

in training and the reasons for joining this field. **Result(s):** 9 % (6 out of 101) of IR consultants, 11.7% (10 out of 85) of IR fellows and 34.4% (21 out of 61) of IR residents, in the surveyed 19 institutes representing Egypt, were females. 25.2% (24 out of 95) of IR consultants, 28.2 % (24 out of 85) of IR fellows and 39.3 % (24 out of 61) of IR residents in Egypt were counted at Ain Shams University hospital where females make up 54 % (13 out of 24) of the IR residents and 25% (6 out of 24) of the IR fellows with no counted female IR consultants. 30 surveys were completed with female radiologists at Ain Shams University hospital revealing an increase in their share in the IR field due to many reasons. **Conclusion(s):** Though the fact that many countries suffers from shortage of females in the IR field, the IR unit at Ain Shams University Hospitals is starting to show a different experience on the residents and fellows' level and consequently on the consultant's level in the near future.

P308

Computed Tomography-Guided Biopsy in Vertebral Osteomyelitis

Jingyu Zhou, Kiyon Naser-Tavakolian,
Michael Clifton, Isael Perez,
Valmore Suprenant

*Stony Brook University Hospital, Stony Brook, USA.
E-mail: jingyu.zhou@stonybrookmedicine.edu*

Background: Patients with suspected vertebral osteomyelitis routinely undergo a biopsy procedure early in their admission. Our goal is to assess the utility of surgical pathology and other clinical factors in guiding treatment of vertebral osteomyelitis. **Method(s):** This was an IRB-approved retrospective review of CT-guided core biopsies for suspected vertebral osteomyelitis. 67 patients met our inclusion criteria. A chart review was performed for the following clinical factors to determine their impact on antibiotic regimen changes: microbiological cultures, presence of paravertebral abscess/phlegmon, fever, elevated erythrocyte sedimentation rate (ESR), elevated C-reactive protein, and an elevated white blood cell count. Results were analyzed using SPSS (version 25, IBM), p-values were obtained using a Chi-squared test. **Result(s):** Of the 69 biopsied cases of vertebral osteomyelitis, 26 cases (38%) yielded positive cultures. Among the group of positive cultures, 16 (62%) of the biopsies contributed new information, isolating either a new or different organism. In the cases with positive cultures, 15 (58%) had changes in their empiric antibiotics ($p < 0.001$). A change in empiric antibiotic coverage was seen in 3 patients with negative biopsy cultures. 24 patients had a paravertebral abscess or phlegmon described in the pre-biopsy MRI. In this subset of patients with paravertebral abscesses or phlegmon, a positive biopsy culture was seen in 16 (66%) patients ($p < 0.001$). 10 patients who had positive cultures did not have a paravertebral abscess or phlegmonous changes. In addition, no significant association was noted with changes in antibiotic regimen in the presence of a fever, leukocytosis, elevated ESR or CRP. **Conclusion(s):** Although CT-guided vertebral core biopsies are relatively low yield, they often provide results that are clinically relevant for proper treatment. Positive culture results contribute pertinent information and aid in identifying the most efficacious antibiotic(s) for clinicians to formulate a successful treatment plan.

P401

Splenic Artery Embolization: When and How to Do It?

Amit Kumar Verma, Stephen Edward Ryan,
Ashish Gupta, Adnan Hadziomerovic,
Karl Smyth, Rima Aina, Pasteur Rasuli

*The Ottawa Hospital, University of Ottawa, Ottawa, Canada.
E-mail: drverma.gilbert25@gmail.com*

