Clinical: Vascular

P-070 Inferior vena cava anomalies and variants: implications for deployment of IVC filters

Delilah Khan; Chun Pang; Robin Alcock; Philip Coates

Peninsula Radiology Academy, Plymouth; Plymouth Hospitals NHS Trust, Plymouth, Devon

Aims/Objectives: The purpose of this poster is to illustrate a range of Inferior Vena Caval anatomic variants and to explain the technical challenges in deployment of IVC filters in this patient group.

Content : Inferior vena cava anatomic variants are a diverse group of entities, encountered from time-to-time during radiological procedures. These congenital abnormalities range from duplication of the IVC to left sided IVC. These anatomic variants are a challenge to Interventional Radiologists, as they first must be identified prior to IVC implantable filter deployment This review presents an illustrated overview of the wide variety of inferior vena cava abnormalities, and show examples of IVC Filter deployment in variant anatomy.

Outcome:To illustrate inferior vena cava abnormalities and how filter deployment technique must be modified.

Relevence :Interventional Radiologists need an awareness of the IVC variations in anatomy to anticipate potential deployment and retrieval difficulties. In some cases, a knowledge of abnormal anatomy may influence the decision to deploy the device, depending on the clinical setting.

Conclusion: IVC variant anatomy is encountered occasionally by Interventional Radiologists, and strategies must be in place to identify these variants and alter the approach to device deployment accordingly.

P-071 On-call provision of interventional radiology: the view from the hub

Drew Maclean; Nabil Kibriya; Usman Shaikh; Steven Powell

Royal Liverpool and Broadgreen University Hospitals

Aim: To review the practice of an on-call interventional radiology (IR) department providing ad-hoc regional cover and to assess the burden of out-of-trust work on its system.

Content: A retrospective review of the on-call practice over 3 years (2009-11) using the RIS database was made.

Relevance: The demand for an effective 24-hour IR service has increased significantly over recent years and seemingly this demand can only grow further with government guidelines that all patients should have robust access to on call IR.

Outcomes: 289 on-call procedures were carried over 3 years, 39.4% of which (115 patients) came from a different hospital trust on admission. Fifty-one out-of-trust patients (44.4%) went on to have further interventional procedures during their admission. The majority of out-of-trust patients underwent vascular intervention (45 patients). The largest out-of-trust proportion was hepatobiliary, with 48.0% of all hepatobiliary interventions being performed on an out-of-trust patient.

Discussion: This institution has offered a long established 24-hr IR service, and currently takes on a significant proportion of patients from the surrounding catchment area, with no formal service level agreement in place. A validated hub and spoke arrangement would allow for on call service provision to smaller hospitals while concomitantly increasing recruitment at the hub.

P-072 Inter- and intra-observer reproducibility in whole-body contrast enhanced MRA stenosis grading and systemic atheroma scoring

Lynne McCormick; Jonathan Weir-Mccall; Richard White; Jill Belch; Stephen Gandy; Allan Struthers; Frank Sullivan; Roberta Littleford; John Houston

University of Dundee; Ninewells Hospital and Medical School

Aim: To determine the reproducibility of two radiologists in whole-body contrast-enhanced MRA cardiovascular analysis.

Methods: 20 patients (11 male, 9 female, age range 52-77 years), with 5 patients in each subgroup of healthy, mild, moderate and severe atheroma burden, were imaged on a 3.0 Tesla MRI scanner (Megnetom Trio, Siemens,

Erlangan, Germany). Coronal FLASH sequences were used to obtain contrast-enhanced MR angiograms of each patient. Two cardiovascular radiologists performed manual stenosis analysis on 159 arterial sites in each of these patients. A categorical stenosis grading scale was applied to each of these sites. Whole-body atheroma scores were calculated as a summation of all assigned grades, normalised for interpretable sites.

Results: The reproducibility of each observer's analysis was substantial in the analysis of the moderate and severe symptomatic patients groups (Observer 1 Kappa (k)=0.603 ± 0.029 moderate, k= 0.582 ± 0.024 severe; Observer 2 k= 0.559 ± 0.031 moderate , k= 0.626 ± 0.023 severe; P<0.001), but only fair in the grading of the healthy and mild atherosclerosis patients' groups (Observer 1 k= 0.404 ± 0.057 healthy, k= 0.501 ± 0.029 mild, Observer 2 k= 0.391 ± 0.061 healthy, k= 0.432 ± 0.034 mild, P<0.001). Correlation between radiologist whole-body atheroma scoring was high (Spearman correlation = 0.911, P<0.01).

Conclusions: Observer reproducibility and agreement was moderate to substantial in the grading of clinically significant stenosis. Observer disagreement associated with the grading of minor pathologies does not reduce high consensus in whole-body atheroma scoring.

