



recommended as the significance of these lesions were uncertain. Up to this stage, the first differential diagnosis was malignancy. The final diagnosis of amyloidosis was made histologically.

Conclusion: Amyloidosis includes a group of diseases where there is extracellular deposition of amyloid. The deposition may be systemic, organ-limited or localized. Localised amyloidosis is uncommon. Imaging characteristics are nonspecific and can lead to clinical suspicion of malignancy. Learning points: Unusual calcifications should not be disregarded as benign or non-significant. Amyloidosis can mimic malignancies and hence biopsy is mandatory. All that glitters are not gold and all that look abnormal on imaging is not cancer.

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URORADIOLOGY GU / ENDOCRINE

P063 Comparison of inter-observer variability (IOV) in prostate IGRT using 3D-CBCT fiducial or soft tissue registration

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Background: Knowledge of IOV is essential when calculating clinical target volume (CTV) to planning target volume (PTV) margins in prostate radiotherapy. With daily IGRT, set-up error is corrected and other sources of uncertainty become more important. Our aim was to quantify IOV for prostate RT when using 3D-CBCT fiducial match (FM) or prostate soft tissue (ST) match.

Methods: This retrospective study included low/intermediate risk patients completing 60Gy/20 fractions. Patients either had FM or ST for registration. Anonymised CBCT images for 1 fraction per patient were: set to acquisition position, re-registered (either FM or ST) and analysed. Observers were blinded to match values. Vertical, longitudinal and lateral values recorded. Two-way ANOVA was performed and plotted using Modified Bland Altman limits of agreement (LoA), and descriptive statistics reported.

Results: A total of 6 patients with FM, and 6 patients with no markers were analysed. Each image set was registered by 10 observers i.e. 120 registrations. IOV CBCT-FM, 95% mean LoA was ± 1.7 mm, ± 2.2 mm and ± 0.7 mm in vertical, longitudinal and lateral axes. No statistical significance (<0.05) was found within the FM group in vertical, longitudinal or lateral axes ($p=0.27$, $p=0.82$, $p=0.21$). For CBCT-STs, 95% mean LoA was ± 2.6 mm, ± 3.1 mm and ± 0.7 mm. Statistical significance was found in ST group on vertical axis only ($p=0.04$) but not lateral or longitudinal axes ($p=0.07$; $p=0.43$).

Conclusion: IOV is larger when registering to ST than FM. When attempting to reduce PTV margins, IOV should be understood and applied to margin calculation.

P064 Leiomyoma of the urinary bladder: A pictorial assay of a rare tumour

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Royal Blackburn Hospital

Introduction: Bladder leiomyoma is the most frequently encountered benign mesenchymal vesical tumour and, in itself, constitutes less than 0.5% of all tumours of bladder origin. The body of literature describing the condition is very scarce with less than 250 cases being reported over the last century. Here, we present three cases of vesical leiomyoma and review the literature pertaining the condition. Clinical presentation: The mean age of presentation is 52 years (23 to 77 years) with a literature discrepancy regarding gender distribution although a female to male ratio of 3:1 has been reported. Lesions can be intravesical, mural, or extravesical. While the vast majority of extravesical and mural lesions are asymptomatic, the presentation of intravesical neoplasms may include haematuria, urinary frequency, mass effect, or bladder outflow obstruction.

Radiological features: On ultrasonography, leiomyoma is a typically smooth-walled, homogeneously hypoechoic, solid neoplasm with a thin echogenic surface. On computed tomography, it appears as a hypodense lesion with poor to moderate enhancement characteristics. Magnetic resonance imaging is superior to ultrasound and computed tomography and helps in differentiating between benign leiomyomas and malignant leiomyosarcomas. Leiomyoma has a low to intermediate signal intensity on T1 and low signal characteristics on T2 weighted sequences. Contrast enhancement is variable and is usually absent in degenerating lesions.

Treatment: Treatment of bladder leiomyoma is surgical resection. While transurethral resection of bladder tumours is generally preferred for small-sized neoplasms with intravesical localisation, partial cystectomy and segmental resection are preferred for larger lesions.



