



pathologies, which could explain the patient's presentation. The poster would focus on the idea that the patient has Peripheral Vascular Disease.

There are many imaging routes that could be used to confirm PVD including DSA, MRA, CTA and duplex ultrasound. The poster would make an analysis of these imaging techniques and subsequently discuss the potential treatment options. Overall the poster is designed to share the complete pathway of a patient and develop an understanding of the features of different imaging modalities. Also the presentation would allow others to appreciate the role of the radiographer in relation to the patient's care.

#### P075 Pick up rate of repeat Doppler ultrasound scans

[Adeel Syed](#)

*Princess Alexandra Hospital NHS Trust*

**Relevance:** NICE states that we should repeat proximal leg vein ultrasound scans 6–8 days later for all patients with a positive D-dimer test and a negative proximal leg vein ultrasound scan. For a busy department, this can significantly increase workload, therefore I audited this practice.

**Aims:** To assess:

- How many of these repeat ultrasound scans had a change in outcome?
- How many patients are getting repeat ultrasound scan within 6-8 days?

**Content:** 75 Repeat limb ultrasound scans carried out between Sept 2013 and Jan 2014 (excluding repeat ultrasounds done for 2 limbs on same day and scans repeated for technical factors).

**Outcomes:** Data showed that 75 patients with repeat scans carried out, 11 of which positive for DVT, 6 scans showed a change in result from negative to positive and 5 scans were positive on both scans. Therefore, 8.0 % of scans had a change in scan result from negative to positive for DVT 75 patients with repeat scans carried out, out of which 55 were within 8 days, and 20 were after 8 days therefore, 73.33% of repeat scans were carried out within the 8 days recommended by NICE.

**Discussion:** Since 8% of scans had a changed result for DVT, audits could be repeated elsewhere, and NICE informed regarding cost effectiveness of this procedure. 73% of repeat scans were done within 8 days as per NICE, suggested more out of hours work is needed to meet deadlines.

### Clinical: Uroradiology; gynaecology; obstetrics

#### P076 Inadvertent scanning of the pregnant uterus - what it looks like and what to do

[Peter Logan](#); [Azadeh Taheri](#); [Rebecca Wiles](#)

*Royal Liverpool and Broadgreen University Hospitals NHS Trust*

**Aims/objectives:** Occasionally, despite best efforts of radiographers and radiologists, women who do not know they are pregnant inadvertently undergo radiological investigations. It is important that the practitioner is able to recognise the pregnant uterus on imaging and to know the implications that the radiological investigation may have on the woman and the foetus.

**Content:** The authors present the imaging findings in pregnancy using plain film, CT and MRI images. The authors also discuss the issues of radiation protection and MRI safety in pregnancy using the available guidelines, to enable the reader to be able to counsel patients if they have had an inadvertent radiation exposure or MRI study.

**Relevance/outcomes:** Although rare, inadvertent radiation exposures in pregnant women do occur. The authors aim that after reading this poster the reader will be better prepared to deal with this if required.



### P077 Pictorial review of MRI findings in fallopian tube pathology

[Farhat Bano](#); [Chinedum Anosike<sup>1</sup>](#); [Akash Ganguly](#)

*Warrington General Hospital<sup>1</sup>*

**Introduction:** Although fallopian tube pathologies are common, they could be difficult to characterise on MRI, particularly when they are seen as incidental findings, more so for general radiologists.

**Aim:** The aim of our poster is to refresh local anatomy and assist reporting general radiologists to identify, recognize and characterise different fallopian tube pathologies, seen as direct or incidental findings on pelvic MRI.

**Contents:** The common conditions encountered include a spectrum of pelvic inflammatory disease ranging from salpingitis to pyosalpinx to tubo-ovarian abscess. Hematosalpinx can be an indicator of tubal endometriosis; however tubal torsion or malignancy should be excluded. Hydrosalpinx unilateral or bilateral can be secondary to obstruction of the ampullary segment; the most common caused being PID. Other causes include tubal ligation, hysterectomy without salpingo-oophorectomy, endometriosis, and tubal malignancy.

