features.

**Results:** Complete is characterized by a series of "Y"s, Everflex has a "fish scale" mesh with curved grid line echoes, Lifestent shows a hyperechoic fine-mesh view and great compliance which bend along with the vessels smoothly, Luminexx has a bigger mesh and a dotted line pattern on the transverse section. S.M.A.R.T. is similar to Lifestent on the appearance but has a clearer view of interlace weave pattern. Zilver has a clear "V" pattern. Acculink is characterized by a "spine" throughout the whole stent. The mesh appear in one direction instead of interlaced pattern in Wallstent.

**Conclusions:** Most common bare stents can be differentiated from ultrasonographic features, providing stents information for clinical evaluation. But it largely depend on the acquaintance with stent characteristics.

**Keywords:** bare metal stent, peripheral artery, ultrasonography

## PP-309

### Popliteal Arteriovenous Fistula

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[2]Department of Radiology, Gulhane Military Medical Faculty, Ankara, Turkey

**Aim:** Popliteal arteriovenous fistula (AVF) is a rare pathology usually caused by stab wounds or blunt trauma. Although more rare, iatrogenic cases due meniscus surgery has also been reported in the literature. In this report, we present CT and DSA images of a popliteal aneurysm which developed 10 years after a knife injury.

**MaterİAl And Methods:** A 62-year-old man with calf swelling, weakness and malaise was evaluated using CT and DSA.

**Results:** Physical examination revealed enlargement of the calf, variceal veins and thrill on auscultation of the politeal fossa.

CT angiography showed dilatation and tortiosity in right lower limbd arteries and veins with early contrast filling. A pseudoaneurysm with calcification and thrombus on its wall was detected. Connections between crural arteries and veins (consistent with AVF) was also seen at trifurcation level.

Distal portions of the crural arteries displayed less contrast uptake in comparison with the normal side.

**Conclusions:** Popliteal AVF is a rare pathology which generally develops after penetrating trauma. Doppler USG, DSA, CT-MR angiography can be used for imaging the AV connections, varices, pseudoaneuryms and thrombosis.

**Keywords:** AVF, popliteal, CTA

## PP-310

### Identification of True Lumen with TEE in Type B Aortic Dissection During TEVAR Procedure

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**Introduction:** Aortic dissection occurs with an incidence of 10 to 30 per million/year. In Type B aortic dissection, where the tear is

located distal to the left subclavian artery (LSA), the medical therapy and annual contrasted computed tomography (CT) of the chest shall be performed unless the intimal tear advances proximally or chest pain resistant to drugs is present. Transeosophageal echocardiograhy (TEE) is also eligible for visualising not only the aortic dissection but also pericardial effusion, concomitant aortic regurgitation, and the proximal coronary arteries. As well as surgery, thoracal endovascular aortic replacement (TEVAR) shall be used to treat complicated type B dissections.

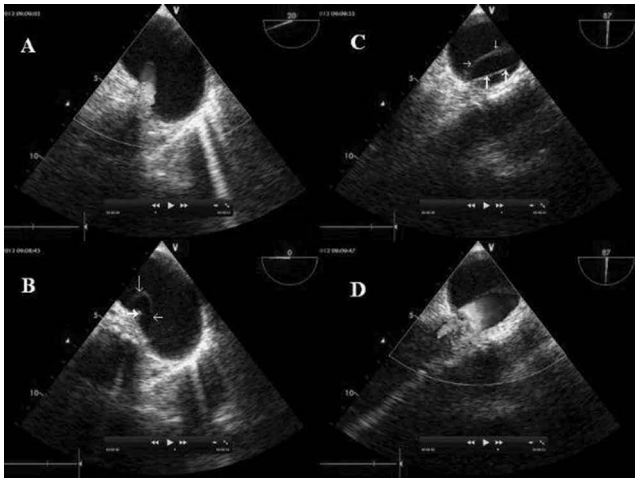
**Case:** The patient who had type B aortic dissection diagnose for 3 years had been admitted to our cardiovascular surgery clinic with an increased chest pain in the previous 3 months for further investigation and therapy.

It was noticed in the contrasted chest CT that type B aortic dissection beginning distal to LSA had advanced proximally and TEVAR was planned. During TEVAR TEE examination was used to verify true and false lumen (Fig 1). The operation was uneventful and the patient was discharged on the 3rd postoperative day without any problem.

**Conclusion:** TEVAR has been an arising operative strategy for aortic dissection in the last decade. Placing the endovascular graft in the false lumen is a complication of TEVAR and angiographic examination may not be sufficient to differentiate the true the false lumens of aorta. With TEE, intimal dissection flaps and the true and false lumens can easily be identified with high spatial resolution. In our case TEE examination was peroperatively used to discriminate the true lumen of the thoracal descending aorta that could not be distinguished opreviously by anjiiography.

**Keywords:** transeosophageal echocardiography, endovascular, aortic dissection

**Figure 1**




*In image A and D flow was visualised with coloured doppler. In image B and C the catheter (marked with bold arrows) can be seen in the true lumen (marked with regular arrows)*

## PP-311

# Treatment of Mesenteric Ischemia Symptoms represented with Type B Dissection with Stent Placement

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**Aim:** Aortic dissection is a complex manifestation of lethal condition affecting the aorta. Death in the aortic dissection usually occur as a result of end organ ischemia or aortic rupture. An ischemic condition is the most frequently encountered morbidity and usually rapid treatment is needed to delay the mortality. Our aim is to present treatment of of mesenteric Ischemia symptoms represented with type B dissection with stent placement.

**Material and Methods:** A 70-year-old female was referred to our department for a CTA to evaluate the abdominal pain after ingestion of food and loss weight.

**Results:** CTA revealed an intimal flap, originating from the proximal descending thoracic aorta and extending to the celiac, the superior mesenteric, and the left renal arteries. The false lumen had compressed the true lumen and caused approximately 75% stenosis at the proximal segment of the celiac and the superior mesenteric arteries (SMA). There is atherosclerotic stenosis in the inferior mesenteric artery. Additionally, common hepatic artery originated from SMA as a variation. We inserted a self expandable 8 mm × 40 mm non covered stent to SMA. After 24 hour follow up the patient told that her abdominal pain has decreased.

**Conclusions:** Aortic dissection is a medical emergency and can rapidly cause death, even with optimal treatment. The most of aortic dissection cases are associated with severe typical chest or abdominal pain described as tearing, stabbing figure. Mesenteric ischemia symptoms are less common encountered only finding in the aortic dissections as seem in our case. CTA is a fast non-invasive modality; given accurate information about vascular imaging and can provide three-dimensional view of the aorta. Endovasculary treatment like stent placement to SMA is a safe and rapid way for treatment.

**Keywords:** aortic dissection, endovasculary treatment, SMA

## PP-312

### Type B Dissection of Aorta Represented with Mesenteric Ischemia Symptoms: CT Angiography Findings

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[1]Department of Radiology, Ağrı Military Hospital, Ağrı, Turkey

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**Aim:** Aortic dissection is a complex manifestation of lethal condition affecting the aorta. Death in the aortic dissection usually occur as a result of end organ ischemia or aortic rupture. An ischemic condition is the most frequently encountered morbidity and usually rapid treatment is needed to delay the mortality. Our aim is to present CT angiography (CTA) findings of the type B dissection of the aorta complicated with mesenteric ischemia.

**Material and Methods:** A 70–year-old female was referred to our department for a CTA to evaluate the abdominal pain after ingestion of food and loss weight.

**Results:** CTA revealed an intimal flap, originating from the proximal descending thoracic aorta and extending to the celiac, the superior mesenteric, and the left renal arteries. The false lumen had compressed the true lumen and caused approximately 75% stenosis at the proximal segment of the celiac and the superior mesenteric arteries (SMA). There is atherosclerotic stenosis in the inferior mesenteric artery. Additionally, common hepatic artery originated from SMA as a variation.

**Conclusions:** Aortic dissection is a medical emergency and can rapidly cause death, even with optimal treatment. The most of aortic dissection cases are associated with severe typical chest or abdominal pain described as tearing, stabbing figure. Mesenteric ischemia symptoms are less common encountered only finding in the aortic dissections as seem in our case. CTA is a fast non-invasive modality; given accurate information about vascular imaging and can provide three-dimensional view of the aorta. Not only, CTA can provide information about usual reasons of mesenteric ischemia, but also can demonstrate uncommon reasons like to do this case.

**Keywords:** aortic dissection, mesenteric ischemia, CTA

## PP-313

### Intracaval Leiomyomatosis Extending to the Right Atrium

***Salih Hamcan*[1], *Sebahattin Sarı*[2], *Veysel Akgün*[2], *Uğur Bozlar*[2], *Fatih Örs*[2], *Mustafa Taşar*[2]**

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[2]Department of Radiology, Gulhane Military Medical Faculty, Ankara, Turkey

**Aim:** Intravenous leiomyomatosis is a rare disorder which can be seen in middle-aged women who have uterine liomyoma. In this report we aimed to present the ultrasound (US), computerized tomography (CT) and magnetic resonance images (MRI) of a case with intracaval leiomyomatosis extending to the right atrium.

**Method:** A thrombus was seen by US in the inferior vena cava in post-operative follow-up of a 49-year old woman who was operated 2 years ago for leiomyoma originating from uterine tube. The patient who had no improvement despite the treatment was referred to our center for being examined via US, CT and MRI.

**Results:** In all three imaging methods, a ten-centimeter solid mass lesion with cystic areas compatible with leiomyoma in right pelvic region was seen. Addition to that US examination revealed a heterogeneous hypoechoic lesion filling up inferior vena cava lumen and arterial signals of the blood flow feeding the lesion was detected in Doppler imaging.

In CT angiography examination a lesion characterized with intraluminal filling defect in right internal and main iliac veins and inferior caval vein. The lesion was tending to infiltrate right renal vein and right atrium partially.

In MR angiography it was observed that the lesion described in CT angiography had contrast enhancement and there were arterial structures feeding the lesion.

**Conclusion:** Intravenous leiyomiyomatosis is a tumor originating from smooth muscle. It can be mixed up with thrombus and has a progressive course although it is a benign tumor. In order to distinguish from simple thrombus contrast enhancement and demonstration of vascularity are important criteria. Although Doppler US is generally sufficient to show the vascularity of the tumor, CT and MR angiography are also useful to see the extension and contrast of the lesion. MR and CT are used to show local recurrence.

**Keywords:** intracaval leiomyomatosis, right atrium, imaging

# Venous Disease

## PP-314

### Endo-Venous Laser Therapy versus Stripping; A Randomized Prospective Comparison

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National Hospital of Sri Lanka, Sri Lanka

**Aim:** Endo-Venous Laser Therapy (EVLT) is a safe and effective alternative to Surgical Stripping (SS) of the Great Saphenous Vein (GSV) in symptomatic Sapheno-Femoral Incompetence (SFI). It can be performed under local anaesthesia and achieves comparable efficacy while minimizing the surgical morbidity and maximizing post-procedure functionality. Is there a significant advantage?

**Methodology:** In a randomized prospective case control study (January 2012 through July 2013), we compared EVLT versus Sapheno-Femoral ligation and SS with regards to post-procedure pain (visual analog score), wound complications, symptomatic

thigh bruising and return to full functionality. All included patients had symptomatic primary SFI confirmed by duplex scan. All recurrent SFI were excluded. All cases were carried out as day case procedures. SS was performed under spinal anaesthesia while EVLT was performed under local (66) or spinal (23) anaesthesia. Patients were followed up at 1, 2, 4, 8 and 12 weeks post-treatment.

**Results:** 89 patients (138 limbs; 49 bilateral, 40 unilateral) had EVLT while 67 (102 limbs; 35 bilateral, 32 unilateral) had SS. The mean follow-up was 24 (6-80) weeks. Mean post-procedure pain score at discharge; 2 in EVLT (unilateral/bilateral), 4 SS unilateral and 5 SS bilateral. Wound complications; 1/138 (<1%) in EVLT and 3/102 (3%) in SS. Symptomatic thigh bruising; 26/138 (19%) in EVLT and 41/102 (40%) in SS ($p < 0.05$). Mean time to return to full functionality after unilateral procedure; 2 days in EVLT and 4 days in SS, bilateral procedure; 2 days EVLT, 6 days SS ($p < 0.05$).