Background: Splenic artery embolization is an interventional treatment used to stop active bleeding in blunt splenic trauma. It is also commonly used as a prophylactic measure adjuvant to other treatments in various clinical situations to promote splenic salvage and non-operative management. The aim of this presentation is to give an overview of rationale to indications, patient selection and procedural technicalities in splenic artery embolization. **Method(s):** A thorough literature review was done on splenic artery embolization in blunt splenic trauma as well as non-traumatic conditions. The content was reviewed for various indications, the rationale for patient selection and use of this treatment as prophylactic or adjuvant measures to medical treatment along with its long-term effect in non-operative management. Experience of our institutional practice for this novel treatment was also added. **Result(s):** Blunt splenic trauma American Association for the Surgery of Trauma Grade (AAST) IV-V, is amongst most common indications for splenic artery embolization. Patient selection in AAST Grade III splenic injury is variable depending on associated findings (hemoperitoneum, active contrast blush, Pseudoaneurysm, fistula etc.), treating interventionist and trauma unit. Other indications include portal hypertension, Idiopathic thrombocytopenic purpura, Hypersplenism, thalassemia and splenic artery aneurysm with the risk of rupture. Partial versus total embolization, proximal versus distal embolization and choice of embolizing agents is variable amongst the treating interventionist depending on the indication and aim of embolization. Splenic infarction with secondary infection/abscess and non-targeted embolization are amongst the more severe, though less common complications. **Conclusion(s):** Splenic artery embolization is a procedure to enhance the success rate of organ salvage and non-operative management of blunt splenic trauma (AAST Grade III and above). It is also a good adjuvant measure to improve the hepatic function and variceal bleeding in portal hypertension as well as improve blood counts in various cytopenic conditions.

P402

Comparative Study between Conventional Surgery and Radiofrequency Ablation in Treatment of Varicose Vein

Mohamed Ismail, Moustafa Aborahma

*Ain Shams University, Cairo, Egypt.
E-mail: mohamed.ismaail@med.asu.edu.eg*

Background: Varicose veins are a very common problem all over the world. Surgery has been the gold standard treatment for many years, however now other less invasive options are available and sometimes more efficient. **Method(s):** This observational retrospective study included 41 patients with varicose vein recruited from general surgery department and vascular surgery

unit at Ain Shams Hospitals and in Nasser Institute for Research and Treatment. **Result(s):** Operative time was significantly less in CS compared to RFA. One, six and twelve months post intervention follow up using clinical examination and duplex imaging were used to assess outcome and detect complications and recurrence rate. No major complications were detected after both techniques; however minor post operative complications like paresthesia and ecchymosis were significantly less after RFA. Post operative pain, duration of analgesia use and time needed to return to normal activity were also significantly less in RFA group than CS group. Recanalization of GSV was not detected after radiofrequency maneuver nor CS. This study proved that radiofrequency ablation technique is a safe and efficient in treating varicose veins however long-term results and cost effectiveness need further evaluation. **Conclusion(s):** Conventional surgery has been used for a long time for treatment of varicose veins with variable degrees of minor to major complications. Duplex guided radiofrequency ablation is an efficient and a safe modality in the treatment of great saphenous vein varicosities. Of most importance is an adequate Duplex scan to identify accessory channels and double superficial systems.

P403

Angiographic Findings and Outcomes of Bronchial Artery Embolization for Hemoptysis Due to Tuberculosis

Orkun Sarioglu, Ahmet Ergin Capar, Melike Yuksel Yavuz¹, Umit Belet

*Department of Radiology, University of Health Sciences, Tepecik Educational and Research Hospital, ¹Department of Chest Diseases, İzmir Dr. Suat Seren Chest Diseases and Surgery Training and Research Hospital, İzmir, Turkey.
E-mail: orkunsarioglu@gmail.com*