P065 Bladder preparation in abdominal US exam for suspected pelvic pathology audit

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Introduction: For optimal pelvic organ assessment, a full urinary bladder is required to act as an acoustic window through which pelvic organs are evaluated^[1]. Assess the degree of urinary bladder preparation and its influence on the degree of reporting confidence in addressing the referring query. Goal: All non-emergency inpatients attending for an abdo-pelvic ultrasound for a suspected pelvic pathology should have a full urinary bladder when being scanned.

Method: Screening extended from June to October 2019. Paediatric/emergency cases and patients with no suspected pelvic pathology were excluded. Bladder preparation was defined as 'full', 'partially full', and 'empty'. Reporting confidence was classified as 'confident', 'equivocal', and 'failure'. Only reporting limitations attributed to bladder preparation were included.

Results: Out of 350 scans evaluated, 136 scans were included in the final analysis. Overall, only 40% of patients had a 'full' urinary bladder while 38% and 22% had a 'partially filled' or 'empty' bladder, respectively. In the partially filled/empty bladder cohort, the report was able to 'confidently' address the presenting query in 34% of the cases. The report was 'equivocal' or has 'failed' to address the query in 49% and 16% of cases, respectively. In the full bladder cohort, the report 'confidently' addressed the query in 92% of the cases and 'failed' in only 2% of scans.

Conclusion: Urinary bladder preparation in the studied cohort is suboptimal which negatively impacted the degree of reporting confidence. Tools to address this issue will be introduced and evaluated in the second cycle of the audit.

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P066 The role of high-resolution MRI in men with spaceOAR hydrogel undergoing radiotherapy for prostate cancer: A step towards clinical effectiveness

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GenesisCare UK

Background: Prostate cancer is the most commonly occurring cancer and the leading cause of cancer death in men worldwide. Radiation therapy has been considered an effective modality and established treatment for prostate cancer that can result in improved clinical outcome. However, there are concerns about dose escalation including the risks of rectal toxicity. Interest has grown to the novel approach of inserting spaceOAR hydrogel, a water-soluble gel that creates a temporary gap of 10–15 mm between the prostate and anterior rectal wall, making it much less likely that the rectum is exposed to radiation. The position of the gel in the rectal lumen is often not clearly definable on CT but more visible in MRI.

Purpose: This presentation is to detail the role of MRI in assessing the placement of hydrogel spacer by using a high-resolution scanning protocol. The aim of the presentation is to educate the reader on various MR techniques and appreciate the characteristic appearance of spaceOAR, and be able to discriminate the gel, not as a mass, nor fluid collection or any other pathological conditions.

Conclusion: At our institution, we have developed a protocol that depicts the spacer and pelvic anatomy. Over the past months, it has improved and implemented high-resolution MR-based planning successfully and now locally routinely used in clinical practice. This review provides an optimal MR imaging protocol to assist in hydrogel and rectal delineation and thus, facilitates an accurate treatment planning.

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P067 Comparing verathon bladder ultrasound scanner and CBCT bladder volumes

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The Verathon Ultrasound Bladder Scanner is routinely used in our Radiotherapy department to verify bladder size for pelvis patients before setting up on the treatment couch and using Cone Beam CT (CBCT) image verification. The current protocol is to treat prostate patients with an empty rectum and comfortably full bladder. At their planning CT scan, they are scanned with a Bladder Scanner to obtain a reference bladder volume. Subsequently, before each treatment fraction the size of the patient's bladder is measured using the Verathon Bladder Scanner and this has been shown to reduce the number of repeat CBCT images required due to insufficient bladder preparation. A setup audit was performed to evaluate the set-up accuracy and reproducibility of patients receiving radiotherapy for prostate cancer. Correlation between the bladder volumes obtained with



the Verathon Bladder Scanner to the CBCT images would allow an assessment of the efficacy of the current department protocol and the results would determine tolerance levels for bladder scanner measurements. Daily CBCT images were acquired and reviewed for 17 consecutive patients, a total of 583 images. The bladder was outlined on each image by a single experienced observer and the patient treatment cards reviewed for the Bladder Scanner volumes recorded for each fraction. The average bladder scanner volume for all fractions was 257 ± 74 ml, whereas the average Bladder CBCT volume was 292 ± 73 cm³. Statistical analysis showed a strong correlation of the Bladder scanner volume and the CBCT bladder volume as expected.

