

**CARDIAC AND VASCULAR INTERVENTION****p128 Case files from the ER: A significant finding on a routine scan**

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**Presentation:** 71 years old female presented with a history of weight loss and increasing lower back pain radiating to the groin with worsening mobility. An urgent MRI scan of her lumbar spine was requested to rule out possible neurological causes for her symptoms.

**Findings:** MRI showed normal lumbar lordosis. There was no canal or foraminal stenosis. No significant abnormality along the lumbar spine. On review of the sagittal images a large mass pertaining to the abdominal aorta could be seen, with mixed signal characteristics. An additional coronal STIR was performed to help identify, and this showed bright signal and the appearances of a large infrarenal aneurysm, most probably leaking. The biggest danger in having such an aortic aneurysm, or any aneurysm, is the risk that it will rupture. Most aneurysms gradually develop over time and can be symptomless, which is why they are so dangerous. Since most infrarenal aortic aneurysms are symptomless, they are hard to diagnose until they burst or rupture. They are often found when doing a physical exam, ultrasound or CT scan for another issue, such as the MRI in this case.

**Outcome:** The patient was immediately transferred to CT within the emergency centre for an aortic angiogram, the outcome of which was as a large leaking infrarenal aneurysm. Patient was transferred to the closest vascular centre for Intervention. An endovascular aneurysm repair was carried out. The Procedure was a success and the patient made a full recovery. Incidental detection on the MRI helped expedite the required treatment

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**P129 Improving working practice in the vascular hybrid setting during complex endovascular aneurism repair (EVAR) procedures**

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**Background:** Prior to the installation of the hybrid theatre, the vascular team utilised a standard operating theatre for vascular procedures. A Zhiem Vision RFD was used for image guided endovascular procedures. With the increasing complexity of endovascular aortic repairs (EVAR) over the years, limitations were highlighted in regards to the standard operating theatre and it's capabilities to provide a safe and efficient working environment in regards to clinical practice.

**Purpose:** To outline the improvement in clinical practice that has been made since our transition from a standard operating theatre to a hybrid theatre in regards to radiation dose reduction and improved working relationships between the Vascular and Radiology departments.

**Summary:** Use of the hybrid theatre has allowed for a faster and efficient workflow of patients. The daily provision of dedicated radiologist cover for endovascular cases has reduced the number of complications that may arise. Utilisation of Raysafe badges, peripheral radiation dose monitoring, led screen protectors, Radpads, in addition to staff's radiation training has allowed for a safer working environment and a further reduction in radiation dose. A preliminary dose audit comparing the radiation dose of fenestrated EVAR's before and after the hybrid theatre showed a 46% reduction in the average dose.

The poster aims to show, that improved communication and training between the two areas has greatly improved patient & staff safety in the Vascular Hybrid theatre.

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**p130 The role of CT in the assessment of suspected aortic root abscess**

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Aortic root abscess secondary to infective endocarditis is associated with a high morbidity and mortality and is more prevalent in patients with prosthetic valves. Antibiotics alone are usually insufficient in controlling such infections, with high risk surgical intervention often inevitable. Computed tomography (CT), in combination with other imaging modalities, provides vital diagnostic information, which aids surgical decision making.

The key CT findings suggestive of an infected collection include abnormal enhancement of periaortic low attenuation material, collections that increase in size on serial imaging, locules of gas, pseudoaneurysms and fistulas to adjacent structures. Vegetations may be visible on the aortic valve. Appreciation of normal and abnormal post-operative findings in conjunction with

knowledge of the previous surgical intervention is important in identifying life threatening complications and guiding the need for urgent surgical intervention.

The aim of this poster is to educate the reader by demonstrating the key CT findings of aortic root abscess and the differentiation of this from normal post-operative findings.

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p131 **Retrieval of intravascular foreign bodies: An endovascular fishing trip**

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**Background:** Over the last decade, minimally invasive pin-hole surgery by the interventional radiologists has become an attractive option for the retrieval of intravascular foreign bodies. It can be a safe and effective approach that avoids open surgery in the majority of patients. We present three cases of intravascular foreign body retrieval performed by the interventional radiology (IR) unit to highlight the role of IR in managing these patients.

**Purpose:** This poster highlights the versatility of interventional radiology, and the applications it has in managing unexpected and emergent clinical situations. Compared to open surgery, endovascular retrieval can reduce length of hospital stay, post-operative complications, general anaesthetic exposure and cosmetic outcome. Our aim is to raise awareness of these techniques, and their availability to help clinical teams offer their patients optimal care.

**Summary:** We present three cases in which an endovascular approach was successfully used to retrieve intravascular and intra-cardiac foreign bodies.