**Conclusion:** EVLT has established itself as an effective alternative to SS. While achieving similar short and medium term efficacy, it has also shown significantly fewer post-procedure pain and morbidity. The return to full pre-procedural functionality is significantly quicker with EVLT.

**Keywords: —**

## PP-315

### Sclerotherapy Experiences for Reticular and Varicose Veins

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**Aim:** Liquid and foam sclerotherapy are easy and high aesthetic gain treatments for varicose veins. The aim of this study to investigate 158 patients with stage C1 and C2, according CEAP classification.

**Material-Methods:** A retrospective review was performed between January 2013 and June 2013. 112 patients were females (70%) and 46 (40%) patients were males. Mean age was 36 years (18–63 years). 1–2% polidocanol used for liquid and foam sclerotherapy. Elastic compression bandage was applied after injection. Each injection administered to patients 1 to 4 times. Average injection range was 3 weeks.

**Results:** We prefered liquid sclerotherapy for reticular veins and foam sclerotherapy for varicose veins, commonly. There were no complications after sclerotherapy more than short-term bruises on the skin. Most of the repeated injections were performed to varicose veins.

**Conclusions:** Sclerotherapy is a good option for reticular and varicose veins. Foam and liquid sclerotherapy may be used more for treatment of varicose veins, instead surgery of small varicose veins.

**Keywords:** varicose vein, liquid sclerotherapy, foam sclerotherapy

## PP-316

### Analysis of Vena Cava Inferior Agenesis in Adults; A Retrospective Report of Five Cases

***Murat Kadan,*** *Kubilay Karabacak, Erkan Kaya, Gökhan Arslan, Gökhan Erol, Suat Doğancı, Cengiz Bolcal, Ufuk Demirkılıç*

Department of Cardiovascular Surgery, Gulhane Military Academy of Medicine, Ankara, Turkey

**Introduction:** VCI agenesis (VCIA) is a rare disorder. Although it can cause venous stasis, most patients are asymptomatic, and diagnoses incidentally. In this report, we present five patients with this unusual disorder.

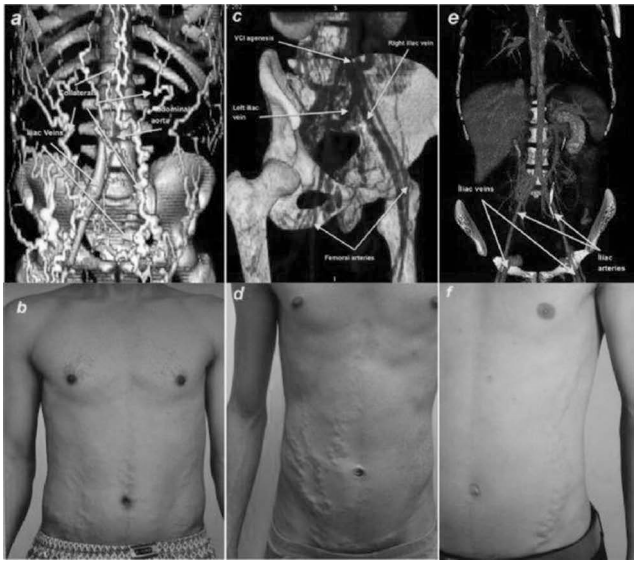
**Patients:** Between January 2009 and February 2013, data of the patients with VCIA were collected. Age, gender, symptoms and other parameters such as thrombophilia and/or genetic disorders were recorded. Patients with just VCIA with or without DVT were investigated. Patients with acquired VCI thrombosis, external compression or invasion of malignancies were excluded.

**Results:** Five patients with VCIA were analyzed. Mean age of patients were 21 (20–23), and all patients were male. None of them had additional systemic or vascular disorders. Three patients had abdominal varicosities, one patient had leg swelling, and the remaining patient had DVT and ulcus cruris.All patients underwent computerized venography and some of these images are shown in Figure Ia, Ic, Ie. Venous drainage of lower limbs were provided with retroperitoneal collaterals in two patients, whereas unusual anterior subcutaneous collaterals were provided venous drainage in three patients (Figure Ib, Id, If). Blood samples and inflammatory markers were not revealed any relationship with rheumatologic or systemic disorders. Two patients had genetic mutations (Homozygote MTHFR mutation and Jak2 mutation). None of the patients had thrombophilia disorders. External compression therapy was recommended to patients with 23–32 mmHg pressure (Ccl2) compression socks. Anticoagulation was started to all patients whether with DVT or not, due to risk of venous thrombosis secondary to permanent vascular occlusion. Patients were informed about venous thrombosis and importance of saving their own collaterals from trauma or surgery.

**Discussion:** VCIA is seen in 0, 3–0, 6% of general population. Although it is often asymptomatic, it can provoke iliofemoral DVTs. Its prevelance in patients with DVT, may reach up to 5%. Most of patients diagnosed incidentally, and remaining patients diagnosed at the evaluation of DVT. Main diagnostic tool is usually venography or computerized venography, while the role of USG still controversial. Most appropiate treatment is anticoagulation although any consensus couldn't be restored yet. However, it seems clear that surgery has limited role on treatment approaches.

**Keywords:** vena cava inferior agenesis, iliofemoral deep vein thrombosis, impaired venous drainage, venous flow obstruction

**Figure I**




*Three-dimensional computerized venographic image of patients are seen in a, c, e. The major subcutaneous collateral vessels of the mentioned patients are seen in b, d, f.*

## PP-317

## Upper Extremity Klippel Trenaunay Syndrome; Report of Four Cases

***Murat Kadan,*** *Kubilay Karabacak, Erkan Kaya, Gökhan Erol, Gökhan Arslan, Suat Doğancı, Cengiz Bolcal, Ufuk Demirkılıç*

Department of Cardiovascular Surgery, Gulhane Military Academy of Medicine, Ankara, Turkey

**Introduction:** Klippel-Trenaunay Syndrome (KTS), is characterized by capillary malformations, venous disorders and hypertrophies of the skeletal and connective tissue. It often affects one extremity, especially lower extremities. In this report we aimed to present the unusual clinical form–upper extremity involvement-of these syndrome.

**Patients:** Data of the patients, who had presented to our department with KTS within the last year, were analyzed. Patients characteristics, concomitant disorders, the differences on the circumference and the length of extremities were recorded. Patients with upper extremity involvement alone was the main population, whereas, patients with lower extremity or both upper and lower extremity involvement were excluded.

**Results:** Four patients with upper extremity KTS were analyzed. All the patients were male and the mean age of patients were 20, 75 (20–22). None of them had additional systemic or vascular disorders. Right arm was affected in three patients while left arm was affected in remaining one patient. All of the patients had capillary vascular malformations and port vine strains. There were 1 cm ( ± 0), 1, 75 cm ( ± 1, 70), 2, 75 cm ( ± 1, 89) circumferential difference at wrist, forearm and arm, respectively. The affected extremities had hypertrophied compared with opposite upper extremity approximately 5, 5 cm ( ± 2, 64) in length. Views of the patients are presented in the Figure I. One patient was diagnosed subclavian vein DVT, two months ago, but no medication was arranged to patient. Upper extremity compression stockings were recommended to all patients, whereas anticoagulant treatment was started to only the patient with DVT.

**Discussion:** KTS is a congenital, sporadic, often benign but usually an incurable disorder. In general population, its prevalence is about 1/20000–1/40000 per year. Clinical presentation may vary from asymptomatic to life-threatening complications such as recurrent bleeding or pulmonary embolism secondary to DVT. Surgical treatment (if possible), compression stockings, and/or anticoagulation in high-risk patients are the cornerstones of the treatment.

**Keywords:** klippel trenaunay syndrome, congenital vascular disorders, upper extremity vascular malformations

**Figure I**


*Anterior view of patients*

## PP-318

# Surgical Thrombectomy and Simultaneous Stenting for Deep Venous Thrombosis Caused by May-Thurner Syndrome

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**Purpose:** May-Thurner syndrome is characterized by left common iliac obstruction secondary to compression of the left iliac vein by the right common iliac artery against the fifth-lumbar vertebra. This anatomic variant results in an increased incidence of deep venous thrombosis (DVT). We herein present our experience with thrombectomy and simultaneous stenting for DVT due to May-Thurner syndrome, and evaluate the outcomes.

**Materials-Methods:** From January 2009 to December 2012, a total of nine patients (seven females, two males; median age, 74 years) underwent surgical venous thrombectomy with stenting. All patients were admitted for acute (<14 days) DVT involving the iliofemoral segment, and were diagnosed with May-Thurner syndrome. One patient had a hypercoagulable disorder and three had malignant disorders. Patients were followed-up, and the stent patency was assessed by means of duplex sonography performed at 1, 3, 6 and 12 months, and then yearly thereafter.

**Results:** In all patients, the procedure successfully achieved re-canalization of the iliofemoral veins at the end of the operation. Perioperatively, there was no mortality and there were no case of clinically detected pulmonary embolism. Re-thrombosis occurred within seven days of the operation in two patients. The mean follow-up time was 17 months (range, 1- 46 months).

**Conclusion:** Venous thrombectomy with simultaneous stenting is a safe, efficient, and durable technique to treat iliofemoral DVT due to May-Thurner syndrome. This technique also restores venous patency and provides relief of acute symptoms.

**Keywords:** may-thurner sundrome, deep venous thrombosis, thrombectomy, angioplasty, thrombolysis

## PP-319

# Study on the Long-term Results of Endovenous Laser Ablation for Treating Varicose Veins

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**Objectives:** The aim of this study was to evaluate the long-term results of endovenous laser ablation (EVLA) with duplex ultrasonographic scans for treating varicose veins and to assess its clinical significance.

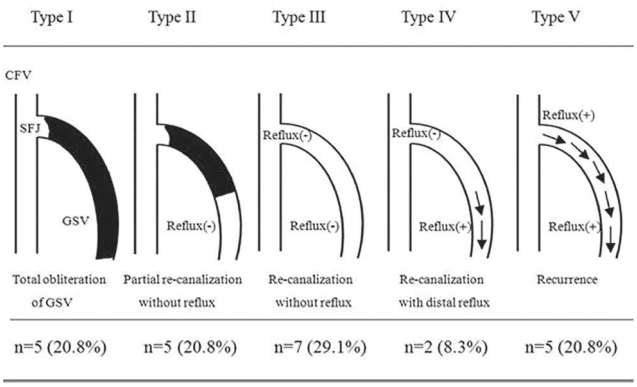
**Materials and Methods:** Twenty-four limbs of 17 patients who underwent EVLA between 2004 and 2007 were examined with duplex ultrasonographic scans. The mean follow-up period was 66.1 months.

**Results:** There were five recurrences of saphenofemoral junction reflux. The occlusion rate was 79.2% at a mean follow up of 66.1 months. There were 14 recanalizations of the greater saphenous vein, but five recurred. Of these 14 recanalizations, there were five partial and nine total recanalizations (Fig1).

**Conclusions:** EVLA is an effective and minimally invasive treatment for varicose veins. Our long-term result was a little lower than others reported. A prospective long-term comparison between EVLA and surgery should be performed before recommending EVLA as standard treatment.

**Keywords:** varicose vein, endovenous laser ablation, long-term results

**Figure1**




*Results of the Doppler examination. CFV: common femoral vein GSV: greater saphenous vein SFJ: saphenofemoral junction*

## PP-321

# Incidence and Clinical Feature of Pulmonary Embolism in Patients with Symptomatic Deep Venous Thrombosis Diagnosed by Means of Computed Tomography

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**Purpose:** Computed tomography pulmonary angiography (CTPA) is currently the preferred imaging test for pulmonary embolism (PE). This study was performed to evaluate the incidence, radiologic and clinical severity of PE in patients with symptomatic deep vein thrombosis (DVT).

**Material-Methods:** Among the patients who took CTPA and CT venography of lower extremity concomitantly due to leg swelling, the patients who confirmed lower leg DVT with CT venography were enrolled. The incidence and clinical feature of PE was retrospectively studied.
**Results:** Total of the 103 patients diagnosed DVT in CT venography. Iliac DVT was 47.6%, femoral DVT 23.3%, popliteal DVT 18.4% and calf DVT 10.7%. Sixty one patients (59.2%) had PE concomitantly in CTPTA. The lesions were evenly distributed in both lungs and bilateral pulmonary artery involvement was in 39.8%. PE involving main pulmonary artery was 42.6%, lobar pulmonary artery 42.6% and segmental pulmonary artery 14.8%. The frequency of PE in calf DVT was 63.6%, in popliteal DVT 73.7%, in femoral DVT 54.2%, and in iliac DVT 55.1%. Forty-nine percent of PE was clinically silent and 43.7% showed mild clinical symptoms, however 2.9% of PE showed hemodynamic unstability.
**Conclusions:** This study showed the high frequency of PE in patients with symptomatic DVT, but half of PE was asymptomatic and severe symptomatic PE was rare. There was no significant difference between the occurrence of PE in relation to the location and extension of DVT.

