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Mechanical Thromboaspiration of Acute Thrombosis of Dialysis Arteriovenous Fistulae and Grafts using the Penumbra Indigo System: Preliminary Results from a Single Center Experience

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Background: Thrombosis of vascular accesses is most often due to venous anastomotic outflow stenosis or obstruction. Many percutaneous mechanical devices have been developed to eliminate the clot. Their clinical success rates are usually between 71% and 100%, with low incidence of serious complications. The indigo mechanical thrombectomy system (Penumbra, inc) consists of vacuum-assisted thrombectomy, which enables continuous thrombus aspiration. Preliminary results with this device in treatment of thrombosed vascular access have been recently reported in literature. We want to report the preliminary results of our early experience with Indigo System CAT8, and the new cat d, in the treatment of acute thrombosed av f and avg. **Method(s):** Between November 2017 and July 2018, 5 patients with acutely thrombosed dialysis fistulae were treated. All procedures were performed within 48 hours of the occurrence of thrombosis. Patients (average age, 71 y; age range, 57–86 y; 3 men and 2 women) were treated with the indigo system. **Result(s):** Technical success was 80% (4 of 5 patients). Clinical success was 80% (4 of 5 patients); 1 patient had a thrombosed dialysis fistula 24 hours after declotting. No technical or device-related complications were reported. Adjunctive procedures included PTA (60%) and stent graft deployment (40%; 2 of 5 patients). Mean FU was 163 days (range 59–301). Primary patency at one-month was 80%. One patient had a second aspiration for recurrent thrombosis of the fistula at 37 days from the first procedure, leading to a 3-month primary patency of 60% and a secondary patency of 80%. **Conclusion(s):** Our preliminary experience confirms the safety and the efficacy of mechanical thrombo-aspiration with indigo system in the treatment of thrombosed dialysis AVF and/or AVG. Our results in terms of clinical success and patency at 3-month are in line with what reported by vascular guidelines.

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Feasibility, Safety, and Effectiveness of Endovascular Stent-graft Placement for Emergency Repair of Acute Descending Thoracic and Abdominal Aorta

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Background: The traditional treatment for most patients with diseases of the descending thoracic aorta and abdominal aorta were surgical intervention with graft interposition. Now the trend is shifting towards the minimally invasive procedures especially towards the endovascular procedures. Several clinical studies have shown high success rates of emergency repair of acute thoracic and abdominal aortic disease by endovascular stent grafting. Compared with elective endovascular repair of thoracic aortic lesions, emergency stent-grafting is more demanding in several respects. Because many emergency procedures must be performed outside regular hospital hours, a team of radiologists, vascular surgeons, anesthesiologists, operating room nurses, and radiographers who can quickly set up the imaging, surgical, and interventional equipment should be on call around the clock. **Method(s):** We analyzed departmental database of endovascular stent graft patients from 2016 to 2018 in the department of Cardiovascular Radiology and endovascular intervention, All India Institute of Medical Sciences, New Delhi, India. We found total of 37 cases of endovascular stent graft deployment, out of which 32 were male and 5 were female. Out of these 37 cases, 10 were traumatic pseudoaneurysms, 2 were infective in etiology (one was of thoraco-lumbar tubercular spondylitis with pre and para vertebral abdominal and lower DTA pseudoaneurysm and another was upper DTA infective pseudoaneurysm). Eleven stent grafts were deployed in the emergency, out of which 10 were for traumatic pseudoaneurysms and 1 was for symptomatic infra renal abdominal aortic aneurysm. One case had a previous stent graft placement done for type B aortic dissection which now presented with DTA aneurysm and dissection at distal end of prior stent graft. In another postsurgical case, type B aortic dissection occurred following ascending aortic repair with arch vessel repair surgically. In total 27 patients had presented with back pain on presentation which was relieved after stent graft placement. Eleven patients were of type B aortic dissection. **Result(s):** Primary technical success rate (good entry sealing, absence of type I leak) was seen in 36/37 (97.29%) patients. In-hospital mortality was 0%. None of the patients had any spinal cord injury or paraplegia. At 6 months followup, none of the patient needed reintervention and clinical success was achieved in all but one patient who continued to have mild back pain. During follow-up, none of the patients died due to stentgraft-related complications. **Conclusion(s):** Emergency repair of acute descending thoracic aortic disease and abdominal aortic disease with stent-graft placement offers a promising alternative to open-chest surgery, especially in patients who are hemodynamically unstable and at high surgical risk.

