2019, eight patients (two with previous aortic bare metal stenting, five with KS, and one with unilateral common iliac artery covered stent) were diagnosed with intermittent claudication and treated with CERAB technique. Lesion morphology was evaluated by the computed tomography angiography. All lesions were 2 TASC II B, 3 TASC II C, and 3 TASC D lesions. FU consisted of clinical assessment and duplex ultrasound at 1, 3, and 6 months of FU. Patency rates and clinically driven target lesion revascularization were calculated. **Results:** Technical success was obtained in all the procedures (100%). Primary patency at all scheduled FU was 100%. No complications were reported. There was no 30-day mortality. Median hospital stay was 1 day. **Conclusion:** The CERAB technique appears to be safe and feasible in the relining of failed aortoiliac stenting in complex occlusive disease. Longer FU and larger cohorts of patients are needed to confirm our preliminary results.

OR2.8

Single-Center Evaluation of Inferior Mesenteric Arterial Type II Endoleaks in Patient Undergoing Endovascular Aortic Aneurysm Repair for Infrarenal Abdominal Aortic Aneurysm

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Objectives: To evaluate the association of inferior mesenteric arterial (IMA) type II endoleaks in patients undergoing endovascular aortic aneurysm repair (EVAR) for infrarenal abdominal aortic aneurysm at our tertiary center. **Methods:** This was a retrospective single tertiary center evaluation study of all EVARs performed over 4 years (2014–2018). Information for analysis was gathered using RIS/PACS and ICE clinical systems. Imaging data included change in aneurysm sac size poststent-graft insertion, percentage of type of II endoleaks, causative vessels identified contributing to the endoleaks, patency, and ostial diameters of IMA prestent-graft insertion. **Results:** Four hundred patients underwent EVAR in 4 years. 10% (41) had type II endoleaks postprocedure. Of the type II endoleaks, 88% (36%) had a patent IMA in the pre-procedural computed tomography. The type II endoleaks were further subdivided into three groups – Group A: IMA with or without lumbar arteries (n = 14, mean IMA ostial diameter of 4.0 mm), Group B: lumbar artery (n = 18, mean IMA ostial diameter 3.7 mm), Group C: unspecified (n = 4, mean IMA ostial diameter 2.7 mm). 21% (3) had IMA embolized and 7% (1) had open repair due to sac size increase. No statistically significant difference was seen in the IMA ostial size between Groups A and B (P = 0.6). **Conclusion:** Our study demonstrates a higher incidence of type II endoleaks in patients with patent IMA and lumbar arteries pre-EVAR. However, in our cohort, the diameter of the IMA did not influence the development of IMA type II endoleaks.

OR2.9

Utility of Rotational Thrombectomy for the Management of Thrombosed Arteriovenous Shunts

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Objectives: To assess the safety and efficacy of arteriovenous (AV) dialysis shunt thrombectomy utilizing a rotational thrombectomy device in patients with pseudoaneurysms refractory to the conventional "push–pull" method. **Methods:** Between July 2016 and August 2019, 34 dialysis shunt thrombectomy procedures were retrospectively examined (15 fistulas, 19 grafts) in 29 individual patients (13 males, 16 females, average age 64, and range 35–84). All patients presented with clotted accesses and had pseudoaneurysms that were refractory to angioplasty balloon sweeps ("push–pull") to restore patency. The Cleaner® rotational thrombectomy device was used as a bail-out in all instances in an attempt to restore patency to the clotted shunt. Procedure success, complications, primary patency, primary-assisted patency, average number of shunt aneurysms, and average aneurysm size were documented and analyzed. **Results:** Thirty-three (97%) of the thrombectomy procedures were successful in restoring patency and facilitating same-day hemodialysis. An average of 1.5 aneurysms was treated per patient (range 1–3, standard deviation [SD] 0.65) with an average size of 15.0 mm (range 9.4–31.1, SD 4.87). A total of 5 (14.7%) documented postprocedural complications occurred, including one episode of bleeding which prompted activation of a rapid response team. No device-related complications were recorded. Among the 27 patients with follow-up, primary patency averaged 93 days (range 1–488 days) and primary-assisted patency averaged 91.0 days (range 1–564 days). Nine (26.4%) cases resulted in primary patency to the time of data collection. **Conclusion:** Rotational thrombectomy with the Cleaner® device appeared to be a safe and effective option for restoring patency to thrombosed AV accesses with pseudoaneurysms refractory to standard push–pull techniques with angioplasty balloons.

OR2.10

Ultrasonographic-Guided Needle-Directed Endovascular Management of Hemodialysis Arteriovenous Fistula and Graft: A Novel Technique

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Objectives: Thrombosis of arteriovenous fistula/graft is a common cause of lack of vascular access for dialysis and is considered an emergency condition for dialysis patients. We used the low-cost technique of percutaneous needle-directed pulse-spray thrombolysis under ultrasound (US) guidance, which can be done

on bedside or as a day-care procedure. **Methods:** From January 2018 to October 2019, we performed 100 cases of percutaneous needle-directed thrombolysis. Under ultrasonographic (USG) guidance, multiple 26G needles were placed in the thrombosed vein or graft. Cocktail of 5 lakh IU of urokinase and heparin was prepared. Manual injections of 0.2–0.3 ml aliquots of thrombolytic solution were applied to each needle about every 30 s with a 2 ml syringe. **Results:** 86 of the thrombosed dialysis fistula/graft were recanalized within 24 h of the procedure and 14 required the second attempt within 48 h. Technical success was found in all thrombosed fistula/graft; however, technical difficulties were more in radiocephalic fistula due to tortuous course of the vessel and lack of good soft tissue window. **Conclusion:** USG-guided needle directed pulse-spray pharmacomechanical technique is a minimally invasive technique. There is no radiation involved in the procedure, and it effectively reduces the cost of the procedure. Our results showed a high procedural success rate, good patency rate, and no major complications.