**Keywords:** pulmonary embolism, deep venous thrombosis, computed tomography

## PP-322

## Cryoavulsion is a Good Adjunctive Procedure in Endovenous Laser Treatment of Varicosities

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**Aim:** Cryoavulsion (CA) is recently introduced as a new kind of cryotherapy in varicosity treatment in Europe. During endovenous laser treatment (EVLT) procedures, may cases needed miniphlebectomy (MP) concomitantly. Cryoavulsion may be applied to remove tributary varicosities without extra puncture wounds.
**Materials and Methods:** During 24 months from January 2011 to December 2012, 78 patients whose saphenous system reflux were confirmed and tributary varicose were also revealed were treated with EVLT+CA. Their all CEAP class were C2–4 and As 2–4. EVLT were applied by 1–3 stab wounds and cryoprobes were passed through same puncture wound multidirectionally to remove tributaries. All patients were followed up to 2 months and complication and satisfaction scores such as VCSS and AVVSS (preop/postop 2 mos.) were evaluated.
**Results:** 1. In 78 patients, M:F ratio was 31:47, mean age was 49.6 ± 13.8, and their CEAP class were C2:58 C3:15 C4:5 cases and As2:35 As2+3:11 As4:11 As3+4:8 cases in each. 2. Numbers of puncture wound for EVLT and CA were 2.4 ± 0.6. 3. Complications such as hematoma occurred in 70 cases (90.0%) but were easily controlled by elastic stocking within 3 weeks and neuralgia sustained to more than 1 month were 10 cases (12.9%), which were intermittently controlled by analgesics. 4. Mean of sick leave from works was 1.9 ± 1.5 days. 5. VCSS change were 6.1 ± 2.4/1.8 ± 1.0 and AVVSS change were 8.3 ± 3.9/1.5 ± 0.9 (preop/postop).
**Conclusions:** 1. Extraluminal cryoavulsion technique is safe and minimally invasive technique to apply with EVLT concomitantly. 2. Early ambulation and fewer puncture wounds was much favored by patients than EVLT+MP procedure. 3. This adjunctive procedure would be more helpful for large tributary varicosities than miniphlebectomy procedure.

**Keywords:** varicosities, EVLT, cryoavulsion

## PP-323

## Experience of Surgery for the Patients with Recurrent Varices After Surgery

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**Background:** Recurrent varices after surgery (REVAS) remain common problems. The treatment strategy for REVAS is important, and the analysis for REVAS is thought to be useful to decide the systematic strategy for the first surgery of varicose veins.
**Patients and Methods:** Fifty limbs of 42 patients with 7 active ulcers (C6) and 5 healed ulcers (C5) had surgery for REVAS between January 2008 and June 2013. It was equivalent to 6.8% of all surgeries for chronic venous insufficiency (730 limbs). The period between the previous surgery and REVAS were more than 10 years in 18 limbs, 5-10 years in 10 limbs, 2–5 years in 8 limbs, and less than 2 years in 14 limbs. Recurrent varices after GSV ablation were treated in 40 limbs. The analysis of REVAS was conducted with venous echo.
**Results:** In REVAS limbs, reflux was found in incompetent perforating vein (IPV) in 29, SSV in 22, GSV in 7, accessory SV from SFJ in 7, branch from SPJ in 1, and residual GSV on lower limbs after selective stripping in 5. Reflux of the residual GSV after selective stripping was the drainage from SSV in 3, and from IPV in 2. Surgery for IPV was conducted by direst suprafascial ligation in 9 limbs without stasis skin lesion, and by SEPS utilizing screw-type ports in 20 limbs with stasis skin lesion. Other REVAS was treated by high ligation and resection of veins with reflux and varix.
**Conclusion:** As IPV is important in etiology of REVAS, it should be treated in the first surgery if exists. In the first surgery, some cases need flush high ligation of GSV and SSV, and some cases need stripping of GSV on the lower limbs. SEPS was very useful choice of surgery for REVAS.

**Keywords:** REVAS, SEPS, IPV, Flush high ligation, full stripping

## PP-324

# Short-Term Catheter-Directed Thrombolysis with Low-dose Urokinase and Mechanical Thrombectomy for Treatment of Symptomatic Lower Extremity Deep Venous Thrombosis

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**Purpose:** To evaluate the immediate and late venous patency in patients treated by short-term catheter-directed thrombolysis with low-dose urokinase (UK) for symptomatic lower extremity deep venous thrombosis (DVT).

**Materials and Methods:** Eighty-nine consecutive patients with DVT who treated by catheter-directed thrombolysis with low-dose UK were included in this retrospective study. Immediate venous patency was evaluated in terms of technical success ( >50% restoration of venous flow at completion of the procedure) and clinical success (significant reduction of clinical symptoms before hospital discharge). Late venous patency was evaluated in terms of anatomic success and clinical success. Anatomic success was evaluated in 68 patients who underwent follow-up computed tomography angiography (CTA).

**Results:** Thirty-seven (41.6%) patients were given a single bolus injection of UK (range, 4-14 x 104 IU, mean dose, $4.89 \pm 2.51 \times 104$ IU) and 52 (58.4%) patients had a continuous infusion of UK (range, 12–80, mean dose, $33.73 \pm 16.42 \times 104$ IU) for a mean of 168 minutes (range, 30–420 minutes). Before or after catheter-directed thrombolysis, aspiration thrombectomy with or without mechanical thrombectomy was performed in 69 patients (77.5%). Subsequent angioplasty and/or stent placement was performed in 85 patients (95.5%) for underlying stenosis or residual thrombosis. Immediate technical success was achieved in 87 (97.8%) patients and immediate clinical success in 80 of 89 (90%) patients. There was no major systemic bleeding complication. Primary patency after a median imaging follow-up interval of 10 months was 57 of 68 (83.8%) patients. Fifty-six of 89 (62.9%) patients were asymptomatic after a median clinical follow-up of 18 months, eleven (12.4%) patients were moderately improved, seven (7.9%) patients were unchanged, and 15 (16.9%) patients had no clinical follow-up.

**Conclusion:** Short-term catheter-directed thrombolysis with low-dose UK infusion and mechanical thrombectomy can be effectively and safely used for lower extremity DVT.

**Keywords:** thrombolysis, lower extremity, deep venous thrombosis

## PP-325

# Endovenous Radiofrequency Thermal Ablation in Klippel-Trenaunay Syndrome

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**Introduction:** Klippel-Trenaunay Syndrome (KTS) is a rare congenital disease. The patient with KTS has clinical manifestations including port-wine stain, limb hypertrophy and large varicose veins.

Some patients suffer from symptoms of chronic venous insufficiency such as cramping, leg heaviness and thrombophlebitis. In patients who have patent deep vein of legs and have valvular incompetence of superficial veins could have benefit of ablation of abnormal superficial veins. In the past, ligation, venous stripping and multiple phlebectomy were the standard treatment of KTS; however, major bleeding might occur. Noninvasive endovenous radiofrequency thermal ablation (RFA) of incompetent superficial varicose vein might have a role of treatment of KTS.

**Methods:** A retrospective review of 2 patients with KTS treated with endovenous RFA of the anterior accessory saphenous veins (AASV) was conducted. Patients underwent duplex ulrasonography using 9–12 MHz linear array probe to demonstate the normal patent deep venous system of lower extremities and to identify anomalous veins, great saphenous vein (GSV) and accessory saphenous tributaries, and perforators.

Incompetence AASV was ablated with radiofrequency catheters (VNUS ClosureFast). In addition, ultrasound guided foam sclerotherapy of the varicose tributaries was performed.

**Results:** Both patients had normal deep venous system and competent GSV but had reflux in AASV. In one patient, incompetent AASV connected to GSV at knee level. In the other patient, AASV connected to abnormal large lateral veins of calf. Endovenous RFA resulted in successful occlusion of the incompetent AASV in both patients. Moreover, foam sclerotherapy of varicose tributaries showed complete occlusion.

At 6 months follow-up, both patients demonstrated markedly decreased leg pain, cramping, limb swelling, and varicose vein bulging.

**Conclusions:** Two cases of KTS were successfully treated with endovenous RFA of the incompetent superficial vein and foam sclerotherapy of abnormal varicose vein.

**Keywords:** radiofrequency thermal ablation, varicose vein, klippel-trenaunay syndrome, foam sclerotherapy

## PP-326

### An Extremely Rare Complication of Varicose Vein Surgery: Retained Foreign Body

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Foreign body is among complications of surgery. But as a complication of varicose vein surgery it was reported extremely rarely and, to our knowledge, there is only one paper in the literature. A case with retained sponge which was detected five months after varicose vein surgery was presented.

**Keywords:** retained foreign body, sponge, varicose vein surgery

## PP-327

### Iatrogenic Antecubital Vein Aneurysm Following Blood Sampling: A Case Report

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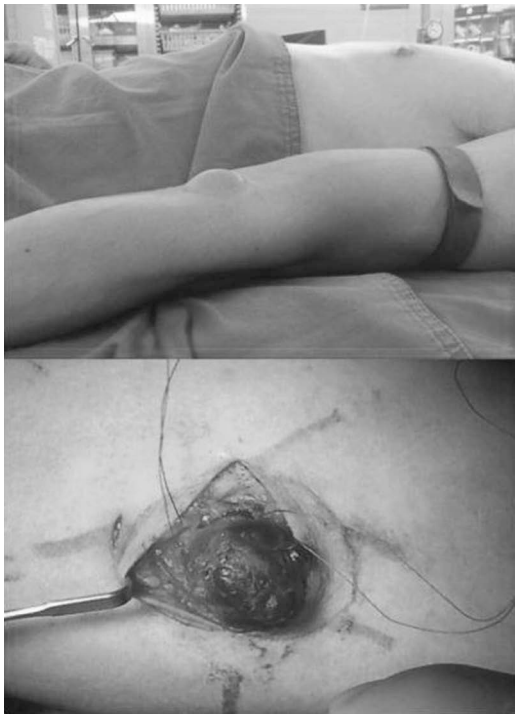
Venipuncture for blood sampling and intravenous cannulation are routine procedures in current medical practice. However, its potential complications tend to be overlooked. Herein we present a case of a healthy male who presented with an aneurysm of the antecubital vein following venipuncture. A 34-year old male soldier presented with a 3 cm mass in the left antecubital area. The patient had a previous history of venipuncture 7 years ago at the same site for blood sampling during a routine medical checkup, and he noted a swelling of this site since then. The mass had recently increased in size and he complained of pain, numbness and tingling sensation of the left arm. He denied any history of trauma or infection, and he had not been admitted previously or undergone intravenous cannulation. He was otherwise healthy without any past medical histories, and was not under any medications. Physical examination revealed a round and soft mass without evidence of inflammation. Ultrasound imaging demonstrated a focal dilatation of the antecubital vein with patent lumen and without evidence of fistula formation to adjacent arteries. He underwent elective surgical resection of the aneurysm for relief of his symptoms, and the procedure was uneventful. Pathologic evaluation revealed features of mixed vascular proliferation with organizing thrombus. Peripheral venous aneurysms are extremely rare with only 3 cases of iatrogenic origin reported up to date. Two of these cases were patients on anticoagulation, and the third patient had undergone intravenous cannulation. This is the first reported case of iatrogenic venous aneurysm following venipuncture for blood sampling in a healthy individual. Despite its rarity, complications from this disease can be potentially fatal and should not be underestimated. Increased awareness of this iatrogenic complication is necessary, and physicians should make an effort to minimize blood tests and avoid unnecessary venipuncture.

**Antecubital vein aneurysm**



**Keywords:** vein**,** aneurysm, iatrogenic

## PP-328

### Endovenous Ablation in Patients with Previous Superficial Venous Thrombosis. Is It Safe and Effective?

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**Aim:** Endovenous ablation of great and short saphenous vein reflux has become the initial procedure for most patients with symptomatic venous insufficiency. Many patients have comorbid conditions and previous superficial venous thrombosis (SVT) causes physicians to remain undecided about treatment options. The objective of this retrospective case control study is to determine safety and success of endovenous laser ablation (EVLA) in patients with a history of SVT.