Background: Hemoptysis is a common, important and sometimes life-threatening symptom. The causes of hemoptysis vary significantly between the developed and non-developed countries. In non-developed countries, tuberculosis remains the most frequent cause of massive hemoptysis. Management of hemoptysis include conservative treatment, surgery and bronchial artery embolization (BAE). Since Remy et al. first described BAE for the management of hemoptysis, several studies have declared the efficacy of BAE in tuberculosis patients. The aim of this study was to evaluate angiographic findings during BAE in tuberculosis patients and to compare them with non-tuberculosis patients. **Method(s):** Patients who underwent BAE between August 2015 and July 2018 in a single interventional radiology department with hemoptysis refractory to medical and bronchoscopic treatment were reviewed. A total of 89 patients (66 male and 23 female; mean age 52.71 ± 15.37) were incorporated in the study. Patients were divided into two groups: tuberculosis group (n = 36) and non-tuberculosis group (16 malignancy, 22 bronchiectasis, 6 pulmonary infection, 4 chronic obstructive pulmonary disease, 4 idiopathic, 1 pulmonary arteriovenous malformation; n = 53). Angiography and embolization procedure were performed by a 5-year, 10-year, and 20-year experienced interventional radiologists with a classical method. Angiographic findings were classified as tortuosity, hypertrophy, hypervascularity,

aneurysm, bronchopulmonary shunt, extravasation, and normal bronchial artery. Chi square test was used to compare angiographic findings between tuberculosis and non-tuberculosis patient group. **Result(s):** The most common angiographic findings in tuberculosis patients were tortuosity (%97.2) as well as hypervascularity (%97.2). Extravasation was seen in only one patient (%2.7). Bronchopulmonary shunt was found significantly higher in tuberculosis patients compared to non-tuberculosis group (p = 0.002). None of the groups showed statistically significant difference in respect to recurrence (p = 0.436). **Conclusion(s):** BAE is a useful and effective treatment method of hemoptysis in tuberculosis. Bronchopulmonary shunt was seemed to be significantly higher in tuberculosis patients.

P404

Outcomes of Type II Endoleak Treatment using High Volume Ethylene Vinyl Alcohol Copolymer (ONYX®)

Umar Tariq, Brandon Nuckles, Fatima Memon¹, Ravi Kagali¹, Vinod Maller², Tariq Rahman, Evan Ryer, Luis L. Nadal

*Geisinger Medical Center, Danville, ¹Wayne State University/ Detroit Medical Center, Detroit, ²University of Tennessee Health Science Center, Memphis, USA.
E-mail: utariq@geisinger.edu*

Background: We aim to report our experience with Onyx®, (ethylene vinyl alcohol copolymer) for embolization of type 2 endoleak (T2E) after endovascular repair of abdominal aortic aneurysms (EVAR). **Method(s):** Endoleak repairs using Onyx performed from 2010 to 2016, as part of clinical management were retrospectively reviewed. Technical success (TS) was defined as absence of fluoroscopic evidence of endoleak at the termination of procedure. Clinical failure (CF) was defined as increase in sac diameter greater than 5 mm or increase in sac volume greater than 10% on follow-up computed tomography angiography (CTA), at least 3 months post-procedure or more. Absence of CF was deemed clinical success (CS). Student's t-test was used for statistical analysis. A p value of less than 0.05 was defined to be statistically significant. **Result(s):** A total of 13 patients (mean age 77 years, 12 males and 1 female) underwent persistent T2E repair following EVAR at our institution in a duration of 6 years. Mean interval between EVAR and endoleak repair was 40.7 months. Translumbar access was used in all patients. The mean volume of Onyx used per treatment was 13.4 mL. Additional targeted coil embolization of a feeding inferior mesenteric artery was performed in one patient. TS and CS was achieved in all patients; none of the patients had CF. Mean pre-treatment diameter and volume were 73 mm and 340 cc respectively. Mean post-treatment diameter and volume were 71 mm and 320 cc respectively. There was a trend towards decreased diameter and improved volume post-treatment, however it did not reach statistical significance (p = 0.11). There were no major postprocedural complications. **Conclusion(s):** Our study presents the clinical outcome of the use of Onyx as the main treatment modality on patients with T2E after EVAR. Onyx with or without coils is safe and effective in treatment of T2E after EVAR.