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OP01

ENDOVASCULAR MANAGEMENT OF IATROGENIC BRACHIOCEPHALIC ARTERY INJURY USING BALLOON TAMPONADE

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Introduction: Arterial puncture is a recognized complication of central venous catheterization. Early recognition and aggressive management are vital in avoiding catastrophic complications. Several removal methods are available, and multiple factors must be considered for decision-making regarding catheter removal. We describe a case of an inadvertent central venous catheter into the brachiocephalic artery, which was successfully removed using a balloon tamponade method.

Report: A 41-year-old lady underwent a central venous catheter insertion and was complicated with iatrogenic brachiocephalic artery injury. She was then referred to interventional radiology for endovascular treatment and underwent balloon tamponade to remove the catheter. A balloon was placed in the subclavian/brachiocephalic artery prior to the catheter removal, and a series of inflations were performed afterward. The procedure was successful without any complications.

Conclusion: Inadvertent placement in the brachiocephalic artery is not common. Open repair and stenting are the methods of choice in treating this complication. Due to its location, pull and pressure technique may pose a danger as this vessel is not easily compressible. Balloon tamponade is a technique described for the management of posttraumatic arterial injuries. However, it has shown promising evidence in treating iatrogenic vascular injuries.

OP02

THE EFFECT OF EYE HEIGHTS ON THE ENTRANCE SURFACE DOSES (ESD) OF SKULL PHANTOMS AT THE RADIOLOGIST AND NURSE LOCATIONS IN PTBD PROCEDURE

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Introduction: Understanding the factors that affect the staff eye doses for those working in angiographic procedures is important. This research explored the effect of eye heights on the ESD measurements at the radiologist and nurse locations in the Percutaneous Transhepatic Biliary Drainage (PTBD) procedure.

Materials and Methods: An upper-body phantom simulating a patient (Kyoto Kagaku PBU-31) was exposed to X-ray radiation using a Siemens Artis Q angiographic system with technical factors for the PTBD procedure in three radiographic projections. The ESD was measured using the nanoDotTM optically stimulated luminescence dosimeters (OSLD) at four eye heights: 135, 145, 155 and 165 cm. Three regions on skull phantoms (simulated staff) were measured: the right and left eyes and the left outer canthus. The recorded radiation doses were read in mGy units and normalised to the dose area product (mGym2) of each exposure. Line graphs and scatter plots were used to analyse the results descriptively.

Results: In posteroanterior (PA) projection, the radiologist phantom had higher ESD values at 135 and 145 cm eye height but lower values at 155 and 165 cm compared to the nurse phantom. In the 25° right anterior oblique (RAO) position, the phantom nurse received higher eye doses than the radiologist phantom. The radiologist phantom's eyes were shielded by the flat panel detector (FD) at higher eye heights in PA projection and all eye heights in the 25° RAO position. However, the radiologist was not shielded and received higher eye doses in the 25° left anterior oblique (LAO) position. Besides, the left regions received higher doses than the right eye for the nurse phantom. There were also decreased eye doses with increased eye heights for both phantoms.

Conclusion: This study found that eye doses of staff are affected by the shielding provided by the FD, eye heights and location of the staff.

OP03

FISH BONE INJURY CAUSING TRAUMATIC ARTERIOVENOUS FISTULA, SUCCESSFULLY TREATED WITH EMBOLIZATION.

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Introduction: An arteriovenous fistula (AVF) is an abnormal direct communication between an artery and a vein, which leads to blood shunting between the two vessels. While some AVFs may be present at birth, many are commonly caused by iatrogenic as a result of increasing number of invasive medical procedures. Non-iatrogenic injuries from penetrating accidents that cause direct arterial trauma can also result in AVF formation. Non-iatrogenic traumatic arteriovenous fistula of the upper extremity is relatively uncommon. We report a case of fish bone injury causing non-iatrogenic traumatic arteriovenous fistula of the ulnar artery and ulnar vein which was successfully treated with embolization.

Materials and Method: 18 G branula, 5 Fr arterial sheath, 5 Fr vertebral catheter, Terumo 0.035' 150cm guidewire, Headway microcatheter 150cm, Boston Transend guidewire and Polidocanol injection.

Report: A 50 year old lady presented to the orthopaedic team with right hand pain and swelling after alleged fish bone puncture to her hand. The swelling at her hand was increasing in size and associated with pain. Her vital sign was stable. Her physical examination of right hand was erythematous swelling noted at the right hypothenar eminence with pulsation felt. MRI right hand shows well defined multilobulated subcutaneous lesion seen at the lateral (ulnar) aspect of the hypothenar eminence of the right hand at its palmar aspect. A diagnostic right upper limb angiogram done revealed highly vascularised lesion seen at the right hypothenar region, approximately measuring 1.9cm x 2.2cm (W x CC) with arterial supply likely from the common palmar digital arteries of the superficial palmar arch (from right ulnar artery). Its venous drainage is likely to the deep palmar venous arches and into the right ulnar vein. No real nidus is seen within the angiogram. After explaining the necessity of the procedure and obtaining the patient's informed consent, the embolization of right hand arteriovenous fistula was done by using polidocanol injection. The polidocanol injection was done through direct puncture at the lesion. Post embolization revealed absence of arteriovenous fistula from angiogram and procedure completed.

Conclusion: Arteriovenous fistulas are typically acquired lesions that lack a nidus discernible on vascular malformation imaging studies. Masses with arteriovenous fistula components, commonly encountered in clinical practice are frequently iatrogenic in origin resulting from prior surgical interventions or trauma. Polidocanol exhibits properties as sclerotherapy agent. Percutaneous embolization is a minimally invasive and efficacious alternative to open surgery for the treatment of AVF.