**Methods:** Study (with SVT) and control (without SVT) groups each consisted of 40 patients who underwent EVLA of great saphenous vein (GSV) with a 1470 nm diode laser and a radial fiber between January 2011 and January 2013. All patients were followed with venous duplex ultrasound at 72 hours and 6 months. Endovenous heat induced thrombosis (EHIT) and procedural failure rates were considered as primary outcomes.
**Results:** There was no significant difference in EHIT and or procedural failure rates between patients with and without history of SVT study and control groups. Vein access required multiple attempts in study group (1.15 attempts/patient) when compared to control group (1.03 attemps/patient). There was no significant difference in EHIT (2 patients in study group/no EHIT in control group) and procedural failure rates (1 patient in study group/no failure in control group). No patients developed pulmonary embolus. At 6 months all GSV's remained closed in study and control groups.
**Conclusion:** Although vein access might require multiple attempts, EVLA seems to be safe and effective in patients with a history of SVT.
**Keywords:** endovenous laser ablation, superficial venous thrombosis, endovenous heat induced thrombosis

## PP-329

### Deep Venous Thrombosis in Pregnancy: Diagnosis and Management

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**Objective:** Women are at an increased risk of both venous and arterial thromboembolism during pregnancy. There are no large trials of anticoagulants in pregnancy and recommendations for their use are based on case series and the opinion of experts. For this reason, we carried out a study on pregnant women suffering from acute DVT using enoxaparin twice daily dose.
**Methodology:** This study was performed in 36 pregnant women with acute DVT who managed between January 2007 and June 2013. In all patients, DTV was diagnosed using venous ultrasonography of the lower limbs combined with physical examination. The initial dose of enoxaparine was administered with 1 mg/kg twice daily and adjusted for weight changes throughout pregnancy. Lower extremity elevation and compression stockings were used and mobility was not restricted.
**Results:** In this series, the age range was 21–42 years with an average of 25 ± 14 years. No allergic reactions were observed during pregnancy in any of the patients. Thrombosis panel study revealed heterozygous factor V Leiden mutation in seven patients, and heterozygous prothrombin gene mutation in two. None of the patients were observed to have pulmonary embolism, massive bleeding, or thrombocytopenia. Venous ultrasonography was repeated at 6–8 weeks of therapy. Twenty patients showed successful re-canalization. The post-thrombotic syndrome occurred in no patients.
**Conclusion:** Twice-daily enoxaparin therapy was efficient and safe for mothers and their babies and was associated with an obvious improvement in quality of life for the pregnant patients with minimal stay in hospital by adopting a multidisciplinary approach. Additionally, monitoring of enoxaparin concentration may not be necessary in pregnant patients without thrombophilia. However, further studies should be required.

**Keywords:** venous thrombosis, pregnancy, enoxaparin

## PP-330

### Predicting Risk of Endovenous Heat-Induced Thrombosis (EHIT) After Endovenous Laser Ablation (EVLA)

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**Aim:** EVLA of great and short saphenous vein reflux has become the initial procedure for most patients with symptomatic venous insufficiency. Extension of thrombus from the great saphenous into the common femoral vein can be an early postoperative complication of endothermal ablation. In this study we investigate the factors influencing the incidence of EHIT.
**Methods:** A retrospective analysis was performed over 2 years and all patients with intraoperative, preoperative and follow-up duplex ultrasound (USG) images who underwent EVLA of great saphenous vein (GSV) with a 1470 nm diode laser and a radial fiber between January 2011 and January 2013. Intraoperative USG images demonstrating the distance between the saphenofemoral junction (SFJ) and the catheter tip were available in 258 procedures.
**Results:** Among 258 procedures, four (1.5%) cases of EHIT were diagnosed. All patients have level 1–3 EHIT (2 patients EHIT level 1, 1 patient EHIT level 2, 1 patient EHIT level 3). Gender, distance from catheter tip to SFJ, history of superficial venous thrombosis, additional treatments, thromboprophylaxis were not significant risk factors for EHIT. When comparing the group of patients who developed EHIT versus no EHIT, of the clinical factors assessed, mean GSV diameter (12.44 ± 6.39 mm versus 8.07 ± 3.67 mm) ($p$ = .001), CEAP classification 5–6 ($p$ = .004), presence of valvular incompetence at SFJ (p = .002), history of deep venous thrombosis (DVT) (p = .04) and thrombosis risk factor assessment-Caprini score (p = .0003) were significant. In all four patients, EHIT was identified immediately with routine duplex USG and resolved with low molecular weight heparin and no clinical sequalae. In all patients with EHIT, duplex USG was repeated in 2–3 days to visualize whether there has been propagation of the thrombus.

**Conclusion:** Mean GSV diameter, valvular insufficiency of SFJ, CEAP classification 5–6, history of DVT, and Caprini Score are predicitive factors for EHIT following EVLA.

**Keywords:** endovenous ablation, endovenous heat-induced thrombosis, great saphenous vein

## PP-331

## Thromboprophylaxis Practices Following Endovenous Laser Ablation: Routine or in High Risk Patients?

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**Aim:** Endovenous ablation of great and short saphenous vein reflux has become the initial procedure for most patients with symptomatic venous insufficiency. Deep venous thrombosis (DVT) has been reported in up to 7.7% of patients undergoing such procedures. It is not clear whether patients undergoing endovenous ablation should receive thromboprophylaxis. In this study, our objective is to investigate patients should receive routine low molecular weight heparin (LMWH) prophylaxis or not.
**Methods:** A prospective study was performed over 1 year in 120 patients who underwent EVLA of great saphenous vein (GSV) with a 1470 nm diode laser and a radial fiber between January 2012 and January 2013. Study (with LMWH prophylaxis) and control (without LMWH prophylaxis) groups were consisted of 60 patients. All patients were followed with venous duplex ultrasound at 72 hours and 4 weeks. Superficial and deep venous thrombosis, hematoma, procedural failure rates were primary outcome measures.
**Results:** There was no significant difference in thrombosis (one patient vs two patients) and procedural failure rates (one in each group) between patients with and without LMWH prophylaxis. In control group thrombosis-EHIT (one Level 1 and one Level 3 EHIT) was diagnosed in patients with a prior history of thrombosis and patients with a GSV diameter over 10 mm. Minor hematoma occurred in 2 patients on LMWH prophylaxis. After 4 weeks all GSV's remained closed in study and control groups.
**Conclusion:** EVLA is safe and effective procedure without LMWH thromboprophylaxis. For this reason thromboprophylaxis is not required in patients having EVLA under tumescent anaesthetic, unless they are in a high risk category. Risk factors justifying thromboprophylaxis in selected cases might vary considerably between surgeons and this might cause variations in daily practice.

**Keywords:** thromboprophylaxis, LMWH, EVLA

## PP-332

## Endovenous Laser Ablation of Great Saphenous Vein and Perforator Vein Ligation Improves Outcome in Patients with CEAP 5-6 Disease

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**Objective:** Patients with active or healed venous ulcers often experience recurrence of ulceration, despite the use of long-term compression and venoprotective medication therapy. This study examines the effect of incompetent Great Saphenous Vein (GSV) ablation and perforating vein (PV) ligation on ulcer recurrence and healing rates in patients with CEAP 5–6.
**Methods:** Endovenous ablation (EVA) with 1470 nm diode laser and radial tip catheter and surgical perforator ligation was performed on patients with CEAP 5–6 disease and incompetent GSV and PV. Patients underwent duplex ultrasound scan and mapping before ablation to assess deep, GSV and PV incompetence as well as postoperatively to confirm successful obliteration.
**Results:** Thirty-six EVA GSV ablation and surgical PV ligation procedures were performed on 32 patients (limbs = 36). The mean patient age was 58 (range, 32–78 years) and the mean body mass index was 28.7 (19.5–38.4). All patients previously wore compression stockings or multilayer compression bandages (20–30 mmHg = 12; 30–40 mmHg = 11, multilayer = 13) for at least 3 months. Indications for venous ablation were ulceration, increasing malleolar pain, and/or lipodermatosclerosis. Technical success rates for the ablation procedures were 100% for GSV and 86.1% for PV. All patients underwent closure of at least one incompetent vein. Ulcer recurrence rates were 0% at 6 months and 9.5% at 12 months in twenty-one CEAP 5 limbs. Ulcer healing rates were 73.3% at 6 and 12 months in fifteen CEAP 6 limbs. Ulcers healed in an average of 13.7 weeks.
**Conclusion:** Ulcer healing/recurrence prevention was accomplished to a significant degree using EVA of the GSV and PV ligation. Limbs with CEAP5/6 disease should be routinely examined for both GSV and PV reflux and, when appropriate, combined ablation of the GSV and ligation of the PV should be considered in management of this disease.

**Keywords:** CEAP classification, endovenous ablation, perforator vein incompetence, venous ulcer

## PP-333

### Highly Unattended Chronic Venous Disease (CVD) Among Thai Patients: A Doppler Duplex Ultrasound Result

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**Aim:** To identify venous reflux in chronic venous disease among Thai patients.
**Material-Methods:** A sub-population of the patients screened in the Vein Consult Program Consortium Thailand was examined with Doppler duplex ultrasound.
**Results:** There were 141 Patients, 24 (17%) men and 117 (83%) women with mean (SD) age of 51.1 (12.6) years. Most common symptoms were leg pain (77.3%), night cramps (70.9%), heavy legs (63.1%), sensation of burning (47.5%) and swollen legs (46.5%). The prevalence of disease according to CEAP classification was 85% (C0–C1), 15% (C2–C4) in left leg and 85.1% (C0–C1), 14.8% (C2–C4) in right leg. There were 26.2% of patients with significant venous reflux. High prevalence of venous reflux in C0–C1 (14.2%, 17.0% for right and left leg respectively) was also identified.
**Conclusion:** Examination of CVD patient with duplex ultrasound should be performed to identify etiology of chronic venous disease particularly in C0–C1 patient with symptom of leg discomfort.

**Keywords:** venous reflux, doppler duplex, chronic venous disease, vein consult program consortium Thailand

## PP-334

### Prevalence of Chronic Venous Disease: The Vein Consult Program Consortium Thailand

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**Objectives:** To determine the prevalence of chronic venous disease (CVD) in a hospital setting in Thailand.
**Methods:** The Vein Consult Program Consortium Thailand organized through epidemiological surveys, the primary diagnosis of CVD as symptom-based and classification of CVD based on clinical severity, etiology or cause, anatomy and pathophysiology (CEAP class) between January 2011 and September 2013. The Doppler duplex ultrasound investigation was used for diagnosis confirmation. Patients above 18 years old were screened at surgery clinics from 8 major hospitals nationwide representing geographical setting of Thailand. A cross-sectional analysis based on descriptive statistics was performed.
**Results:** Expected 1,500 patients with leg symptoms shall be screened with demographic and clinical characteristics, preliminary diagnosis based on CEAP class and Doppler duplex confirmation shall be presented. Interim analysis showed a prevalence of CVD of 39.8% in patients with leg symptoms complaints based on primary diagnosis.
**Conclusions:** The prevalence of CVD in Thailand could be as high as 1 in 3 patients seeking remedy for leg discomfort symptoms at the surgery outpatient clinics. Full VCP Thailand results are expected.

**Keywords:** chronic venous disease, vein consult program consortium Thailand, prevalence

## PP-335

### Management of Thrombosed Venous Aneurysms

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**Introduction:** Primary venous aneurysms are known to be rare. They may cause serious complications, if they remain undiagnosed or untreated. The purpose of this study was to review our experience in the diagnosis and the management of primary thrombosed venous aneurysms.
**Material-Methods:** Eleven patients with thrombosed venous aneurysm, who had undergone operation in our Departments, during the period from the beginning of May 2005 to the end of June 2013, were included in this study. Diagnosis was confirmed with color flow duplex imaging in all patients.
**Results:** Our patients consisted of five females and six males, ranging in age from 20 to 65 years with a mean age of 38.7 years. The localizations of the aneurysms were the proximal greater saphenous vein in six cases, popliteal vein in two, cephalic vein in one, lesser saphenous vein in one, and external jugular vein in one. Total aneurismal excision was performed in all cases. Venous continuity was found unnecessary in nine patients. In the remaining two patients with popliteal vein aneurysm, venous continuity was achieved with end-to-end anastomosis. Both venous repairs were found to be patent at subsequent follow-up.
**Conclusion:** Symptomatic venous aneurysms and presence of complications, such as deep venous thrombosis, thrombophlebitis, pulmonary embolism, rupture and adjacent nerve compression, are generally considered indications for operation. However, these complications may also develop at any unknown time in patients with asymptomatic venous aneurysm. Therefore, we suggest that timely surgical management should be performed to prevent potentially dangerous complications in all cases irrespective of symptom. Since the aneurismal dilatation is filled with thrombi, protective measurements should be taken during surgical manipulations of thrombosed venous aneurysms.