**Impact:** We will familiarize our viewers with the imaging appearances of the common conditions along with discussion on the differential diagnosis of benign and malignant fallopian tube disease as it is crucial to identify benign tubal pathology which can mimic malignant or complex adnexal or ovarian masses.

**Outcome:** To help in the optimal diagnosis and management of the patients with the pelvic diseases.

**Discussion:** Although ultrasound imaging remains the most common imaging modality for the initial assessment of pelvic disease, MRI has a recognized role in characterization of the tubal pathology encountered on sonography. Lack of familiarity with the imaging appearances on MRI can cause confusion and/or delay in the management of these patients. We bring a cohort of interesting and commonly encountered cases of tubal diseases to illustrate and reinforce the knowledge of general reporting radiologists.

---

### P078 10 shades of grey. Optimum CT contrast dilution to opacify non-vascular body cavities

[Zeid Al-Ani](#); [Syahminan Suut](#); [Suraj Amonkar](#); [Brendan Hayes](#)

*North Manchester General Hospital*

Different types and dilutions of contrast materials are used to directly opacify various body cavities during CT studies (like CT cystogram, fistulogram and loopogram studies). There is very little literature on this; dilution is often done on guesswork without readily available guide. The aim of this pictorial presentation is to provide:

- Direct, comparable and practical visual guide for radiology departments to achieve the desired contrast opacification;
- Easily reproducible dilution calculations for different types and concentrations of commonly used contrast materials.

Different concentrations of Omnipaque 370 (370 mg of iodine/ml) were scanned using a multidetector CT scanner. Obtained densities will be shown in comparison to control (water) providing a direct visual guide for radiology departments to readily achieve the desired density. The iodine concentration for each density is calculated so that each specific degree of opacification is easily reproduced with alternative contrast materials. We will provide equivalency tables for all commonly used contrast media. CT scanner and patients factor will also be taken into consideration.

This pictorial guide will standardise the dilution technique used and help achieve consistent excellent contrast opacification according to the targeted study. This is vital to produce images of excellent diagnostic quality and avoid suboptimal/non diagnostic studies.

---

### P079 Are national guidelines followed by sonographers when reporting on ovarian cysts?

[Rebecca Bird](#); [Jane Harvey-Lloyd](#)

*University College Suffolk*



Every sonographer has an individualised approach when composing reports; whether immediately after acquiring their images, or after several examinations. Whilst UKAS and RCOG guidelines have been in place since 2008/2010, there is still variation in practice resulting in inconsistent reports.

**Aim:** To determine whether guidelines set by national bodies are being adhered to by sonographers in the process of reporting on pelvic ultrasound examinations in women with findings of ovarian cysts.

**Objectives:**

- Design a suitable data collection tool to ascertain if sonographers are adhering to the RCOG recommendations and UKAS criteria for reporting on ovarian cysts.
- Undertake a retrospective audit to establish whether criteria is being followed systematically.
- Evaluate whether the departmental protocols meet the UKAS and RCOG guidelines.

**Method:** 138 ovarian cyst cases were retrospectively analysed against the criteria including menopausal status; examination method; pathological findings; measurements; description; recommendations made by sonographer etc. For each set standard, a 95% compliance rate was used as a target.

**Results and conclusions:** 74% of women were of reproductive age which potentially alters the recommendations made (if necessary) by the sonographer. Of the data collected, one example to note is that 32% of cases were septated and 30% of simple nature; however, interestingly, there was no distinguishment of singular and multiple septated cysts. This is an example of how crucial it is for detailed reports as outcomes for singular and multiple septations are completely different. In conclusion, the compliance rate for adherence to reporting was not reached.