Case 1: A porta-cath tunnelled central line had fractured inside the chest, with the distal line fragment within the right ventricle.  
Case 2: Retrieval of a lost guide wire during routine insertion of a central line. The wire migrated through the heart into the IVC, whilst being transferred from another hospital. Images demonstrate this migration, via plain films of the chest and lumbar spine.  
Case 3: Self-inflicted injury with an intra-cardiac foreign body. CT chest used to show the position of the object. Selected fluoroscopic images demonstrate removal using snares and guidewires.

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p132 **Duplex ultrasound assessment of arterial disease in the lower limbs of Zimbabwean diabetic patients**

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**Introduction** This is an abstract of ongoing PhD work and the poster will be presented with results in time for the conference.

**Background** Zimbabwe currently has no robust testing protocol for detection of lower extremity Peripheral Arterial Disease (PAD) in diabetic patients and these patients progress to late stage complications of critical limb ischaemia. A reliable diagnostic test for assessing early changes of PAD and ways of combating the progression of mild forms of PAD to critical limb ischaemia are therefore critical.

Work package 1 of this study aims to determine the reliability of the ultrasound protocol in detecting any differences in blood flow between healthy and diseased diabetic lower limb arteries and work package 2 aims to establish the effectiveness of the ultrasound protocol from work package 1 to detect any blood flow changes in these arteries after ingestion of beetroot juice by this same Cohort of subjects.

**Method** In work package 1, the ultrasound protocol will be utilised to detect any differences in blood flow parameters in the diseased diabetic lower limb arteries of 35 and 35 healthy lower limbs arteries 35 and in work package II, the ultrasound protocol will be used to determine any immediate blood flow changes in these arteries after ingestion of beetroot juice.

**Results** The findings will firstly justify whether the ultrasound protocol is reliable in detecting PAD in early stage diabetics and secondly whether the ultrasound protocol will be able to detect any immediate blood flow changes after beetroot juice ingestion.

**Conclusion.** The findings from this study may be used to establish a new diagnostic pathway for early detection and therapeutic management of PAD in type II Zimbabwean diabetics.

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p133 **Pictorial review of superior vena cava pathology and normal variants**

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**Background:** A range of clinical conditions affect the superior vena cava (SVC). This includes congenital variants, intrinsic or extrinsic benign and malignant diseases. Appropriate imaging is important in their diagnosis and management.

**Purpose:** To be familiar with pathology and normal variants of the SVC. We present a pictorial review of the imaging of congenital variants of the SVC, this includes duplicated and left SVC and a discussion regarding the embryology of the SVC. We also review the range of acquired abnormalities that can affect the SVC, including common conditions such as line induced stenosis, thrombosis and fibrin sheath formation. More unusual pathology will also be demonstrated such as neoplasms and fibrosing mediastinitis. SVC interventional procedures and strategies for management of some of these conditions will also be discussed. An understanding of SVC anomalies is important for the reporting Interventional or Diagnostic Radiologist.

**Summary:** Pictorial review of SVC normal variants, pathology and Interventional Radiology for some of these conditions.

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p134 **Pictorial review of the use of cone-beam CT to improve safety and outcomes in prostate artery embolisation**

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Prostate artery embolisation (PAE) is an increasingly utilised procedure for the treatment of benign prostatic hyperplasia. The basic premise of the procedure involves the use of small particles delivered via selective catheterisation of arterial vessels supplying the prostate, reducing the arterial supply thereby reducing the prostate size. It has been shown to be effective in treating lower urinary tract symptoms [1], but with none of the common surgical side effects of bleeding, urinary incontinence, retrograde ejaculation and impotence [2]. Furthermore, PAE is performed under conscious sedation and is usually done as a day case procedure. Potential complications specific to PAE include non-target organ embolization to adjacent organs such as the urinary bladder and rectum. Detailed pre-procedure planning CT and real-time intra-procedural imaging techniques are essential in order to visualise the complex arterial anatomy of the pelvis so as to ensure safe delivery of embolisation particles to the target destination. Although digital subtraction angiography remains the most typical mode of intraprocedural imaging technique, the use of cone-beam CT can reduce the likelihood of inadvertent non-target embolization [3]. The ability to manipulate 3D multiplanar reconstructions (MPRs) allows complex pelvic arterial anatomy to be more clearly defined, paving the way for more confident super-selection of vessels as well as deciding whether it would be safe to proceed with the procedure. In this poster we aim to review the conventional arterial anatomy of the prostate and illustrate the use of cone beam CT in preventing inadvertent non-target embolization.

[1] Uflacker A et al. *Meta-Analysis of Prostatic Artery Embolization for Benign Prostatic Hyperplasia. J Vasc Interv Radiol. 2016 Nov;27(11):1686-1697* [2] Gao YA et al. *Benign prostatic hyperplasia: prostatic arterial embolization versus transurethral resection of the prostate - a prospective, randomized, and controlled clinical trial. Radiology. 2014 Mar;270(3):920-8* [3] Bagla S et al. *Utility of cone-beam CT imaging in prostatic artery embolization. J Vasc Interv Radiol. 2013 Nov;24(11):1603-7*

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p135 **Extent and distribution of carotid atherosclerosis in patients with early inflammatory arthritis: Results from the Norfolk Arthritis Register**

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**Background:** Patients with inflammatory arthritis (IA) have an increased risk of cardiovascular disease (CVD). The presence, but also burden and location of carotid plaques may influence CVD risk. We have previously demonstrated increased prevalence of carotid plaque in an early IA population. In the current study, we sought to compare plaque burden and distribution in early IA.