OR2.11

Catheter-Directed Thrombolysis for Acute Iliofemoral Deep Vein Thrombosis: Predictors of Outcome

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Objectives: Catheter-directed thrombolysis (CDT) in properly selected cases can result in curing acute symptoms of deep vein thrombosis (DVT) as well as reducing the incidence and severity of postthrombotic syndrome (PTS). The ACCP guidelines 2016 proposed that patients most likely to benefit from CDT are those with iliofemoral DVT (IFDVT), preferably first episode, symptoms less than 14 days, life expectancy more than 1 year, and low risk of bleeding. Other factors influencing the outcome can be the thrombus load and extent, as well as the anatomic location of the thrombotic process. The current study aims at identifying patients who will have a favorable outcome following CDT for acute IFDVT so as to detect predictors of outcome after such intervention. **Methods:** In a prospective, observational cohort study, patients presenting to Ain Shams University Hospitals over 2 years from January 2016to October 2017 suffering from symptoms of acute IFDVT and fulfilling the inclusion criteria were recruited. Twenty patients were recruited, aged 19–64 years; 11 patients were women, and the rest were men. Demographic and medical data were gathered. All patients had duplex scanning of the deep venous system of the affected limb(s) to appreciate the extent of thrombosis and to assess the access site. Regular laboratory investigations were done, including full blood count, kidney function tests, liver function tests, and coagulation profile. Patients were administered therapeutic dose low molecular weight heparin (LMWH) on admission. The procedure was performed in an operating room or interventional suite; the patients were monitored in the intensive care unit (ICU). Ultrasound-guided popliteal or short saphenous vein access was used (prone position). Ascending venography was then performed through the sheath to determine the extent of the thrombus. A multiple side-hole infusion catheter was positioned in the iliofemoral segment. An initial bolus (10–15 mg) of recombinant tissue plasminogen activator (rtPA/alteplase) given via pulse-spray technique. The patient was then transferred to the ICU and continuous infusion for 24 h with rate 1.5–2 mg/h was initiated. Total dose of rtPA was 50 mg/24 h. Further ascending venography was performed at completion of procedure then at 24 h and in three cases at further 36 (1) and 48 h (2), respectively. Assessment of immediate procedural failure was based on the degree of lysis (>50% or < 50%) and 30-day recurrence of DVT. Occurrence of PTS at 6 months was based on the Villalta score. **Results:** Twenty patients were recruited, the mean age was 46.3 years, 11 patients were women, and the rest were men. Endpoints were clearance of the thrombus load in the iliac segment, evident improvement of symptoms and signs, lysis at 48 h, total failure of lysis after the first 24 h, hemorrhage-threatening general condition of the patient, and occurrence of pulmonary embolism. All of our patients had thrombus lysis >50%. We did not find significant difference between patients presenting <7 days or 7–14 days as regards the final lysis grade or severity of PTS after 6 months. Six months postintervention, seven patients were free of PTS, 15 patients had mild-to-moderate PTS, and no correlation was found between the lysis grade and Villalta score at 6 months. No patients had severe PTS. Access through the short saphenous vein had lower rate of clinically relevant nonmajor bleeding. No recurrent venous thromboembolism, postlysis PE, or deaths occurred in our study. We found no significant association between predisposing risk factors (e.g., demographic and medical conditions) and the degree of lysis or severity of PTS. Access via the short saphenous vein had less bleeding complications than popliteal vein in our series. **Conclusion:** In our study, determinants of outcome following CDT for acute IFDVT were (1) dose of thrombolytic agent used, (2) duration of thrombolysis, and (3) thrombus score at the end of the procedure. There is an obvious need for further studies addressing larger number of patients and longer follow-up to identify further determinants of outcome with respect to both acute results and long-term PTS occurrence rates.

OR2.12

Postthrombotic Syndrome in Acute Iliofemoral Deep Vein Thrombosis

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Objectives: Postthrombotic syndrome (PTS) due to chronic venous insufficiency has been shown to affect many patients with a history of proximal iliofemoral deep vein thrombosis (IF-DVT). The current treatment options include catheter-directed thrombolysis (CDT), recommended by the National Institute of Clinical Excellence, and/or alternatively percutaneous mechanical thrombectomy (PMT) to reduce the incidence of PTS and associated potential poor quality of life (QoL). We set out to identify the rate and severity of PTS and explore the QoL among IF-DVT patients treated with PMT. **Methods:** A retrospective review of IF-DVT patients treated with PMT was undertaken in a single tertiary center between January 2012 and 2017. The rate of PTS and QoL posttreatment was evaluated (follow-up range: 12–70 months, mean 32.3 months). Patients were invited to complete follow-up questionnaires (Villalta score and VEINES QoL/Sym). **Results:** Of 115 patients with IF-DVT, 42 were excluded (deceased, no intervention done, or only had CDT). 30