P068 Introduction of a prostate information seminar: Enhancing patient experience

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Background: Preparation for prostate radiotherapy is commonplace within the modern radiotherapy setting. Limiting bowel and bladder side effects enhances patient quality of life (QOL) (Jayadevappa et al, 2006 and Mullaney et al 2014). This enables a reduction in late side effects to pelvic radiotherapy (Krol et al, 2018). Interfraction motion is significant (Barney et al, 2011). At the practice environment implementation of CBCT for patients in the PIVOTAL Boost clinical trial allowed visualisation of such effects. Both bowel and bladder variations have been observed even though rectal and drinking protocols are in use.

Purpose: Enhance treatment experience for all prostate cancer patients Reduce treatment related toxicities, including late effects; through improving quality of information and consequently adherence to bladder and bowel protocols. Improve patient QOL.

Summary: The introduction of a voluntary pre-treatment prostate information seminar has been implemented at the trust. Provision of in-depth information regarding treatment preparation and its necessity was delivered in the form of a power point presentation, covering all aspects of pre-treatment processes, treatment experience and the early and late side effects. A patient experience video clip of a previous patient is also included. A patient feedback questionnaire is completed at each session. All patients who have attended the seminar found the presentation useful and positively impacted the patient experience. Future provision will make this session mandatory for all prostate patients.

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P069 Prostate cancer in women and other patient specific issues: A national service evaluation of radiography staff's management of transgender patients

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NHS

Around 300,000 people in the UK experience some degree of gender non-conformance (GIREs 2009) and 6.3% of the population do not identify as heterosexual (ONS 2015). Literature shows that these communities face multiple health risks and healthcare disparities, as well as wider social problems, disproportionately in transgender communities. Yet, there is a lack of research into the provisions in healthcare that these individuals require, and what those provisions should be. A 22-question online survey was constructed and emailed to 88 service managers of radiotherapy departments, receiving valid 67 responses. As it was asked that the questionnaire be shared throughout the department, we cannot garner a response rate from this figure. This questionnaire aimed to give a brief insight into training, radiography staffs' ideas of transgender patient needs and how well staff feel they can meet these needs. This study found that radiography staff have a good understanding of terminology and awareness that outside social factors can impact a person's experience. A need for further training has been shown from responses: staff must be more aware of what constitutes transphobic behaviour and appropriate language. Further focus must also be placed on patient centered care: as the "one size fits all" approach to patients is detrimental to patient dignity.

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P070 Assessing PI-RADS use in prostate MR imaging

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Background: PI-RADS (Prostate Imaging Reporting and Data System) is a standardised reporting structure for prostate MRIs. It has been proven to increase the detection of tumours with malignant potential, is better than transrectal ultrasound guided biopsy at detecting cancer and has a good interreader agreement. We performed a full cycle audit to assess the local implementation of this system.

Methods: Patient data was collected through retrospective, consecutive sampling of all MRI prostate scans in 2018. Patients were stratified according to the reporting radiologist and the first 20 patients each radiologist reported were analysed. 140 scans from 7 consultants were assessed.

Results: Between audit cycles primary outcomes demonstrating PIRADs use increased. Prostate dimensions were described in 97.8% of patients (2018-63.1%) and zonal anatomy with a PIRADs score was described in 93.7% of patients (2018-90%). Secondary outcomes looking at invasion of adjacent structures (prostate capsule, seminal vesicle, bladder) did not show significant improvement.

Conclusion: This audit showed that key aspects of the PIRADS system had been successfully implemented. Secondary objectives implementing routine reporting of normal peripheral structures were not achieved as consultants felt 'fatigue' doing this. To overcome this we created a proforma with these details pre-populated to ease adoption.