---

**P080 Image guided omental biopsy: a pictorial review of radiological and histological technique to improve diagnostic yield**

[Henry Walton](#); [Vani Agarwal](#); [Sue Buckingham](#); [Samita Agarwal](#); [Sebastian Chang](#)

*The Lister Hospital, Stevenage*

**Content:** We present a pictorial review of 100 cases carried out in our institution over the past five years of radiological guided biopsies of peritoneal/omental thickening/nodules. We present classical CT and ultrasound features of omental disease and describe how to improve diagnostic yield of omental biopsy from our experience with emphasis on the practical radiological technique and the use of recent advances in immunohistopathological analysis.

**Clinical:** Omental/peritoneal disease is caused by a range of benign and malignant pathologies. Imaging and clinical features alone are unreliable for differentiating between these pathologies. Tissue biopsy remains the cornerstone of diagnosis.

**Relevance/impact:** Refining radiological biopsy and histological technique increases the diagnostic yield of biopsy and results in timely focussed treatment of the underlying disease process.

**Outcomes:** Image guided biopsies were performed in 100 patients. The range of pathologies identified was broad. The majority of patients had a malignancy with primary tumour sites including the lung, upper GI, lower GI, Gynaecological and prostate. Some patients were found to have benign peritoneal thickening such as tuberculosis. We describe the technique of omental/peritoneal biopsy with tips of how to ensure a diagnostic sample based upon our 5-year experience. We also present the imaging-pathological correlation with a description of how to diagnose omental disease from tissue samples using new immunohistopathological techniques.

**Discussion:** With refined image guided biopsy technique and histological analysis omental biopsy is an accurate, reliable way to diagnose the cause of omental disease and leads to timely focused treatment.

---

**P081 Avoiding repeat CT examinations in renal colic patients**

[Daniel Lyndon](#); [Nicholas Drinnan](#)

*Frimley Park Hospital*



**Aims:** To determine whether patients admitted with CT-confirmed ureteric colic also have an X-ray KUB to assess whether calculi are radiopaque thus preventing urologists from using X-ray rather than repeat CT during follow-up assessments.

**Standard:** RCR - If calculi can be identified on AXR or US, they should be followed up as such to minimise radiation dose from multiple CT examinations.

**Local:** X-ray KUB should be performed in patients with CT-confirmed ureteric colic to assess whether calculi are radiopaque.

**Methods:** Retrospective review of 45 patients who were admitted with CT-confirmed ureteric colic. PACS and Patient Manager records were reviewed to see whether a same day KUB or abdominal radiograph were requested and performed and whether these showed radiopaque calculi.

**Results:** 45 patients were admitted that had CT KUBs showing ureteric calculi. 22 of these (49%) had a contemporaneous X-ray KUB examination. 14 out of 22 (63.6%) radiographs showed radiopaque calculi. 27 patients were seen in follow-up stone clinic, 12 of which had no radiograph available(44.4%).

**Outcomes:** A trust ureteric colic guideline was produced which included a protocol for investigation and preferred management. This emphasised the importance of performing same day X-ray examinations and the using them in the follow-up of patients with radiopaque calculi where possible.

**Discussion:** Our protocol should raise awareness of using radiographs for investigation where possible and to avoid use of repeat CT and therefore higher radiation dosing and cost.

---

#### **P082 Investigating suspected renal colic in women - should the current guidelines be set in stone?**

[Alex Powles](#); [Greg Powles](#)

*YDH NHS Foundation Trust*

**Background:** CT of the urinary tract (KUB) is seen as the gold standard investigation for suspected renal colic in patients of all ages and both genders, but should we consider ultrasound in the female population where renal stones are less prevalent and a wider differential diagnosis exists?

**Aims:** To identify the rate of detection of ureteric stones and alternative diagnoses in patients undergoing CTKUB for suspected renal colic in a district general hospital emergency department, and to determine if there is a difference in detection rates between male and female populations.

