at a rate of approximately 21%. The incidence of diabetes mellitus was significantly higher in the fem-pop group and appears to significantly affect graft patency and the need for another intervention, as 83% of patients with graft stenosis needing angioplasty were diabetic. Diabetes mellitus also seem to affect stent patency as 40% of patients who needed repeat angioplasty in the long SFA stent group had diabetes, however more significantly in the fem-pop population. There appears to be no obvious correlation between the type of blood thinner used and the maintenance of patency in the group with long SFA stents. Overall, 50% of patients with long SFA stents needed a second intervention to maintain primary patency while only 30% of patients who had fem-pop bypass needed another intervention to maintain patency of the conduit. It also apparent that majority of SFA occlusions in this audit occurred within the first 6 months of deployment.

OC3.11

Superficial Facial High Flow Vascular Malformations Treated by Onyx Embolization: Is There a Need for Surgery after Percutaneous Occlusion

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Background: Arteriovenous malformations (AVMs) and fistulas (AVFs) are rare vascular disorders, in which embolization is the first line treatment frequently associated to an adjunctive surgery for superficial and facial localizations. The aim of this study was to report our experience in embolization of high flow peripheral AVMs with onyx. **Method(s):** 5 women and 4 men were treated by percutaneous embolization with onyx, in our institute from January 2016 to June 2017 for superficial facial high flow vascular malformation. 3 patients were treated for acute bleeding and 6 patients for esthetic purpose. Patients were followed at 1, 3 and 12 months. Clinically symptoms, bleeding and esthetic improvement were assessed. **Result(s):** During this period we have embolized in our department 1 AVFs (Houdart type I) and 8 AVMs: 6 type ii and 2 type III (Houdart classification). Complete occlusion of the malformation in one session was achieved in 5 patients, and 1 patient needed a second session. 2 patients suffered from bruits which had totally disappeared immediately after embolization. Bleeding was controlled in all patients, and esthetic improvement was achieved at one month in 3 patients (labial AVM), and the 3 other at 3 months. None of our patients underwent surgery after embolization. No major complications were recorded. **Conclusion(s):** Onyx embolization for superficial facial high flow malformation is an effective and safe therapy, could be an option for first and only line treatment in non-complex lesions.

OC3.12

Surfacer® Inside-Out® Access Catheter System: Setting Back the Clock for Dialysis Patients?

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Background: Central venous occlusion is a serious cause of patient morbidity in hemodialysis patients which limits formation of upper extremity vascular access. The Surfacer® Inside-Out® Access Catheter System (Merit Medical, USA) is a device that aims to restore access to right atrium through occluded central veins. We review the first five patients treated with Surfacer® in GCC. **Method(s):** All patients were approved by a multi-disciplinary team. Utilizing right femoral vein approach, a 10 French sheath was advanced to the occlusion in SVC or right innominate vein (RIV) under fluoroscopy. The Surfacer® Catheter was advanced through the occlusion and the needle guidewire was externalized in the right supraclavicular region. A peel-away sheath was pulled into the central venous system over the externalized guidewire as the Surfacer device was retracted. Next, a tunnelled hemodialysis catheter was placed through the peel-away sheath into the SVC. **Result(s):** Inclusion criteria were RIV or SVC occlusion with patent right femoral and iliac veins. Patients with active infection or bleeding diathesis were excluded. All patients had history of multiple failed AV accesses and failed attempts at endovascular recanalization of the occlusion using conventional techniques. All had RIV occlusion and one additionally had a left innominate vein and superior vena cava occlusion. Technical success rate was 100%. One patient had minor post-procedure bleeding at the catheter site that stopped after suturing. The tunnelled catheter was converted to a HeRO Graft® (Merit Medical, USA) in two patients, after 10 and 188 days. In the remaining patients, their original catheter remained functional 220 days post-procedure. **Conclusion(s):** The Surfacer® Inside-Out® Access Catheter System allows access into the right atrium through occluded central veins to facilitate creation of long term arteriovenous access or convert femoral to jugular access and maintain viability of secondary veins.

OC3.13

Percutaneous Retrograde Access for Recanalization of Occluded Arteries in Thromboangiitis Obliterans (Buerger's Disease)

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Background: Thromboangiitis obliterans (TAO) or Buerger's disease is a non-atherosclerotic peripheral vascular disease, which affects mainly young male smokers before the age of 45, especially in low socioeconomic regions. The aim of the