P071 A pictorial review of significant non-urinary tract pathology found on an audit of CT KUB examinations

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Gloucestershire Hospitals NHS Foundation Trust

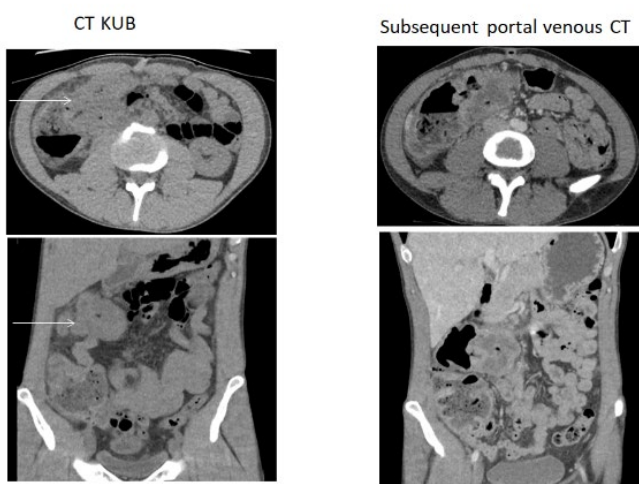
Background: Loin pain is a common presenting complaint in the emergency department, of which renal colic is often a top differential diagnosis typically investigated with low dose unenhanced computed tomography of the kidneys, ureters and bladder (CT KUB). Following a near miss in our institution an audit of CT KUB examinations was undertaken which showed a high

proportion of important pathology was identified on these studies outside of the urinary tract.

Purpose: A pictorial review to highlight important pathology that may be missed on CT KUB examinations and to make the case that patients who present with atypical clinical features have a contrast enhanced portal venous phase CT, rather than a non-contrast CT KUB.

Summary: The poster will briefly summarise the audit findings and present a range of pathologies identified in our audit which radiologists must be mindful to look for in the emergency setting of patients presenting with loin pain. Important cases included are colon cancer, ovarian cancer, diverticulitis, appendicitis and a range of other important pathology. We retrospectively audited 136 consecutive CT KUB examinations performed over a three-month period. Our results showed 55 CT KUB scans were normal and 81 abnormal. Ureteric stones were identified in 32% (44) and significant non-urinary tract pathology was identified in 12% (16) of CT KUB examinations.

Colonic tumour



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P072 Timing pre-treatment KUB radiographs following incidental detection of renal tract calculi on contrast enhanced CT: An audit

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Background: The imaging modality of choice for patients presenting with renal colic is a non-contrast CT of the urinary tract, with a 95% detection rate of calculi^[1,2]. However the presenting symptoms are not always typical of renal colic in which case renal tract calculi may be diagnosed on contrast enhanced CT (CECT). In the process of determining whether a patient is suitable for Shockwave Lithotripsy (SWL) under fluoroscopy, the urologists may require a plain abdominal x-ray to assess if the calculus can be visualised. If the urinary tract calculus was diagnosed on CECT, the KUB radiograph should be performed after 24 hours thus allowing sufficient time for the contrast to be excreted and thereby avoiding a non-diagnostic radiograph^[3].



Purpose: The aim of this audit was to assess our local practice and issue local guidelines if the 24-hour target was less than 100%.

Summary: We have reviewed the A&E CECT scans performed in our institution over a period of 9 months using CRIS-PACS. We have identified 19 cases of obstructing renal tract calculi with follow-up x rays. 11 out of the 19 had these radiographs within 24 hours of the CECT. 8 of these 11 had residual contrast on the KUB radiograph limiting its interpretation. 7 out of 19 had KUB radiograph between 24.5 - 72 hours. None had residual contrast visible. Results are discussed and limitations identified. The poster displays inconclusive radiographs performed too soon after CECT - showing varying amounts of contrast.