**Keywords:** venous aneurysm, thrombosis

## PP-336

# The Characteristics of Post-Operative Deep Vein Thrombosis in Kidney Transplant Recipients—Difference from Other Type of Surgery

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**Background:** Deep vein thrombosis (DVT) is a severe and common complication that occurs after a major operation. Despite the commonality of DVT, there is limited data on the incidence and characteristics of DVT after kidney transplantation (KT). Further exacerbating the limitations of the existing literature is that most studies have been retrospective in design and were conducted in Western countries. The aim of this study was to evaluate the incidence of lower extremity DVT with mechanical thromboprophylaxis within 1 year of KT in Korean.

**Methods:** A total of 399 consecutive patients who underwent KT were included. The frequency of DVT during the first year after KT was evaluated using serial color duplex ultrasound on postoperative days 1 week, 2 week, 4 week, 3 month, 6 month, and 12 month.

**Results:** DVT occurred in 18 patients (4.5%) during this period. All except one DVT were asymptomatic and detected routine scheduled color duplex ultrasound. The incidence of DVT within 1 week is only 22.2% of total DVT and more than a half of DVT occurred on calf vein.

**Conclusion:** Compared with DVT occurred after other type of major surgery, the characteristics of DVT in KT recipients were lower incidence, mild symptoms, and late onset of DVT. These findings suggest that different and longer prophylaxis is required to prevent DVT in KT recipient.

**Keywords:** deep vein thrombosis, incidence, kidney transplant recipient

## PP-337

# Radiofrequency Ablation of Great Saphenous Vein in Elderly Patient with Co-Morbid Diseases

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An 86 year old male patient with hypertension, Parkinsonism, benign prostate hyperplasia, cataract (with no vision in the left eye) and chronic obstructive pulmonary disease had a history of coronary bypass surgery in two veins due to anterior myocardial infarction one year ago. Presenting pain and feeling of paresthesia below the knee in his left leg, the patient noted that he fell twice due to sensation of heaviness in his legs. Previously using compressions

**Table 1**

| No | Age | Sex | Type of donor | No of KT | Side of KT | Side of DVT | Location | Onset | Symptom |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 41 | Male | Live | 2 | Right | Right | Popliteal vein | 4 week | Asymptomatic |
| 2 | 53 | Male | Live | 1 | Left | Right | Common femoral vein | 2 week | Asymptomatic |
| 3 | 55 | Female | Live | 1 | Left | Right | Common iliac vein | 2 day | Aymptomatic |
| 4 | 51 | Male | Live | 1 | Left | Left | Popliteal vein | 3 month | Asymptomatic |
| 5 | 49 | Female | Live | 1 | Left | Both | Calf vein | 2 week | Asymptomatic |
| 6 | 47 | Male | Deceased | 2 | Right | Right | Calf vein | 3 month | Asymptomatic |
| 7 | 54 | Male | Live | 2 | Right | Left | Calf vein | 4 week | Asymptomatic |
| 8 | 47 | Female | Deceased | 1 | Left | Right | Calf vein | 3 month | Asymptomatic |
| 9 | 55 | Male | Live | 1 | Left | Right | Calf vein | 1 week | Asymptomatic |
| 10 | 49 | Female | Live | 1 | Left | Left | Calf vein | 4 week | Asymptomatic |
| 11 | 53 | Male | Live | 1 | Left | Right | Peroneal vein | 2 week | Asymptomatic |
| 12 | 56 | Female | Live | 1 | Left | Both | Calf vein | 1 week | Asymptomatic |
| 13 | 55 | Female | Deceased | 1 | Left | Left | Calf vein | 4 week | Asymptomatic |
| 14 | 54 | Male | Live | 3 | Left | Right | Calf vein | 2 week | Asymptomatic |
| 15 | 65 | Female | Deceased | 1 | Left | Left | Calf vein | 2 week | Asymptomatic |
| 16 | 61 | Female | Deceased | 1 | Left | Left | Popliteal vein | 3 month | Asymptomatic |
| 17 | 52 | Male | Live | 1 | Left | Left | Posterior vein | 1 week | Asymptomatic |
| 18 | 46 | Male | Live | 1 | Left | Left | Calf vein | 2 week | Asymptomatic |

*Clinical details in 18 patients with deep vein thrombosis following kidney transplantation*

and venoprotective medication for two years, the patient also received physiotherapy but presented to our clinic unable to recover from complaints. His physical examination revealed varicose dilatations in left leg. Pigmentation and recovered venous ulcer scar were present on medial malleolus in left leg. Patient was classed as grade 4 according to CEAP Classification. Along with high output reflux through valsalva in sapheno-femoral junction, sapheno-femoral junction saphenous diameter was measured as 8 mm, andupper left knee saphenous diameter was measured as 5.6 mm. Due to the fact thatdeficiency was not present in superficial femoral vein and popliteal vein, the patient was taken to endovenous ablation program. Tumescent anesthesia was administered throughout saphenous vein trace to be ablazed. Saphenous vein segment of 38cm was ablated by applying 40 watt-power on each centimeter by using radiofrequency ablation catheter (ClosureFast®). The patient did not have complaints of pain and sensation of heaviness in legs in postoperative 10th day, 1st month, 3rd month, and 6th month check-ups.

Endovenous ablation is a procedure that increases the quality of life and comfort in elderly patients with minimal pain and that provide their adaptation to life immediately. Rather than such procedures as standard surgery and foam therapy, radiofrequency catheter procedures prove to be more successful in patients from all age groups.

**Keywords:** radiofrequency ablation, catheter ablation, venous insufficiency

## PP-338

## Application of Radiofrequency Ablation Procedure on Morbid Obese Patient with Venous Ulcer and Large Saphenous Vein

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Our case that had venous disease for about 14 years with venous ulcers which occasionally recur and then recover, and with venous disease according to clinically, etiologically, and anatomo-pathologically conducted classification (CEAP = 5) was using class II (32 mmHg) compression stockings and venoprotective medicine therapy for about 3 years. In addition, our patient had such co-morbid factors as lymphedema, congestive heart failure (left ventricular ejection fraction in echocardiography conducted in our hospital: 40%) hypertension (patient was using angiotensin receptor antagonist and blood pressure was regulated), type 2 diabetes mellitus and morbid obesity (174 kg, BMI:60.2 kg/sqm). Fasting blood glucose level of our patient was approximately 178mg/dl, and in addition, our patient whose HbA1C value was measured to be 7.3 mg/dl had a history of smoking half a pack of cigarettes daily for 6 years. With a history of the excision surgery of varicose cluster twice in the year 2000, the patient had high output reflux throughout the entire valsalva in bilateral saphenofemoral junction revealed by Doppler USG. A failure was not present ing femoral vein and popliteal vein. Right leg upper knee saphenous diameter of the patient was 12 mm, saphenous diameter measured in right leg sapheno-femoral junction was 25.2 mm, left leg upper knee saphenous diameter was 15 mm, and saphenous diameter measured in left leg sapheno-femoral junction was 27.4 mm. Following the completion of the consultation with relevant departments, the patient was taken to surgery along with the memory from anesthesiology noting operability. The patient was taken to operation first for the right leg. A sheath through which Radiofrequency Ablation catheter (ClosureFast)® would move was placed from 58 cm on right lower knee.

**Keywords:** radiofrequency ablation, venous

## PP-339

## Comparison of Post-Operative Pain and Early Quality of Life After Radiofrequency Ablation and Endovenous Laser Ablation using 1470 nm Diode Laser for the Treatment of Primary Great Saphenous Vein Reflux

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**Aim:** Endovenous ablation techniques are gaining popularity in the treatment of varicose veins. The aim of this study was to compare effectiveness the post-operative pain profiles and early clinical benefits of segmental RFA and endovenous laser ablation (EVLA) using an 1470 nm diode laser with radial tip fibre.
**Materials and Methods:** A prospective study of patients undergoing primary surgery for incompetent great saphenous veins (GSV) with EVLA or segmental RFA under tumescent anesthesia in a single centre was carried out. 70 patients with unilateral GSV incompetence were treated with either segmental RFA or EVLA (1470 nm diode laser with radial tip fibre). Linear endovenous energy density (LEED) was between 50–70 J/cm and wattage is mainly 12 W. Post-operative pain was recorded using visual analogue scales and results for each group were compared.
**Results:** In this study, 35 limbs were treated with EVLA and 35 with segmental RFA alone. Pain scores were significantly lower in the RFA group on days 1–3 ($P < 0.05$) but after first three days there was no significant difference. Analgesic use was also lower on days 1–3 in the segmental RFA group, as were scores for

activity and mobility on days 1–3 (P <0.05). Bruising was reduced on days 1–3 but this was not significant (P >0.05). The lower postoperative pain score was not associated with earlier return to activities (P >0.05) or work resumtion (P >0.05). Early vein occlusion rate was 100% for both groups at 1 month. No heat-induced thombosis occurred in the EVLA or RFA group.
**Conclusion:** 1470 nm EVLA and RFA are both effective and safe endovenous ablation techniques. Segmental RFA appears to have a favourable post-operative pain profile compared with EVLA but this advantage seems to be limited to the first 3 days after the procedure. LEED below 50 J/cm and wattage 6–8 W might improve EVLA outcomes.

**Keywords:** venous insufficiency, endovenous laser ablation, radiofrequency ablation

## PP-340

### Investigation of Frequency of Vascular Diseases in Northern and Southern Geographical Areas of Shiraz (Those Who Have Been Reported to 115 Emergency Services)

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**Introduction:** Urban society hosts many cultural, economical and social differences. Social, economic and cultural conditions in the area of dwelling of a family may be a cause of high-risk behavior and high frequency of specific diseases.
**Method:** At the beginning, emergency teams each consisting of two trained technicians and each equipped with one vehicle were used. Two of the teams were deployed to south shiraz while the other two were deployed to the northeast. These teams were commissioned to transfer patients to nearest hospital after receiving emergency calls. Those the received summary treatment were not included in our study.
**Results:** The only cause of emergency calls for which women were more the actuators was suicide. In both northern and southern areas, accident and poisoning happened mostly to those between 18 and 27. Among areas, the frequency was higher for northern areas than for the southern. In northern areas of shiraz, addictive drug abuse was more frequent in men while non-addictive drug abuse was more frequent in women.

In southern areas of shiraz, most incidents of poisoning and drug abuse in both sexes were of addictive type. We divided our sample in each area into age groups of 18–28, 28–37, 38–47, 48–57, 58–67 and 68–77. In both northern and southern areas, the highest rates of poisoning belonged to 18–27 age groups and the most frequent cause of emergency calls related to 48–57 age groups was heart condition.
**Conclusion:** It could be concluded that more attention should be allocated to equipping medical centers according to causes of medical conditions and type of illnesses rife in each area. Experts in toxicologists should be employed in centers where such occurrences are to be expected to reduce the current mortality rates.

**Keywords:** vascular diseases, geographical areas, emergency services

## PP-341

### Primary Aneurysm of the Greater Saphenous Vein

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Primary venous aneurysm is a rare vascular abnormality of the venous system.In this case we want report a fourty five years old male patient with proximal greater saphenous vein aneurysm (7.5 cm diameter). Vein was containing thrombus material to its Wall and extending to saphenofemoral junction. This type of aneurysm should be treated surgically because of the thromboembolism risk.