**Methods:** Patients enrolling in the Norfolk Arthritis Register (an inception cohort study of IA patients) were invited to take part in a CVD sub-study. Age/sex matched controls were also recruited. Bilateral carotid artery ultrasound was performed and presence, size and location of plaques recorded (within bulb, common, internal, external carotid segments). Total plaque scores were calculated. Non-parametric statistics were used to compare presence and plaque scores in patients and controls. Then, in those with plaque, the proportion of plaques occurring in each segment, frequency of bilateral plaque and plaque scores were compared between groups.

**Results:** 349 patients and 115 controls were recruited. Higher plaque prevalence and plaque scores were noted in patients compared to controls (both  $p < 0.001$ ). On comparison of patients and controls with plaque, there was no difference in distribution of plaques or prevalence of bilateral plaque (all  $p > 0.05$ ). There was a trend towards higher plaque scores in patients compared to controls, which did not meet statistical significance (median [IQR]: 2 [1,4] vs 1 [1,2], patients and controls respectively,  $p = 0.08$ ).

**Conclusion** While prevalence of plaque is higher in IA, we found no evidence of an altered plaque distribution or higher frequency of bilateral carotid disease.

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p137 **Prophylactic placement of carotid endovascular covered stents to prevent carotid blowout syndrome: Safety and efficacy in a single centre**

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**Introduction:** Carotid blowout syndrome is a potential complication of advanced head and neck malignancy resulting in significant morbidity and mortality. Traditional management focused on surgical ligation of bleeding vessels in the acutely bleeding patient. This study reports the experience of using endovascular covered stents placed under radiological guidance to manage threatened carotid blowout.

**Methods:** Departmental database identified 21 patients who had radiological insertion of endovascular covered stents in the setting of advanced head and neck malignancy over a seven year period. The clinical notes were studied to identify any recorded complications arising from this procedure and the incidence of bleeding following stent placement.

**Results:** 21 consecutive patients were identified for inclusion in this study. Mean survival following stent placement was 242 days. Complications arising from stent placement included minor stroke presenting as dysarthria that resolved and one stroke resulting in mild right sided weakness that resolved. There was one mortality from a medical complication in the intensive care setting on day one post stent placement. No patients experienced bleeding from the head and neck following stent insertion.

**Conclusions:** Carotid blowout is the worst case scenario for end stage head and neck cancer. Radiologically inserted endoluminal covered stents are a useful adjunct in the management of carotid blowout in the context of advanced head and neck malignancy.

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p138 **Role of interventional radiologist on-call as part of unstable trauma team**

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**Background:** Endovascular management of bleeding in trauma is well described. It offers reduced operating time, blood loss, lower mortality and length of stay compared to open surgical intervention. It potentially enables faster time to haemostasis, particularly in anatomically challenging sites such as subclavian, carotid arteries or solid organs. The role of CT in major trauma is well proven. However, currently the role of the Interventional Radiologist in acute trauma is not centrally defined or recognised.

**Method:** We implemented a system in which the Interventional Radiology (IR) consultant was pre-alerted in acute unstable trauma, being onsite within thirty minutes and being first reader of the unstable trauma CT. In parallel, the IR team would prepare the cath lab, should the case proceed to intervention. We audited pre-alerts received and interventions performed.

**Results:** In one calendar year (2014), the system had 50 pre-alerts for unstable trauma, requiring the IR consultant to be present. 13 of the cases proceed to intervention. In total, including stable cases, there were 23 interventions.

**Conclusion:** We highlight three reasons for the on-call IR consultant to be a central member of the acute trauma team, with a defined pre-alert system. Firstly, in all situations, having the consultant as first reader of the trauma scan enables expert assessment, improve accuracy of reporting. Secondly, in cases requiring intervention, this expedites and avoids delay, enabling better clinical outcomes. Thirdly, such a mechanism highlights the importance of the IR service and places its role central in the management of haemodynamically unstable patients.

## GI UROLOGY and OBSTETRICS & GYNAECOLOGY

p139 **Dual lateral decubitus CT colonography is preferable to supine-prone scanning in obese and/or frail patients**

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**Background:** CT colonography (CTC) image quality is dependent on good quality colonic insufflation. Currently, additional decubitus scans are performed when suboptimal images are obtained with prone and supine positions. Supine-prone imaging in the elderly and obese is often difficult and suboptimal (Buchach et al., 2011). We evaluated our practice of performing dual decubitus positioning in these patients.