**Results:** Reports of CTKUB scans requested from the emergency department over a seven month period were retrospectively reviewed. From a total population of 68 patients, ureteric calculi were detected in 51%, with an alternative diagnosis present in a further 10%. Splitting the population into male and female sub-groups (n = 35 and 33 respectively), ureteric calculi were detected in 66% of male patients compared to 36% of female patients, a significant difference (p-value <0.01 with a two-sample pooled t-test). An alternative diagnosis was detected in 3% of male patients, compared to 18% of female patients, such diagnoses including ovarian cysts and appendicitis.

**Discussion:** The dose of radiation for a CTKUB is certainly significant. Given that protocols for renal colic often allow for an 'in-hours' CTKUB, these results raise the question of whether there is still a place for ultrasound, such that female patients with alternative diagnoses such as ovarian cysts and appendicitis can be spared unnecessary radiation.

---

#### **P083 Appropriate use of ultrasound for acute kidney injury. Is education a double edged sword?**

[Fawad Shameem](#); [Raja Ezman Shariff](#)

*Stockport NHS Foundation Trust*

Acute kidney injury (AKI) is commonly seen in inpatients. It places a great cost on the NHS and the patient. Timely and appropriate management is not only nephron sparing but potentially lifesaving. Ultrasound scanning (USS) is a well-recognised method for stratifying patients. Subsequently the NICE AKI guidance has defined groups in whom



scanning is recommended within 6 hours of request, pyonephrosis and within 24 hours, obstruction/cause unknown. Interestingly they suggest that routine scanning isn't needed where the cause for the AKI has been identified.

- 92 inpatients underwent an USS over 3 months for AKI.
- 75% were requested for possible obstruction/unknown cause. 71% of patients with possible obstruction were scanned within 24 hours while only 50% of those with unknown cause.
- 10% of requests were for pyonephrosis. Only 33% were scanned within 6 hours and a further 33% within 24 hours.
- 15% of requests had a cause declared and so potentially did not require scanning. Evaluation of the patients' notes suggested further interesting findings. Firstly as many as 39% of patients had a known cause and so potentially did not need scanning subsequently the cohort of unknown cause/obstruction reduced to 45% but rather alarmingly the cohort of patients with possible pyonephrosis went up to 16%, suggesting that there may be under recognition of this life threatening condition.

We plan to highlight these findings within our institution and make changes to encourage more appropriate requesting and timely scanning. Time will tell if we manage to save or increase our costs in this cost conscious NHS. Fortunately though patient benefits seem to be guaranteed.

---

#### **P084 Contrast induced nephropathy: Are we adhering to guidelines? A retrospective analysis and audit**

[Geoffrey Chow](#); [Subhadip Ghosh-Ray](#)

*Basildon Hospital*

**Aim:** Our aim was to assess trust performance in identification and follow-up of patients at risk of contrast enhanced nephropathy (CIN).

**Methods:** A retrospective audit was performed against trust guidelines, with expected standards of 100% in the following criteria:

- 1) Established renal function prior to contrast;
- 2) Established renal function 48-72 hours following contrast;
- 3) Renal team follow-up if CIN diagnosed;
- 4) Assessment of renal function 5 days after CIN diagnosed. The sample group was 212 patients who had a CT pulmonary angiogram during January and June 2014.

**Results:** Renal function was established in 99% of patients pre-CTPA but only in 39% of patients following contrast. CIN was diagnosed in 8% of patients with pre- and post-contrast renal function assessment. The renal team followed up 33% of patients and 25% had follow-up renal function assessment. The diagnosis of CIN could not be determined in 63% of patients.

**Discussion:** Contrast induced nephropathy (CIN) is known to increase mortality. More patients are exposed to this risk as the contrast enhanced investigation demand rises. Standards were only met in assessment of renal function prior to contrast. This reflects a lack of awareness/compliance for trust guidelines for CIN. CIN could not be confirmed in a large proportion of patients due to lack of post-contrast renal function assessment, thus the true incidence of CIN remains unknown. Findings are awaiting local audit presentation. A proposal is being prepared in collaboration with pathology to update trust policy according to new Royal College of Radiology guidelines of CIN.