**Keywords:** vein aneurysm, thrombosis, saphenous vein

## PP-342

### Less Invasive Approaches to Surgical Varicose Veins Therapy

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Varicose veins are very common disease in the superficial veins of the legs. Venography, CT-venography, ultrasonography are widely accepted as their diagnostic approaches. Stripping operation under general or lumber anesthesia is performed for their treatment. CT-venography provides a more comprehensive view of complex varicose veins. Varicose veins exist deeply inside fat and CT-venography allows surgeons to have an overview of them. Through using 3D-CT scans, the patient and surgeon have a more comprehensive way to see the disease. It shows all aspects of varicose veins that are important to operate on and decide the incision sites. However venography and CT-venography use the contrast media, and its allergic reactions sometimes occur. Stripping operation under general or lumber anesthesia performed as treatment of varicose veins. The mean time of stripping operation under general or lumber anesthesia is more than 1 hour and it needs hospitalization. These become considerable responsibility to patients. We applied stripping operation under a local anesthesia to 83 patients (113 limbs) and their mean operating time was 24 minutes. We

underwent 3D-CT scans without using contrast media as a diagnostic procedure and stripping operation under a local anesthesia as a less invasive surgery. 3D-CT scans without contrast media provide excellent images better than CT-venography and stripping operation under a local anesthesia allowed a day-return surgery. These less invasive diagnostic and surgical approaches lead to the great advantage to varicose veins therapy at the out-patient clinic. We showed the great advantage approaches of 3D-CT scans without using contrast media and stripping operation under a local anesthesia.

**Keywords:** varicose veins, 3D-CT scans without using contrast media, stripping operation, local anesthesia, less invasive

## PP-343

### Predictive Factors of Pulmonary Embolism Combined with Lower Extremity Deep Vein Thrombosis

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**Aim:** Pulmonary embolism (PE) most commonly results from lower extremity deep vein thrombosis (DVT) and PE is a potentially life-threatening. We investigated predictive factors of PE combined with DVT in our hospital.
**Material-Methods:** From January 2010 to December 2012, 227 patients were diagnosed lower extremity DVT with or without PE. We retrospectively reviewed the medical records of these patients. Characteristics of patients, details of DVT lesions and laboratory findings associated with hypercoagulability were analyzed as risk factors for PE combined with DVT.
**Results:** 150 patients were diagnosed lower extremity DVT without PE and 77 patients were diagnosed lower extremity DVT with PE. The mean age of patients was 66.54 ± 12.08 in DVT without PE, 66.12 ± 14.39 in DVT with PE (P = 0.815). Any laboratory findings associated with hypercoagulability were not statistically different between two groups. Univariate analysis revealed thrombosis at right side (P = 0.008) as predictive factors of PE combined with DVT. In multivariate logistic regression analysis, thrombosis at right side also retained statistically significance for PE combined with DVT (OR = 2.207, 95% CI 1.233-3.948, P = 0.008)
**Conclusions:** The results of our study suggest that thrombosis at right side is useful independent indicators of PE combined with DVT.

**Keywords:** pulmonary embolism, deep vein thrombosis, predictive factors

## PP-344

### The Effect of Radial Fibre Design on Postoperative Pain and Bruising After EVLA: Two Rings vs One Ring

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**Aim:** Major side effects after endovenous laser ablation (EVLA) are pain and bruising. Radial tip fiber emits laser energy 360°-radially and thereby provide for a homogeneous impact on the inner vein wall leading to even, effective and sustained closure of the vein. The objective of this study is to compare early outcome after EVLA with 1470 nm Diode laser using one or two rings fibres.
**Method:** 60 consecutive patients with an incompetent GSV were treated by EVLA. The patients were randomized in two groups. In 30 patients (Group A) one-ring radial fiber and in 30 patients (Group B) two-ring radial fiber was used for EVLA with a 1470 nm Diode laser. All patients were re-examined after 3, 7 and 30 days clinically and by duplex for complications and occlusion in the treated vein segment.
**Results:** In Group A the mean LEED was 62 J/cm and in Group B 47 J/cm. In both groups occlusion of the treated veins was achieved for all patients. The modified CEAP clinical score improved in Group A from 2.8 to 1.1 and in Group B from 3.0 to 0.8. The mean pain score on VAS from 0 to 10 during day 2 to day 10 was 1.2 in Group A and 1.0 in Group B. At this time patients in Group A took a mean of 3.4 and in Group B 1.7 analgetic tablets. Ecchymoses were rare in both groups (4 in Group A, 7 in Group B).
**Conclusion:** The Radial two-ring fiber splits the laser power into two phases and in this way energy density can be reduced at an unchanged power level which might lead to a more homogeneous radiation within the vein. This new design of the radial two ring provides significantly less postoperative pain and analgesic drug consumption.

**Keywords:** endovenous laser ablation, radial fiber, pain, bruising

## PP-345

### Jugular and Subclavian Vein Thrombosis After Permanent Pacemaker Implantation

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Venous thrombosis can be seen after implantation of cardiac pacemakers and seen in the early period (first 6 months). In our case, In our case, a 71-year-old female patient complaining of right neck swelling, pain and tenderness was admitted to our

**Figure 1**

hospital. In the patient's medical history, the pacemacer installed in the left subclavian vein at outside center. Carotid Doppler ultrasonography showed an acute thrombus in the proximal part of the left subclavian vein and left internal jugular vein. In our patient received medical treatment with low molecular weight heparin and warfarin. Thrombotic occlusion of the juguler or/and subclavian veins due to transvenous endocardial pacing electrodes is an extremely rare occurrence. Early diagnosis and treatment are very important.

**Keywords:** thrombosis, vein, pacemaker

## PP-346

## Permanent Closure with Minimal Complications After EVLA: What are Optimal Power, LEED and EFE Settings?

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**Aim:** Endovenous laser ablation (EVLA) is an efficient method to treat insufficient great saphenous veins (GSV) with high occlusion rates. As effectiveness of EVLA does not only depend on power but also on EFE and LEED, the most effective energy and power setting with the lowest side-effect rates should be investigated. The aim of this study was to demonstrate the outcome and side-effects after EVLA with lower power and LEED settings.

**Methods:** Non-randomized, prospective study including 60 limbs of 60 patients with a USG verified incompetent GSV. EVLA was performed with a 1470 nm diode laser and a radial fiber. In the same session all insufficient tributaries were treated by phlebectomy. Tumescent anaesthesia was applied perivenously. EVLA was carried out in a continuous mode with a power of 8 W. Compression stockings were applied for 3 months. Postinterventional checkups took place 3,30 days and 1 year after the procedure.

**Results:** Five patients were lost to follow-up. The average LEED and EFE were 48.7 J/cm and 21.6 J/cm², respectively. At the six month follow-up all treated veins remained occluded and no new re?ux in the treated segments occurred. No severe complications such as deep venous thrombosis could be detected. In one patient at 30 days local paresthesia occurred in the region of EVLA. 56.4% of patients did not have any pain after the treatment and 67.3% did not take any analgesic tablets at any time after the procedure, and patients returned to normal activities in 1.6 ± 1.8 days. Postoperative ecchymoses in the GSV track was observed in 5.9% of limbs.

**Conclusion:** Radial fiber and 1470 nm diode laser might allow lower power, LEED and EFE settings in EVLA. LEED 40–50J/cm and EFE 20–30 J/cm² are associated with low side-effect rates and the procedure could be performed safely and effectively between these limits.

**Keywords:** endovenous laser ablation, venous insufficiency, saphenous vein

## PP-347

## Treatment of Advanced Varicose Disease (C4-6) with Classical Surgery

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**Aim:** Patients with CEAP classification of 4–6 were operated with the classical variceal surgery method. The results were evaluated retrospectively accompanied with the literature in this study.

**Materials-Methods:** Seventy-five patients (46 males, 29 females; mean age 42; range 20–70) had operation of total saphenous stripping for a total of 83 lower extremities. All patients were evaluated with venous doppler ultrasonography. Venous digital anjiography was done in three patients with venous ulcer. The mean follow up period was 3 months–2 years.

**Results:** Six patients (8%) had mild neurological sensory loss, two patients had inguinal infection requiring debridement, three patients had inguinal infection requiring medical therapy (totally 6%), one patient (1.3%) had deep vein thrombosis. Sclerotherapy was applied in a symptomatic patient with recurrent varicose veins. One patient was treated for the occurence of late dorsal foot edema.

**Conclusion:** The success of the surgery for the advanced varicose disease depends on the retrieval of all varicose veins, the prevention of the occurence of the cosmetic problems, the

prevention of the complications, the decrement of the complications and that the prevention of the occurence of varicose veins. We think that better results could be obtained by the good evaluation of the physical examination and the clinical findings of patients, preoperative venous doppler ultrasonography, the display of the venous insufficiencies by venous digital angiography in suspicious cases and that taking the decision for the operation under these conditions.

**Keywords:** advanced varicose disease, classical varicose surgery, results of stripping

## PP-348

### Does Tumescent Solution Delivery Displace the Fiber Position in Endovenous Laser Ablation Procedure?

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**Aim:** This study evaluated the direction and the distance of the laser fiber migration after tumescent solution delivery in patients with primary varicose veins due to great saphenous vein (GSV) reflux who were treated with 1470 nm diode laser and 600 μm core radial fiber through a prospective nonrandomized study.
**Methods:** From December 15, 2011 to May 10, 2012; 36 endovenous laser ablation procedures were performed in 30 patients. The distances from the fiber tip to superficial epigastric vein (SEV) and to saphenofemoral junction (SFJ) were measured with ultrasound before and after tumescent solution delivery.
**Results:** After placing the laser fiber, the distances from SFJ and SEV to fiber tip were respectively 2.02 ± 0.21 cm and 2.10 ± 0.29 cm. After tumescent solution, the distances from SFJ and SEV to fiber tip were respectively 2.25 ± 0.35 cm and 2.30 ± 0.39 cm. In 33 limbs (91.6%) fiber tip was moved towards the distal side, and in 3 limbs (8.3%) it was moved towards the proximal side. In proximally migrated 3 limbs, according to the measurements from fiber tip to SFJ, distance of migration were detected as 0.7, 0.6 and 0.3 cm. In the same patients, according to the measurements from fiber tip to SEV, the distance of migration were detected as 0.6, 0.6, and 0.3 cm.
**Conclusion:** The shift direction of the laser fiber is found to be towards the distal side of the GSV. Considering the maximum shift distances, if the laser fiber is placed 2 cm distally from SFJ or SEV before tumescent solution delivery, the migration of the laser fiber doesn't cause any complication.

**Keywords:** endovenous laser ablation, tumescent solution delivery, fiber position

## PP-349

### Acute Thrombosis of the Inferior Vena Cava and Lower Extremity in a Patients with Testicular Germ-Cell Cancer

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**Aim:** Malignant disease have been associated with a number of vascular complications involving venous thrombosis. We report a case with testicular germ-cell tumor (GCT) developing massive deep venous thrombosis (DVT).
**Material-Method:** A 20-year-old man admitted emergency department of our hospital on January 18, 2013. He had pain, and edema in the left lower extremity.
**Results:** Venous doppler ultrasonography detected thrombosis in the deep venous system of left lower extremity, and inferior vena cava and detected paracaval lymphadenopathy. Scrotal ultrasonography located a right testicular tumor. Anticoagulan therapy with low-molecular-weight heparin (LMWH) was immediately started. Orchiectomy was performed in patient by urologist. Following orchiectomy, the started chemotherapy according to BEP protocol (cisplatin 20 mg/m$^2$ intravenously on day 1–5; bleomycin 30 IU intravenously on day 1, 8 and 15; etoposide 100 mg/m2 intravenously on days 1–5). The patient symtoms, particularly pain and edema continued to improve in left lower extremity. He readmitted to our clinic on April 14, 2013. He had in the right lower extremity venous thrombosis. Anticoagulant treatment with LMWH was continued. Then the third cycle of chemotherapy was applied. Final restaging after completion of chemotherapy revealed regression of metastases and regression of venous thrombosis at the right lower extremity and inferior vena cava. Anticoagulant therapy was charged to oral warfarin as a permanent medication.
**Conclusions:** Provider of chemotherapy must be aware of arterial thrombosis even in young patients with testicular cancer.

**Keywords:** venous thrombosis, lower extremity, testicular germ-cell cancer

## PP-350

### Popliteal Venous Aneurysm: A Case Report with Literature Review

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**Purpose:** Although popliteal venous aneurysms (PVAs) are uncommon, they are also potentially fatal because they can cause

**Venography**

a pulmonary embolism. With the widespread use of venous duplex scanning, PVAs are increasingly found in patients with deep or uperficial vein insufficiency. We would like to present an experience of PVA treatment with a literature review.