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P073 Assessment of appropriateness and outcomes of CT KUB in women

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Gloucestershire Hospitals NHS Trust

Introduction: Renal colic is an acute pathology and is more common in men. CT KUB is the gold standard investigation for renal colic due to its high sensitivity and specificity and associated low radiation dose. The aim of this audit is to assess the appropriateness and outcomes of CTKUB in women with suspected renal calculi.

Methods: All consecutive CT KUB's performed between October and November 2019 were retrospectively analysed. Patient demographics, presentation, urine analysis and CT results were reviewed.

Results: 137 patients with a mean age of 47 years (range 17-88) underwent CT KUB. Whilst 68 were men, 69 were women. Positive diagnosis of a renal calculi was established in 48 patients (35%). This was much lower in women 26%(18/69) compared to men 44%(30/68). Signs of recent passage were noted in 5(3%) patients. Of the remaining 84 patients without renal calculi (men=34; women=50), alternate diagnosis was established in 31(37%) patients; a significant proportion of whom were women (61%).

Conclusion: Our results demonstrate that approximately only one in four CT KUB's in women is positive for renal calculi. Alternative diagnosis and further imaging rates were also higher compared to men. This study highlights the need to design improved imaging pathway that effectively triage women for more appropriate imaging investigations if the presentation is atypical for renal calculi.

P074 Two-year retrospective audit: Nephrostomy success rates and complications at South Eastern Health and Care Trust

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South Eastern Health and Social Care Trust

Nephrostomy insertion is a procedure commonly performed by Interventional Radiologists and Urologists. Indications include urinary obstruction, diversion, endourological procedures and diagnostic testing. Risks associated with the procedure include haemorrhage, septic shock, bowel perforation and pleural complications e.g. pneumo/haemothorax. The Royal College of Radiologists suggest technical success rates should be $\geq 88\%$ with major and minor complication rates of $\leq 8\%$ and $\leq 15\%$ respectively. The American College of Radiologists suggests success rates should be $\geq 85\%$ with major complications of $\leq 4\%$. This audit set out to determine the technical success and complication rates at a large NHS district general hospital. All patients who underwent nephrostomy insertion at the centre were identified using a PACS search. Electronic care records and radiology reports were used to determine whether successful nephrostomy insertion had been achieved and whether associated complications occurred. In total 123 nephrostomy insertions were performed in 115 patients over a two-year period, 8 of which were bilateral. 120 of these attempts were successful, giving a success rate of 97.5%. Nephrostomy insertion was not possible in just 3 cases. No significant complications occurred. Minor complications were described in 9.7%. The presence or absence of complication was not mentioned in 7 cases, highlighting a need for complete documentation in future. Nonetheless, figures fall within ACR acceptable range at 15%. This audit underlines the high success rates and low complication rates at this centre. It is expected that complication rates will remain low and that documentation of such will be 100% at re-audit.

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P075 Diagnostic accuracy of multi-parametric(mp) MRI in prebiopsy prostate: A comparison with histology

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Background: Prostate cancer is the most common cancer in men^[3]. Multiparametric(MP) prostate cancer MRI is recommended as first-line investigation for people with suspected prostate cancer prior to biopsy^[1,2]. The study aimed to assess the diagnostic accuracy of using mpMRI to detect prostate cancer against histology as benchmark.



Methods: Retrospective review of 100 consecutive patients who undergone mpMRI reported using Prostate Imaging -- Reporting and Data System (PI-RADS) with score ≥ 3 followed by prostate biopsy between April 2017 to November 2017. Data were collected around patient demographics, MRI reports to score lesion level of suspicion and location, and correlated to Gleason grading from histology.

Results: The overall positive predictive value of mpMRI lesions for all prostate cancer is 80%. Suspicious lesions (PI-RADS score 4 and 5) have a positive predictive value of 83%. For clinically significant cancer (Gleason ≥ 7), the figures were 59% and 61% respectively. 93% of clinically significant cancer lesions were targeted correctly on MRI influenced biopsy. All highly suspicious lesions (PI-RADS 5) on MRI but negative on biopsy, showed histological features of inflammation or high-grade prostate intraepithelial neoplasia (PIN).