---

#### **P085 3T dynamic MRI pelvis**

[Mei Fang Tay](#); [Pik Hsien Chai](#); [Tee Meng Tan](#); [Yan Mee Law](#)

*Singapore General Hospital*

**Introduction:** Dynamic MRI of the pelvis is an excellent non-invasive modality for assessment of pelvic floor dysfunction in patients suffering from symptoms of pelvic organ prolapse, pelvic pain, constipation and fecal and/or urinary incontinence.

**Objective:** We share our experience in dynamic MRI pelvis performed with a 3 Tesla (3T) MRI unit and to discuss the imaging techniques employed.



**Materials and methods:** Retrospective review of all dynamic MRI pelvis performed in a single tertiary institution from January 2012 to November 2014. All patients were imaged in supine positions in following instillation of 50 ml of sonographic gel into the rectum.

**Results:** A total of 58 patients were identified. Mid-sagittal plane sequential rapid T2W imaging was performed at rest, during straining and defecation, followed by high resolution T2W small field of view of the pelvis performed in axial and coronal planes for assessment of the pelvic organs and musculature. After 15 May 2013, the sequential rapid T2W sequence was replaced by TrueFisp sequence.

**Discussion:** Patient cooperation is crucial for a successful examination. Explanation of the procedure and demonstration of correct breathing techniques during the examination is paramount in achieving a satisfactory examination. In our experience, the TrueFisp sequence is superior to rapid T2W sequence in demonstrating the extent of pelvic organ prolapse. High resolution T2W images of the pelvis provide important anatomical and morphologic information.

**Conclusion:** Dynamic MRI pelvis with a 3T MRI unit is an excellent modality for assessment of functional pelvic floor disorders, providing valuable functional and morphologic information that will aid in treatment and surgical planning.

---

#### P086 **IVU digital tomosynthesis: A pictorial review of pathology**

[Mark Thurston](#); [Angela Galea](#); [Simon Freeman](#); [Catherine Gutteridge](#); [Sam Crompton](#); [R Ward](#)

*Peninsula Radiology Academy*

Digital tomosynthesis for imaging the upper tract urothelium is an emerging low-dose high-resolution modality based on conventional tomography. It acquires multiple low-dose projections during a single X-ray tube sweep then reassembles these to provide high-resolution slices at different depths. Plymouth introduced IVU tomosynthesis over 6 years ago and have performed over 5000 studies.

Compared to conventional IVU, tomosynthesis, images are acquired faster and dose less than half a traditional IVU performed with tomography. In a study of 200 renal units performed in our institution, the diagnostic quality of tomosynthesis IVU was found to be superior to conventional IVU with 95% of tomosynthesis studies found to be of diagnostic quality when compared with 46% for the standard IVU examination.

The CT urogram is the gold standard modality for imaging upper tract urothelium providing exquisite detail of renal parenchyma and urothelium at the expense of a radiation dose that is 30 times more than tomosynthesis IVU. Due to the popularity and waiting lists for CT in many institutions, tomosynthesis IVU still holds a place in the armamentum of the urologist for investigation of haematuria, for surveillance of patients with urothelial tumours, in demonstrating renal tract anatomy in a variety of congenital and acquired conditions and as a precursor to stone surgery. We present a pictorial review of anatomy and pathology, correlated with CT findings where applicable:

- Transitional cell carcinoma
- Renal-tract urolithiasis
- Anatomical variants: horseshoe kidney, duplex, crossed fused ectopia
- Infections: scistosomiasis
- Miscellaneous: renal sinus lipomatosis.