**Case Presentation:** 47-year-old man had Lt. popliteal vein aneurysm that was found incidentally on ultrasound assessment for varicose veins. The patient had both calf pain during month neither thromboembolic complications nor trauma history. The diagnosis was confirmed on a venography and the 4.3 × 3.1cm fusiform aneurysm was treated at open surgery via a posterior approach with aneurysm resection and autologous graft bypass which was harvested from the great saphenous vein of the other side. At 5th day of post operation, the patient was checked by ultrasound assessment. The bypass graft showed good flow with normal reflux time. No problems occurred during 6 months after discharge.

**Discussion:** Popliteal venous aneurysms are rare, with less than 120 documented cases. Although most documented cases report a strong association with pulmonary embolism(70%–80% of cases), other presentations include as well as pain in the popliteal fossa and post-thrombotic syndrome. Treatment depends on the size and symptoms associated with the aneurysm. Small aneurysms carry a low risk of emboli and can be managed by anticoagulation and duplex surveillance. Large aneurysms are associated with an 80% chance of pulmonary emboli formation despite of anticoagulation in some series. Surgical excision of the aneurysm is advocated as the mainstay of treatment for these larger aneurysms (with or without venous reconstruction)

**Conclusion:** Popliteal venous aneurysm are a rare but ill-defined risk of pulmonary embolism and death if untreated, we recommend early surgical repair

**Keywords:** popliteal venous aneurysm, popliteal vein aneurysm, pulmonary embolism, duplex ultrasonography, venography

## PP-351

## A Comparison of Three Tumescent Delivery Systems in Endovenous Laser Ablation of the Great Saphenous Vein

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**Objective:** Different systems for delivering tumescent solution exist in endovenous laser ablation (EVLA). This study evaluated three different tumescent delivery systems in patients with primary varicose veins due to great saphenous vein (GSV) reflux who were treated with EVLA.

**Method:** In this prospective nonrandomized study, 60 patients with isolated GSV varicose veins were divided into three groups. All patients received EVLA treatment. Three different tumescent solution delivery systems were used. Systems consisted of a needle and a syringe in Group 1, a needle connected to a infusion bag system in Group 2 and a peristaltic infltration pump in Group 3.

**Results:** Tumescent delivery durations were in Group 1: 6, 56 S.D. 1, 18 min, Group 2: 6, 05 S.D. 2, 19 min and Group 3: 5, 19 S.D.1, 15 min. (p 0, 014) In the outcomes of the study there were no significant difference between groups.

**Conclusion:** Although peristaltic pump systems might provide shorter tumescent delivery durations without hand fatique, shorter duration doesn't have any practical importance (about 1 minute and also it is not cost effective. For delivering tumescent solutions in EVLA procedures, there was no major superiority between systems.

**Keywords:** endovenous laser ablation, tumescent solution, peristaltic infiltration pump, infiltrating bag system

## PP-352

## A New Approach to Deep Vein Thrombosis; Invasive Rotational Thrombectomy System Usage and Short-Term Results

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A new method "invasive rotational thrombectomy" used by our clinic, in two cases, who had acute and subacute deep vein thrombosis (DVT) and short term results evaluated.

**Case I:** 45 years old female, referred to our clinic complaining of swelling at bilateral lower extremities. At physical examination, rush, pain and tenderness estabilished at bilateral lower extremities, which consistent at left side. After haematologic and doppler

ultrasound tests, acute DVT diagnosis became definite. Ultrasound stated that, acute thrombus material existent at bilateral popliteal, deep femoral veins, bilateral common iliac veins and vena cava inferior. All of these veins completely occluded with thrombus. At angiography laboratory, rotational thrombectomy applied to both extremities recanalization and flow achieved after procedure.

**Case II:** 40 years old male, referred to our clinic complaints of rush and sweeling at left lower extremity. All DVT symptoms seen at physical examination. Ultrasound showed, superficial femoral and popliteal veins containing subacute thrombus material, and near total occlusion at these veins. Rotational thrombectomy applied at angiography laboratory, both superficial femoral vein and popliteal vein totally opened after procedure.

In conclusion, invasive rotational thrombectomy which is a new method in DVT treatment, succesfully applied by our clinic. Early results observed to be satisfying and with medical therapy, it's an effective and succesful method.

**Keywords:** acute and subacute dvt, treatment, invasive rotational thrombectomy

## PP-353

### Endovenous Laser Ablation and Transilluminated Vein Excision: Combined Use in Varicose Disease

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Both the endovenous laser ablation (EVLA) and transilluminated vein excision (TIVE) gained significant position in varicose vein treatment recently. The target veins during procedures are different–the main venous trunks at EVLA, and varices at TIVE. Despite this there are very limited reports about the combined use of both techniques.

We have performed 16 combined procedures using both EVLA and TIVE. The mean age of the patients was 39, 4 years, 13 of them was women. The distribution by CEAP (by limb count) was the following C2–5, C3–12, C4–3, C5–1, and C6–2 limbs. 7 of the patients had only one leg treated (4 of them both GSV and SSV). From 16 patients 8 had one or two side GSV disease, 7 had different combination of GSV and SSV lesions, and only 1 had isolated one side SSV disease. Totally 22 GSV and 9 SSV were coagulated utilizing 980 nm laser (8–10 J/sm/mm for GSV and 8 J/sm/mm for SSV). Treatment of GSV included obligatory crossectomy, despite SSV high ligation was performed in only 3 legs (since SPJ anomalies or large varices in this site were observed). All the procedures were performed under spinal anesthesia. Previously marked perforator veins were ligated through separate incisions. 1–8 small incisions were performed per leg to introduce TIVE instruments. The duration of operations was 50–170 min (mean 104, 8 min). Ambulation started from 2 to 12 hours. All the patients discharged the next day. 3 of patients needed additional sclerotherapy later. 14 of the patients estimated the cosmetic results as excellent and good.So, we advocate the combined use of EVLA and TIVE to improve the varicose veins treatment results.

**Keywords:** trivex, endovenous laser

## PP-354

### Deep Vein Thrombosis of Left Arm Due to Mass at Neck: A Case Report

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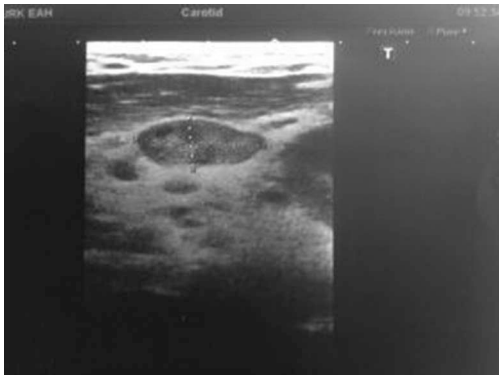
**Introduction:** At this case report we aimed to report 45 year old female patient with left upper extremity deep vein thrombosis due to lymphadenopathy at left third servical region.

**Case:** 45 year old female patient was admitted another clinic with swelling and pain at left upper extremity. Thrombosis of left subclavian and internal jugular veins were revealed with duplex ultrasonography and anticoagulation therapy was administered. Patient admitted to our clinic after discharge by her own will. At left lateral side of the neck 10 × 15 cm mass was visible and her left arm circumference was 1 cm wider than right arm. Venous duplex ultrasonography superficial tissue ultrasonography was planned. Multiple lymph nodes, largest with 20 mm longitudinal length, and thrombosis of both internal jugular and subclavian veins were detected (Picture 1). Superficial tissue ultrasonography also identified compression of internal jugular vein by lymphadenopathy at left servical region. Antocoagulation theraphy was administered and patient was consulted to oncology and internal medicine. Patient's swelling and pain regressed with theraphy.

**Figure 1**




*Compression of internal jugular vein by lymphadenopathy*

**Discussion:** upper extremity deep vein thrombosis is a rare case and usually due to a primary disease. Most common causes include central vein cathetherization and malignency. Compression effect caused by mass at left lateral neck is the main cause left arm deep vein thrombosis. Upper extremity deep vein thrombosis responds perfectly to medical theraphy. Our patient's swelling and pain completely regressed with anticoagulation theraphy. We suggest that any patient with upper extremity thrombosis must be screened for occult mas sor malignancy.

**Keywords:** deep vein thrombosis, upper extremity, mass

## PP-355

### A Prospective Comparison of 940 nm Bare-Tip Laser Fibre with 1470 nm Bare-Tip Fibre: The Treatment of the Great Saphenous Vein with Endovenous Laser Ablation

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**Objectives:** The aim of this study was to compare clinical and duplex ultrasonography results of treatment of the incompetent great saphenous vein (GSV) with two different wavelength endovenous laser ablation (EVLA) types (940 and 1470 nm, bare fibre).
**Materials-Methods:** Between June 2011 and December 2012, 200 consecutive patients (235 limbs) with an incompetent GSV were treated by EVLA.This patients were randomized into two groups.The first group were treated with bare-tip fibres and a 940 nm laser, the second group were treated with bare-tip fibres and a 1470 nm laser.Miniphlebectomies were also performed.All patients were re-examined after the 1, 7, 30day, 3rd and 6th month clinically for pain, ecchymosis, induration and paraesthesia and by duplex ultrasonography for the incompetence and recanalization of the treated GSV.
**Results:** Follow-up could be completed in all patients.Mean GSV diameters at saphenofemoral junction and knee levels were 10.6 S.D. 3.4 mm and 10.9 S.D. 3.9 mm, and 6.7 S.D 2.2 mm and 7.1 S.D. 1.9 mm respectively in groups 1 and 2. In all treated GSV's (group 1 and 2), occlusion with absence of reflux could be demonstrated after EVLA.The most common side effects were ecchymosis, induration and paraesthesia in both groups.In ecchymosis and paraesthesia there was no difference between the groups.The medial part of the thigh, such as withdrawal or palpable cord after EVLA treated vein segment extremity subcutaneous induration similar findings in group 1 and 2, 24 and 11 limbs ($p < 0.001$) was observed. Duration of pain, analgesia requirement and ecchymosis rates were similar between the two groups. In follow-up ultrasound evaluation revealed absence of recanalization in the treated GSV in all patients (group1 and 2).
**Conclusion:** In this prospective, randomized study comparing the 1470 nm bare-tip laser fiber with the 940 nm bare-tip laser fiber revealed that side effects such as pain, ecchymosis, and paresthesia were not statistically significant. Only the induration was less prominent with the 1470 nm bare-tip laser fiber, which was statistically significant. Follow-up ultrasound evaluation revealed totally occlusion of the treated GSV in both groups, after 6 months.

**Keywords:** endovenous laser ablation, bare-tip fibre, great saphenous vein incompetance

## PP-356

### Locally Wound-Care and Regional Four Bandage Compression Treatment for Un-Healing Venous Ulcers

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**Aim:** Treatment of chronic venous ulcers of the lower extremity is still an important difficulty. The treatment of chronic venous ulcer is surgery and/or conservative treatment which depends on the conditions. Despite the application of these treatments, un-healing venous ulcer is a frequent situation that diminishes the life quality of patients with concomitant psychological problems related to serious cosmetic deformities. By this recent study, we evaluated the results of compression therapy and locally wound-care for these unhealing venous ulcers.
**Study Plan:** We prefered cases presenting treatment resistant unhealing chronic venous ulcers with a medical history of unsuccessful subfascial perforator vein surgery and/or conservative treatment. Patients were treated with locally wound-care and regional four bandage compression. Bandages were changed in weekly

**Venous ulcus with complete healing after 6 weeks**

periods. We photographed ulcerous regions by each following weekend. All of our patient cures continued for four weeks. Complete layer healing and/or derogation of wound area were noted.
**Findings:** Between the dates of June 2011 and June 2013, we applied locally wound-care and regional four bandage compression treatment for forty patients. By the end of the first cure we observed complete layer healing in twenty-nine cases. In eleven cases, ulcerous wounds were depicted to become smaller at the end of their first cure. Second cures were started in this patients. In six cases from this group, patients presented a complete healing by the second cure. Two patients did not continue their treatment in the second cure. Three patients presented significant wound narrowing but not complete healing. Alternative treatments have been performed in this patients.
**Results:** Locally wound-care and regional four bandage compression treatment is a successful conservative treatment method which can be applied for unhealing venous ulcers after a prior completed and sufficient surgery treatment.