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Safety and Efficacy of Covered Endovascular Reconstruction of the Aortic Bifurcation Technique for Complex Aortoiliac Occlusive Disease: A Single Center Experience

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Background: Endovascular intervention with kissing stenting (KS) is the first-line treatment for complex aortoiliac occlusive disease (AIOD) and it is related to less morbidity and a shorter hospital stay compared with open surgery. Unfortunately, recent study reported a primary patency of KS at 2-year follow-up of 79%. The geometry of the KS configuration was previously identified as a risk factor for restenosis and thrombosis. To achieve better long-term patency in 2013, a new technique named the covered endovascular reconstruction of the aortic bifurcation (CERAB) technique was introduced. The results at 1-year FU reported a primary and secondary patency rates of 87% and 95%, respectively. Three-year FU confirmed the good outcome of the CERAB technique for extensive AIOD with a primary, primary assisted, and secondary patency rates of 82%, 87%, and 97%, respectively. We want to report our single center experience with CERAB for the treatment of extensive AIOD. **Method(s):** Between February 2018 and July 2018, 9 patients (1 female) where diagnosed with intermittent claudication (7) and critical limb ischemia (2) and treated with CERAB technique. Lesion morphology was evaluated by CT angiography. All lesions were 7 TASC d and 2 TASC c lesions. Follow-up consisted of clinical assessment and duplex ultrasound at one and three months follow up. Patency rates and clinically driven target lesion revascularization were calculated. **Result(s):** Technical success was obtained in all the procedures (100%). Primary patency at three months was 100%. No complications were reported. There was no 30-day mortality. Median hospital stay was 1 days. **Conclusion(s):** The CERAB technique appears to be a safe and feasible alternative to open surgical reconstruction of the aortic bifurcation in complex occlusive disease. Our results are in line with what reported by latest studies in literature.

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Clinical Outcomes in Patients with Preprocedural Hepatofugal Portal Venous Flow Undergoing Partial Splenic Artery Embolization for Hypersplenism

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Background: Several previous studies suggested that hepatofugal flow should be considered as a contraindication to partial SAE. In this study we aimed at evaluation of the clinical outcomes of partial splenic artery embolization (SAE) in patients with post cirrhotic hypersplenism and preprocedural hepatofugal portal venous flow. **Method(s):** From January 2017 to October 2018, 40 patients with hypersplenism and hepatofugal portal venous flow underwent partial SAE. We considered 40 patients with hypersplenism and hepatopedal portal venous flow who are age-, gender- and Child Pugh classification matched case controls undergoing SAE for hypersplenism during the same period (control group). Perioperative and clinical outcomes after 1 year of follow up were compared between the two groups. **Result(s):** No significant differences were detected in the age, sex and laboratory investigations between the two groups ($p \geq 0.350$). Mortality rate was zero in both groups. No significant difference were found regarding the postoperative complications between the two groups ($p \geq 0.250$). Regarding the long-term clinical, laboratory and radiological outcomes, no significant differences were noticed between the two groups ($p \geq 0.3$). **Conclusion(s):** Partial SAE in post cirrhotic hypersplenism patients with hepatofugal portal venous flow can be performed safely without significant complications and shouldn't be considered as a contraindication for partial SAE in well selected patients with child's a cirrhosis.

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Endovascular Treatment of Arterial Injuries with Bentleys Begraft Stent-graft System: Preliminary Results

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Background: Arterial injuries can occur in a vast array of arterial beds with substantial morbidity and mortality. Endovascular therapy (embolization/covered stent) provides a minimally invasive and effective alternative to surgery. In the last decade, new more flexible peripheral stent-grafts have been developed. Differently from coils, stent-grafts allow for the exclusion of the lesion/defect without the sacrifice of the target vessel avoiding ischemic complications. The aim of our study is to evaluate the efficacy and the safety of begraft peripheral stent-graft for endovascular treatment of arterial injuries. **Method(s):** Between June 2015 and May 2018, 56 patients (mean age 66.7±14.8 y, 34 males) underwent emergency begraft stentgraft implantation for 60 arterial injuries. Twenty-one (37.5%) of these patients were haemodynamically unstable. The primary endpoints of this study were technical and clinical success, rates of minor and major complications. The secondary endpoint was the patency of the device during the follow-up. **Result(s):** Active bleeding was observed in 28 (50%) patients, pseudoaneurysms in 9 (16%), FAV in 2 (3.6%), an enteric-iliac fistula in 1 (1.8%) and dissection in 16 (28.6%). In all patients, the respective lesion or defect was effectively excluded by covered stent. Clinical success was documented in 55/56 patients (98.2%). Major complications included death in one patients (1.8%, not procedure-related) and rebleeding in another (1.8%, due to the progression of acute pancreatitis). Minor complications were reported in two patients (3.6%). After a mean FU of 511±325 (range 2-1100) days, total person-time 50 years, all the implanted devices are patent, corresponding to a rate of no patency ≤2x10-2 events per person-years (EPPY). **Conclusion(s):** The implantation of begraft peripheral stent-graft for the treatment of arterial injuries is minimally invasive and effective, with acceptable patency rate at the mid-term follow up. Larger cohort studies and longer follow up are needed to confirm these preliminary results.