P-073 Radiological stenting for malignant superior vena cava obstruction (SVCO): A 5 year review of results and audit analysis

Thomas Micic; Christopher Chick; Nimit Goyal; Aamer Iqbal

Aneurin Bevan Health Board Trust

Background: SVC stenting is currently the main intervention indicated in malignant SVCO. Patients may present with upper limb oedema, distended chest and neck veins, shortness of breath and headache; or present asymptomatically with impending SVCO discovered on CT. This presentation reviews the measurable outcomes of SVC stenting for malignant obstruction and assesses whether current practises are in line with CIRSE guidelines published in 2006.

Methods: Patients were recruited retrospectively over a 5 year period (October 2007 to October 2012). Data regarding procedural success, clinical success, recurrence rates, procedure complications and mortality was sourced from electronic medical notes.

Results: 32 patients underwent SVC stenting for malignant SVCO (13 females (40.6%) and 19 males (59.4%) with a mean age of 64.5 years (43-84 years)). Technical success was reported in 31 (97%) of procedures; clinical success (i.e. full or partial resolution of symptoms in 24 hours) was reported in 24 patients (78%). 1 procedure (3%) required restenting within the 5 year period due to re-obstruction. No immediate complications were reported. There was one reported death within 24 hours of stenting; however this was not attributed to the procedure itself. The median survival was 45 days (1-1,010 days).

Conclusions: SVC stenting is a palliative procedure which aims to alleviate symptoms of SVCO caused by malignancy. Our results are comparable to those published by CIRSE (2006) and demonstrate that good clinical practise is maintained in the care of such patients.

P-074 Treatment of deep vein thrombosis using direct catheter thrombolysis with alteplase

Simon Greenwood; Islah Din; Gian Abbott; Mohamed Barkat

Countess of Chester Hospital NHS Foundation Trust

Purpose: To evaluate the outcomes and complications following direct catheter thrombolysis of deep vein thrombosis (DVT) using alteplase.

Methods: 10 patients underwent direct catheter thrombolysis for DVT by split level infusion with alteplase between January 2009 and February 2012 and were retrospectively assessed (4 female, 6 male; average age 43; 4 upper limb DVTs, 6 lower limb; mean duration of thrombolysis 24–48 hours; median hospital admission 7 days). Precipitating factors included 2 patients with anomalous venous anatomy and 2 patients with thoracic outlet syndrome. Complications occurring within the same hospital admission were deemed to be acute and those occurring on subsequent follow-up as chronic. Follow-up was assessed for a minimum of 6 months. Outcomes were assessed symptomatically on outpatient clinic review and radiographically by the degree of thrombus resolution on immediate post-thrombolysis venography (nil, partial or complete).

Results: 5 patients (50%) had complete resolution of their DVT, with the remaining 5 patients (50%) having partial resolution.

9 patients (90%) had complete resolution of their symptoms with the remaining patient (10%) having ongoing leg swelling and erhythema.

No acute or chronic complications from the procedure were recorded in any of the patients, with only the 1 patient having ongoing symptoms and a possible post-thrombotic syndrome.

Conclusions: Direct catheter thrombolysis with alteplase is a safe and effective treatment for deep vein thrombosis and compares favourably to mechanical thrombectomy, with preservation of valves. It should be considered as a treatment option in patients presenting with upper or lower limb deep vein thrombosis.

P-075 Catheter guided thrombolysis for the treatment of acute limb ischaemia and deep vein thrombosis: How, when and does it work?

Nimit Goyal; Aamer Iqbal; Cristopher Chick

Department of Radiology, Royal Gwent Hospital

Introduction: Managing acute limb ischaemia and venous thrombosis is challenging. Treatment options include thrombolysis and surgery. Thrombolysis may be mechanical or chemical. Chemical thrombolysis is administered systemically, intravenously or via catheter. The debate about which is the best approach continues. We present a retrospective study assessing the success of catheter guided thrombolysis in patients with acute limb ischaemia and venous thrombosis. We aim to assess the factors which affect the outcome such as time from onset of symptoms, extent of clot etc.

Methods: A retrospective study of 45 patients with a diagnosis of acute limb ischaemia or Deep Vein Thrombosis; who underwent diagnostic angiography/venography and subsequent thrombolysis from 2000-2012. Imaging and thrombolysis was performed and reported by a consultant radiologist. All patients underwent initial imaging to assess if thrombolysis was suitable.