study was to evaluate the technical success of the percutaneous retrograde access procedure after failed antegrad recanalization in Thromboangiitis Obliterans (Buerger's Disease) patients. **Method(s):** Thirteen consecutive patients (12 men, 1 women, mean age: 40.3 ± 5.6 years) and 14 arteries underwent retrograde puncture for recanalization with a diagnosis of TAO (Thromboangiitis Obliterans), between April 2015 and December 2018. After unsuccessful attempts using the antegrade approach, retrograde puncture were used under ultrasound and fluoroscopic guidance. Ipsilateral retrograde access was attempted in three patients with SFA (superficial femoral artery) in three patients with PTA (posterior tibial artery), in two patients with PEA (peroneal artery) and in five patients ATA (anterior tibial artery). The primary purpose of the study was to evaluate the technical success of the procedure in obtaining the ability to pass the wire across target artery and providing blood flow to the below the knee arteries. **Result(s):** Technical success was achieved 12 of 13 arteries (92.3%). In a patient who underwent PTA puncture, the retrograde approach failed because the guidewire could not be passed through the occlusive artery. There were no major complications in any of the cases. **Conclusion(s):** Endovascular treatment is a technically feasible and potentially effective treatment modality for Buerger's disease. Retrograde interventions in TAO patients may improve technical success and clinical improvement, especially in cases where antegrade approach fails.

C 3.14

Radiation Exposure During Varicocele Embolization: Does Access Site and Treated Side Matter?

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Background: This study aims to evaluate radiation exposure during varicocele embolization and correlate it with access site and embolized side. **Method(s):** This retrospective study included 39 patients who underwent varicocele embolization between Jan 2015 to Dec 2018. Embolization was done in all cases using a combination of coils and sclerosing agents in Sandwich technique. Bilateral embolization was done in 13 patients, while only the left side was embolized in 26 patients. Jugular vein access was used in 10 patients, while the brachial and basilic veins were used in 14 and 15 patients, respectively. Dose area product (DAP) and total fluoroscopy time were collected and correlated to the treated side and access. Statistical analysis was done on (StatPlus:mac, AnalystSoft Inc., Version v6) using wilcoxon and kruskal-wallis tests. **Result(s):** The mean fluoroscopy time for left varicocele embolization was 26.76 minutes (8.23 minutes – 49.6 minutes), which was not statistically different ($p=0.16$) compared to bilateral embolization mean fluoroscopy time of 33.2 minutes (10.3 minutes – 58.83 minutes). There was no statistical difference ($p=0.37$) between the mean DAP for left varicocele embolization of 106239 mGy.cm^2 (12672–590429) compared to bilateral DAP of 107153 mGy.cm^2 (29593–257259). There was no significant difference ($p=0.22$) between the mean DAP when using different vascular access (Brachial, DAP= 149416 mGy.cm^2), (Jugular, DAP= 87569 mGy.cm^2) (Basilic, DAP= 79179 mGy.cm^2). However, the basilic vein access was correlated with significantly shorter mean fluoroscopy time of 22 minutes (8.97

minutes – 42.5 minutes) compared to brachial vein (32 minutes, 8.23 minutes – 58.83 minutes) and jugular vein (34 minutes, 8.3 minutes – 49.6 minutes) with a p-value of 0.0429. **Conclusion(s):** The choice of vascular access may help in reducing fluoroscopy time during varicocele embolization, without significant difference between left or bilateral embolization. This reduction in fluoroscopy time did not translate into significant difference in DAP, which indicates the need for stricter radiation precautions such as collimation and less angiographic exposures.

OC3.15

Embolization of Procedures-Related Upper Gastrointestinal Bleeding: A Systemic Review

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Background: Procedure-related upper gastrointestinal bleeding considered as a rare cause of upper gastrointestinal bleeding (UGIB). In this presentation, we will review the most common procedures related UGIB with emphasis on endovascular role in diagnosis and treatment. **Method(s):** From 2001 to 2017 data, representative cases of procedure-related upper gastrointestinal bleeding were collected with their management details. **Result(s):** There are various categories of procedure-related upper gastrointestinal bleeding; Endoscopic mucosal resection / submucosal dissection, endoscopic ultrasound (EUS)-guided Intervention, percutaneous gastrostomy, and hepatobiliary procedures such as PTBD or ERCP. It presented as hematemesis, melena, or hemobilia which is associated with hepatobiliary intervention. In most cases the bleeding resolved spontaneously and, of those that did not, the majority responds to conservative management or endoscopy. Endovascular intervention was mainly embolization and stent graft insertion. **Conclusion(s):** In failed endoscopic treatment due to massive bleeding or in case of hemodynamically unstable patients or in hepatobiliary procedure related bleeding, endovascular intervention should be considered. Endovascular embolization represents the most viable treatment option regarding it is less invasive and not associated with complication of general anaesthesia.

OC4.1

Duplex-Ultrasound Guided Percutaneous Management of Pseudoaneurysm of Branch of Visceral Artery

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Background: To describe the role of Duplex-Ultrasound Imaging (DUI) for diagnosis of pseudoaneurysm (PSA) of a branch of offending visceral artery (b-OVA) followed by DUI-guided percutaneous embolization. **Method(s):** 46 patients were referred to us for the management of intractable renal hematuria. 21 cases had PSA after nephrolithotomy. 12 cases had PSA after guided renal biopsies. 6 cases had PSA following road-traffic accident. 2 cases of the tuberosus-sclerosis-complex developed PSA. 3 cases of arterio-venous and 2 cases of arterio-calyceal fistulae had