---

#### P087 **Gastric diverticula: recognising an adrenal 'pseudomass' on CT**

[Gareth Lewis](#)<sup>1</sup>; [Peter Strouhal](#); [Hiten Patel](#)<sup>2</sup>

*The Royal Wolverhampton Hospitals NHS Trust*<sup>1</sup>; *University Hospitals Coventry and Warwickshire NHS Trust*<sup>2</sup>

**Aims/objectives:** A gastric diverticulum may simulate a left adrenal mass on cross-sectional imaging and is therefore a key adrenal 'pseudomass' to recognise. This poster familiarises radiologists with the common imaging findings of this phenomenon, and discusses its importance. We also highlight simple imaging strategies to help establish the diagnosis.



**Content:** We present CT imaging from three separate incidental findings of gastric diverticula simulating adrenal masses.

**Impact/relevance/discussion:** Adrenal nodules and masses are common incidental findings on CT, and may be benign or malignant. Whilst some lesions can be characterised on a single study as a benign adrenal adenoma, many are classed as indeterminate and require additional imaging, such CT (with and without IV contrast) or MRI. Gastric diverticula are a well-recognised cause of an adrenal 'pseudomass'. Familiarity with this entity is important for radiologists as it may prevent misdiagnosis and unnecessary further imaging. Use of multi-planar reformatting, or the presence of gas or oral contrast within the presumed adrenal lesion, can confirm the diagnosis.

## Clinical: GI and hepatobiliary

### P088 Is further imaging indicated after acute diverticulitis?

[Noor Dawn Assaf](#); [Andy Planner](#)

*Great Western Hospital*

**Purpose:** Acute diverticulitis is a common surgical admission. CT is a very sensitive investigation to confirm the diagnosis and assess for complications. There is an increasing trend for follow up imaging on these patients at an interval after their acute event. We explore if, who, when and how follow up should be performed in these patients.

**Method:** We performed an extensive literature search on Pubmed, looking at malignant potential, different imaging techniques and timing of any investigations.

**Results:** The American Society of Colorectal Surgeons suggests that follow up should occur 6-8 weeks after the resolution of an acute attack in patients with abdominal pain and colonic wall thickening using colonoscopy or CT colonography (CTC). However, they admit that evidence for this time interval is lacking.

The majority of studies assessed the use of direct colonoscopy after CT confirmed diverticulitis. However, a study has suggested that patients found CTCs less uncomfortable, with a good correlation between findings on CTC and colonoscopy.

In uncomplicated diverticulitis, studies have indicated that there is no increased risk of malignancy above the background population and further imaging is not recommended.

Multiple studies suggest an increased risk of malignancy with complicated diverticulitis - with one study suggesting increases of 4x with perforation, 7x with abscesses and 18x with fistulas.

**Conclusion:** Uncomplicated diverticulitis does not carry an increased risk of colorectal malignancy. Follow up imaging should be arranged for those with a more complicated picture. CTC may offer a safe and effective follow up tool but further studies need to confirm this.

### P089 Comparison between combination and Gastrograffin only preparations for CT colonoscopies

[Noor Dawn Assaf](#)<sup>1</sup>; [Lucia Chen](#)<sup>2</sup>; [Adrian Pollentine](#); [Paul McCoubrie](#)<sup>2</sup>

*Great Western Hospital*<sup>1</sup>; *North Bristol NHS Trust*<sup>2</sup>

**Purpose:** To compare Gastrograffin only preparation to the traditional Bisocodyl, low density Barium and Gastrograffin combination for CT colonoscopies. To also assess the acceptability of the Gastrograffin only preparation regime for patients.

**Methods and materials:** Data was collected from the CT colonoscopies of 100 patients from each group. Six areas of the colon were assessed and a scoring system used to evaluate the volume and tagging of stool and fluid. 124 patient satisfaction questionnaires were collected from those who were given the Gastrograffin preparation.

**Results:** Using the t-test, stool and fluid volume and tagging showed no significant difference between the groups. There was increased variability in fluid volume in the Gastrograffin group but a more consistently high quality of fluid and stool tagging.