Results: The age of patients undergoing thrombolysis ranged from 11-87yrs with 60yrs being the average. 38(84%) patients underwent thrombolysis for acute limb ischaemia and 7(16%) for deep vein thrombosis. Thrombolysis duration ranged from a single bolus dose to 51 hours with 22 hours as an average. 34(75 %) patients had successful thrombolysis with 4(9 %) suffering complications. 2 patients suffered a groin haematoma, 1 from puncture site bleeding, and 1developed compartment syndrome requiring a fasciotomy and subsequent above knee amputation.

Conclusions: Catheter guided thrombolysis is an effective treatment option for patients with limb ischaemia or venous thrombosis. Although there are risks associated with the procedure, most notably bleeding, this technique may be suitable as a first line treatment option.

P-076 Adequecy of patient consent for interventional procedures

Ayesha Imran; Islah Ud-Din; Simon Greenwood; Gian Abbott

Countess of Chester Hospital

Purpose: All patients undergoing interventional procedures for diagnostic or therapeutic purposes should be given sufficient information in a way they can understand in order to enable them to exercise their right to make informed decision about their care. This audit was organized to reduce the number of erratic or deficient processes for obtaining consent for interventional radiology procedures.

Method: The audit was performed prospectively. All patients undergoing major interventional procedures were included for four consecutive weeks. 49 patients were asked to complete a proforma and their positive and negative responses were recorded.

Results: The most positive responses were on the questions regarding adequate opportunity to ask questions and signing of consent forms, which was 96%. Questions regarding explanation of the procedure and complications related to the procedure received positive responses in 86%. Types of anaesthesia were not explained in an effective way and scored 45%. Most negative responses were on questions of alternative methods of examination or

treatment which were discussed in only 39% of cases. Overall, the results did not meet the standard RCR criteria of 95%.

Conclusion: The results indicate that the consent process requires significant improvement in various aspects in order to achieve the standard. Discussion about the issues leading to inadequate consent and knowledge about local and national consent policies are essential. Compulsory consent training will become part of the core induction for staff who obtain consent. Senior help, intranet and internet resources and patient information leaflets will be used to ensure informed consent is achieved routinely.

Clinical: Uroradiology; gynaecology; obstetrics

P-077 A retrospective analysis of 991 CT urograms to describe the prevalence of clinically significant extra-urinary findings

Helen Burt; David Little; Edward Simpson; McCoubrie Paul; Mark Thornton

North Bristol NHS Trust

Aim: The purpose of this study is to describe the prevalence of clinically significant extra-urinary findings on CT urograms.

Content: The poster will present a retrospective analysis of 991 consecutive CT Urograms conducted between February 2010 and May 2012 within a busy teaching hospital. Findings are categorised according to clinical significance using a previously described system to facilitate comparison with similar studies. Case examples will be presented and described to illustrate common clinically important findings.

Relevance: CT urography is a specialised investigation primarily performed to detect upper renal tract urothelial malignancies in patients presenting with haematuria. Significant incidental extra-urinary findings are common and awareness of their prevalence and categorisation aids reporting and on-going management of these patients.

Outcomes: Clinically significant extra-urinary findings requiring further investigation or management were reported in 94 of 991 CT urograms; a prevalence of 9.5%.

Discussion: Findings were categorised as being highly significant if they involved new appearances suggestive of malignancy or metastatic disease or acute conditions requiring immediate intervention such as infective or inflammatory processes. The most commonly reported conditions were abdominal or pelvic lymph nodes greater than 1cm and abdominal aortic aneurysm greater than 3cm. In many of the other cases, common incidental findings were gallstones, diverticulosis, herniae and pleural plaques suggesting previous asbestos exposure. These pathologies potentially have clinical relevance for the future management of these patients and are important to document within the patient record.

P-078 Krukenberg cases- a review of radio pathological correlation

K Presod; Zeid Al Ani; Claire Horton; M Arrayeh; Ed Kweka; A Elsayed; N Sumwanyamber

North East Lincolnshire; Manchester Radiology

Aims/Objectives. Awareness that evaluation of Bilateral ovarian tumours will require consideration of the Gastrointestinal and mammary system for a primary lesion.

Content. Classically Krukenberg tumours have been described as metastatic bilateral ovarian adenocarcinoma. However, with advances in imaging leading to early malignancy detection in gynaecologic as well as other organ systems, it is important to remember that patients presenting with bilateral ovarian tumors could be metastatic and imaging can help in establishing the source. In a review of a number of cases, we look at a variety of radiological presentations and the pathological diagnoses: ranging from classic presentations and additional subtypes including Gastroinestinal Stromal Tumors.

Relevance: As a clinical guide to radiologists and clinicians, ,an awareness that bilateral ovarian tumors should have metastasis considered as a differential. Other clues in the clinical history and diagnostic findings should raise the alert for further cross sectional investigation.