OP04

A 5 YEAR RETROSPECTIVE STUDY OF POST TRANSARTERIAL EMBOLIZATION FOR GASTROINTESTINAL BLEED IN UNIVERSITY MALAYA MEDICAL CENTRE, MALAYSIA

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Background: Transarterial embolization (TAE) is a minimal invasive treatment for gastrointestinal bleeding. There are limited data on the outcome of TAE in this region. We aimed to study the outcome of TAE. Factors associated with negative outcome (without clinical success), the technical success (cessation of bleeding after TAE) of the procedure itself and TAE associated complications were further evaluated.

Material and Methods: Total of 78 patients were analysed. Retrospective study of all patients who underwent TAE in University Malaya Medical Centre from 2017 to 2021 was conducted. 44 male and 34 female. Mean age was 66 years old. 62 procedures were for upper GI bleed and another 16 procedures were for lower GI bleed. Clinical success was defined as survival or no recurrent bleeding within 30 days.

Results: Technical success and clinical success were achieved in 93.6% and 65.4% of patients respectively. On univariate analysis, patients with coagulation disorders (66.7% vs 41.2%, p=0.032), bleeding from GDA (88.9% vs 68.6%, p=0.047), UGIB (92.6% vs 70.6%, p=0.037) and scope findings of high risk stigmata (77.8% vs 49.0%, p=0.014) were associated with a poor outcome.
On multivariate analysis, only coagulation disorders was found to be the predictive factor of poor outcome (OR 3.19, 95% CI 1.04-9.81, p=0.043). Major complications were detected in 3 out of 78 cases (3.9%) which included the GI perforation and GI ischemia.

Conclusions: Transarterial embolisation (TAE) is a safe and efficient procedure. Patients with coagulation disorders were associated with a poor clinical outcome. Any abnormalities of coagulation levels should be corrected in order to increase the efficiency of the treatment for the long term benefits of the patients.

OP05

Outcomes of Bleomycin Sclerotherapy In The Treatment Of Venous Malformations - A Single Centre Case Series

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Background: Sclerotherapy is the established gold standard, first-line treatment for low flow vascular malformations. Research has shown intralesional bleomycin injection as an effective initial treatment for these conditions, citing its availability, affordability, good response, fast recovery and minimal side effects. There exists a paucity of data examining the outcomes of bleomycin sclerotherapy for the treatment of venous malformations in Malaysia. This study presents 10 venous malformation cases treated with bleomycin sclerotherapy at a tertiary centre in Malaysia from July 2022 to July 2023.

Material and Methods: This is a retrospective review of 10 cases of venous malformations referred for intralesional bleomycin sclerotherapy. The procedures were conducted in the Biomedical Imaging Department of University Malaya Medical Centre between July 2022 and July 2023. Patients were diagnosed clinically with imaging which included ultrasound, CT scan and/or Magnetic Resonance Imaging and treated under fluoroscopic guidance by interventional radiologists.

Results: Average age of patients was 18 years old with the youngest being 2 years of age and oldest being 50 years. Follow-ups ranged from 6 weeks to 23 months and the average follow-up duration was 9 months. Six (60%) patients had lesions in the lower limb, 2 (20%) in the upper limb and 2 (20%) at the neck. All patients had no intraprocedural complications, and reported symptomatic relief of pain, size reduction of lesion and improved range of motion as per the last follow-up. Repeated treatments were performed in 4 patients as maximum dose of bleomycin per session was reached.

Conclusions: Percutaneous bleomycin sclerotherapy of venous malformations is a safe and well-controlled procedure done in real time. There are no major systemic adverse side effects and has shown good efficacy.

OP06

Findings from using catheter venography and cone-beam CT to investigate for Pelvic Venous Congestion Syndrome

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Introduction: Pelvic venous congestion syndrome (PVCS) is a well-recognised entity that causes many women, and few men chronic pain. It is associated with gonadal vein incompetence (GVI) and venous compression syndromes such as May-Thurner and its variants and Nutcracker Syndrome. Patients present with symptoms and signs involving the pelvis and/or the lower limbs.
US, CT and MRI have poor sensitivity and specificity to confirm the diagnosis and catheter venography is regarded as the gold standard. This is in particular true of diagnosing GVI, however catheter venography has poor soft-tissue differentiation required to illicit the aetiology of venous compression if present. Cone-beam CT also known as rotational angiography incorporates CT technology with fluoroscopy to overcome this issue.
Our aim was to assess the findings from using catheter venography and cone-beam CT to investigate for PVCS.

Methods: A single surgeon prospective cohort study was undertaken. All patients who presented with pelvic and/or lower limb symptoms of PVCS were routinely investigated with cone-beam CT.
Siemens DynaCT was used in all cases.

Results: In all, 55 patients (53 female; 2 male) were investigated. The median age was 48 (IQR 23). Lower limb symptoms affected 28 patients (two right, four left, 22 bilateral), pelvic symptoms in 14 patients and both lower limb and pelvic symptoms in 13 patients. GVI was seen in 52 patients (21 left, 7 right and 24 bilateral). Common iliac vein (CIV) compression was seen in 34 patients (19 left, 1 right, 14 bilateral). Nutcracker Syndrome was not identified in any patient.

Conclusion: Cone-beam CT offers the advantages of CT and fluoroscopy in detailing aetiology, level, laterality and severity of CIV compression. Further within the limitations of this observational study, we find that bilateral GVI and CIV compression may be an under-recognised cause for PVCS.