**Keywords:** chronic venous insufficiency, venous ulcus, locally wound-care, four bandage compression treatment

## PP-357

### Retained Laser Fiber During Endovenous Laser Ablation

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Bagcilar Research and Training Hospital

**Aim:** The laser fiber was retained in the great saphenous vein during endovenous laser ablation procedure. Herein, we describe how the fiber was extracted with minimized skin incisions.
**Case:** A 57 years old female patient was scheduled for an EVLA procedure for the venous reflux in her left great saphenous vein (GSV). The procedure was performed with spinal anesthesia. The ablation procedure was performed with 1470 nm radial laser using a pull-back system. The fiber broke after it was pulled for 3 cm. The fiber tip was palpated within GSV. Sequential skin incisions were performed and the vein was dissected from its surrounding tissues manually.
**Conclusion:** The EVLA procedures are usually safe but not without complications. Each part of the system must be strictly controlled before the procedure. In case of a retained fiber, stripping with a wire may not be possible but complete stripping can be achieved with minimal skin incisions manually.

**Figure 1.**

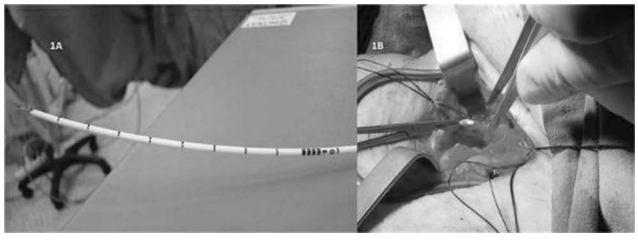


*Figure 1A. After the fiber was removed, the tip was found to retained in the vein. Figure 1B. The tip of the fiber was extracted at the proximal site of the vein.*

**Keywords:** EVLA, complication, retained fiber

## PP-358

### Superficial Femoral Vein Dysgenesis: CT Venography

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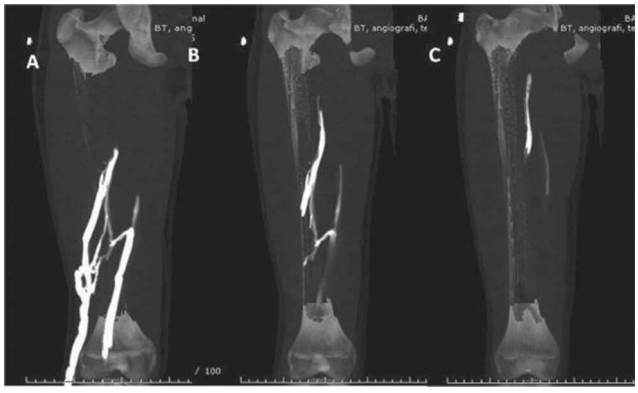
**Aim:** Lateral marginal vein (LMV) is a kind of persistent fetal vein that has failed to regress and is typically located along the lateral aspect of lower extremity. We present a case of LMV with lower extremity venous malformations which was diagnosed by detection of LMV in our clinic.
**Material-Methods:** A 17-year-old male patient was admitted to our out patient clinic with pain and multiple giant varicosities in his right leg. The patient was referred with an initial diagnosis of great saphenous vein and perforating vein insufficiency based on his venous duplex ultrasonography performed by a radiologist. Before the operation a duplex ultrasonography was performed by a vascular surgeon. The proximal part of the great saphenous vein was not visualized, and the superficial femoral vein diameter was quite small which arouse the suspicion of venous malformation. We tracked the dilated vein along the lateral aspect of lower extremity and LMV was detected. Computed tomographic venography revealed common venous malformations below the knee. The popliteal vein was continuous with LMV.
**Results:** The operation was cancelled and medical treatment was suggested with possible use of coin embolization in case of persistent symptoms.

**Lateral marginal vein and superficial femoral vein hypoplasia**



**Conclusion:** Venous system anomalies should be kept in mind in patients suffering from chronic venous insufficiency, especially in those with symptoms during young adulthood. Every vascular surgeon should be familiar with the use of Duplex Ultrasonography and should perform an assesment before the operation. Further studies such as CT or conventional venography may reveal anomalies in case of suspicion and may help to avoid inappropriate surgical interventions.

**Keywords:** venous hypoplasia, lateral marginal vein, CT angigraphy

## PP-359

## A Comparison of Early Results of Various Endovenous Ablation Catheters and Techniques

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**Objective:** The aim of the study to compare early postoperative complications, latter occlusion and recanalization rates of different endovenous ablation techniques in treatment of great saphenous vein (GSV) incompetence.

**Materials-Methods:** Retrospectively 472 patients who were treated with different endovenous ablation types analyzed. Four groups determined as 1470 nm wavelength diode laser; Group A (34.1%; n:161), 980 nm wavelength diode laser-Group B (20.1%; n:95), radiofrequency ablation (RFA) catheter-Group C (26.3%; n:124) and 1470 nm wavelength radial fiber-Group D (26.3%; n:124). Each GSV diameters of saphenofemoral junction (SFJ) and saphenopopliteal junction (SPJ) had been recorded at each group. Also length of ablation area and power used while ablation was recorded. For each patient venous clinical severity scores (VCSS) were noted at first week, at first month, at six month later and 1 year later.

**Results:** No procedure-related major complications (deep vein thrombosis (DVT), paraesthesia, pulmonary embolism, skin burns) were observed. There was no significant relation between the use of catheters and the occurrence of pain. Paraesthesia, ecchymoses and thrombophlebitis are most common at Group A and Group B ($p$ <0.05). VCSS were lower at RFA group but no statistical difference was detected.

**Conclusion:** Treatment of GSV by RFA and 1470 wavelength radial fibre more adequate then other ablation types.

**Keywords:** endovenous laser ablation, radiofrequency ablation, GSV

## PP-360

## Percutaneous Catheter Based Pharmaco-Mechanical Thrombolysis for Phlegmacio Cellulae Dolens

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**Background:** Treatment of acute deep venous thrombosis has differed from conventional medical theraphy to interventional procedures recently.We present a patient with bilateral deep venous thrombosis (DVT) with venous ischemia symptoms on right leg that we performed catheter directed thrombolysis.

**Method:** A 67 years-old woman with a recent pulmonary embolism, acute kidney failure and deep venous thrombosis story suffered bilateral lower extremity swelling and pain, more in the right leg. Venous Doppler ultrasonography showed thrombotic occlusion in bilateral external iliac veins and superficial femoral veins (SFV). Physical examination revealed severe swelling up to lumbal regions and right leg cyanosis with bullous formation. She was on warfarin theraphy with an INR level of 6.5. Other laboratory findings were Hb 6.6, Htc 20, BUN 55, andcreatinin 1.5. She was consulted with haematology, gastrology and nephrology departments to assess possibility of thrombolytic theraphy and contrast-induced nephropathy. Intervention was performed after Htc level was 25 and INR level was 1, 7 with eritrocyte suspansion and fresh frozen plasma theraphy. 9 F sheat insertion to popliteal vein under ultrasonographic guidance was performed under fluroscopy. Venographic images confirmed bilateral total occlusion of venous system. Initially, thrombus aspiration was performed with a mechanical thrombectomy device (8F Aspirex system). Acute thrombii were aspirated providing venous flow in SFV up to iliac veins. Another catheter with ultrasonographic waves (EKOS) was inserted inside vein lumen up to VCI for older thrombus. Afterwards, 9 F sheat was inserted at left popliteal vein.A long catheter with multi-holes was inserted up to VCI for thrombolysis. Pharmaco-mechanical thrombolysis was continued for 43 hours with a total dose of 96 mg tPA. Her pain resolved and swelling reduced.She was mobilized after removing the catheters and sheaths.

**Conclusion:** Acute deep venous thrombosis may be complicated with venous ischemia in cases with severe edema. We presented a patient we managed a progressive venous ischemia with two different pharmaco-mechanical thrombolytic devices for right leg but only catheter based thrombolysis on left leg.

**Keywords:** catheter based thrombolysis, phlegmacio cellulae dolens, deep venous thrombosis

## PP-361

# Percutaneous Catheter-Based Thrombolysis for Deep Venous Thrombosis After Endovascular Laser Ablation Procedure

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**Aim:** Deep venous thrombosis is a potential complication of endovenous laser ablation (EVLA) procedures for venous insufficiency. Although catheter tip is placed 1, 5–2 cm far away from superficial epigastric vein orifice meticulously, deep venous thrombosis (DVT) may still be seen. We present a patient who suffered DVT after EVLA and our management strategy.

**Method:** A 65 years old woman with venous insufficiency with a diameter of GSV about 13–12–10 mm respectively at the prejunctional area, mid-thigh and knee region was scheduled for EVLA procedure. GSV was ablated with 1470 nm laser with a radial fiber tip. She was discharged uneventfully the next day. She suffered right leg swelling and pain starting 10 days after the operation. Doppler ultrasonography revealed acute thrombosis inside superficial femoral vein and iliac veins. Interventional theraphy was planned. Popliteal venous sheat was inserted at prone position under ultrasonographic guidance in the flouroscopy room. Venography images confirmed venous thrombosis on SFV and iliac vein wall. A multi-holed long infusion catheter was inserted inside SFV up to vena cava inferior. She was taken to ward with tissue plasminogen activator infusion with a dosage of 1 mg/hour for 36 hours. Control venography images showed resolution of thrombotic material with a stenotic segment in the iliac region. Her symptoms revealed after the intervention. She was discharged with warfarin medication.

**Conclusion:** Acute deep venous thrombosis is a possible complication of EVLA procedures. Cathater-based thrombolysis is an effective treatment choice for acute thrombosis without a need for an additional special catheters.

**Keywords:** deep venous thrombosis, catheter based thrombolysis

## PP-362

# Catheter-Based Thrombolysis for Acute Deep Venous Thrombosis in Retrograde Fashion

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**Aim:** Catheter based thrombolysis is a promising alternative treatment strategy of acute deep venous thrombosis. Percutaneous approach is achieved routienely from popliteal vein. We present a patient we failed to catheterize the popliteal vein and our management strategy.

**Method:** A 60 years old woman with an operation history for left tibia fracture 2 months ago was admitted to our department with severe left leg swelling and pain starting one week ago. Bilateral venous ultrasonography revealed acute thrombotic occlusion in iliac vein, superficial femoral vein and vena saphenous manga. She was hospitalized with periferic heparin infusion theraphy. As her complaints did not resolve, percutaneous thrombolytic theraphy was planned. In prone position, popliteal vein was tried to puncuterd under ultrasonographic guidance, but as the patient was obese and severe edema existed, we failed to catheterize popliteal vein. We planned to use femoral vein for access. In supine position, left common femoral vein was catheterized. Two short sheats were inserted towards proximal and distal directions. Two long infusion catheters were inserted in antegrade fashion towards VCI and retrograde fashion towards superficial femoral vein. tPA infusion was given with a dose of 0, 5 mg/hours from each catheter. Control venography was obtained the next day showing resolution of thrombotic material. She was discharged with warfarin theraphy. Doppler ultrasonography after eight months revealed patent venous flow with no signs of venous thrombosis.

**Conclusion:** Catheter-based thrombosis is an effective treatment strategy for acute thrombosis. Venous catheter insertion may be obtained from common femoral vein in a retrograde fashion when popliteal insertion can not be achieved.

**Keywords:** deep venous thrombosis, catheter based thrombolysis

PP-363

# The Early and Late Effects of Calcium Dobesilate on Leg Wound Complications After Saphenous Vein Harvesting for Coronary Revascularization

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**Background:** The aim of this study was to determine effects of prophylactic use of calcium dobesilate on complications of saphenectomy after saphenous vein harvest for coronary artery bypass graft.

**Materials-Methods:** A total of consequtive 209 patients who underwent elective CABG were divided into two groups. Group 1 included 98 patients who received Calcium Dobesilate 2 × 500 mg for 3 months. Group 2 had 111 patients who did not recieve Calcium Dobesilate. Leg wound complications were analyzed in the postoperative first week, first and third month.

**Results:** The difference of diameter in the first and third month, the incidence of sellulitis in the first week and first month, and superficial wound infections in the first week were significantly lower in the group of patients treated with calcium dobesilate.

**Conclusion:** Our study showed that use of calcium dobesilate 2 × 500 mg during 3 months may decrease complications of saphenectomy after saphenous vein harvest in coronary artery bypass graft.

**Keywords: —**