Conclusion: There is significant association between PI-RADS score and cancer detection rates. The use of prebiopsy prostate MRI has shown to have high positive predictive value in detecting and localising prostate cancer, which makes it a useful tool for targeting biopsy and detection.

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P076 A decade comparison of renal biopsies in Glasgow between 2008 and 2018

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Aim: To audit and compare the change in both ultrasound and CT-guided renal biopsy practice, lesion characteristics and lesion histopathology over a decade in three Southern Glasgow hospitals and audit the results with reference to published literatures^[1-3] and the Scottish Renal Registry.^[4]

Methods: All of the percutaneous core renal biopsies performed in Southern Glasgow sector hospitals in 2008 and 2018 were analysed looking at patient demographics, lesion characteristics, complication rates and sample histopathology. The results for 2008 and 2018 were compared.

Results: A total of 39 renal biopsies were carried out in 2008 and 107 in 2018. We observed a significant rise in total number of biopsies performed and a marked shift from ultrasound to CT over the decade with 80% ultrasound in 2008, compared to 15% in 2018. The technical difficulty of the biopsy has increased dramatically with a large reduction in lesion size and an increase in lesion biopsy depth. Despite the increase in technical difficulty the complication rates remained low and in line with the published literature, with a major complications occurring with a rate of 1.8% (2 of 110). Diagnostic yield of renal biopsies in 2008 and 2018 were 100% and 95% respectively.

Conclusion: In the last decade, we are being asked to perform biopsies on smaller and deeper lesions. As a result there has been a trend to perform biopsies under CT guidance rather than ultrasound. Despite the increase in technical difficulty the complication rates remain low and diagnostic yield high.

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P077 The role of diagnostic imaging in Cushing's disease

Margot McBride

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Background: My diagnosis of CD took me on a tortious diagnostic journey taking almost 6 years to diagnose. CD is said to be a rare condition and often found to be, 'mysterious,' in its origin. Patients with unequivocal progressive signs and symptoms of this condition require surgical intervention. Advances in MRI and Radio-nuclide imaging have improved the diagnostic capabilities and enhanced the ability to perform microadenoma resection surgery safely.

Methods: As part of my PhD study, a systematic literature review was conducted in order to ascertain the current views on imaging of the pituitary gland for CD. Endocrinologists (3), a Neurosurgeon, and 3 Radiologists were also consulted and asked which modalities they recommended to confirm a diagnosis of CD. Nine Cushing's members of the PF, UK were asked using a questionnaire, which imaging modalities were used in order to diagnosis their CD.

Results: The Consultants unanimously agreed that MRI of the pituitary gland was the modality of choice, for the diagnosis of CD and that occasionally, IBPSS is performed and a PET-Dotatate scan recommended for NETS. One hundred per cent of the Cushing's participants had an MRI scan of their pituitary gland, 2 (10%) had an additional IPSS.



Conclusion: Diagnostic imaging plays a major role in the diagnosis of CD. Current debates regarding the strength of magnetic are ongoing for microadenomas (<10mm). Few radiologists have performed IPSS although this is said to be a procedure which can confirm a source of ACTH- overproduction when MRI and/or biochemical evaluation are inconclusive.

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P078 Cushing's syndrome and disease: A diagnostic challenge

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Background: CS and CD, a baffling portmanteau of symptoms, each often ascribed to other medical conditions, but together representing diagnostically, challenging medical conditions which can occur if the body produces too much of the hormone cortisol. Often coming, 'disguised', as other stand-alone conditions such as obesity, hypertensions, osteoporosis and psychological disorders Cushing's can be present, but misdiagnosed for years. This study explores the level of awareness of these medical conditions by Health Professionals; if they are knowledgeable of the CS signs and symptoms and if they practice effective communication in order to improve their patients' health outcomes.

Methods: A pilot study was conducted during 2019 on Cushing's members of the PF, UK in order to ascertain their pathways to diagnosis, treatment and their HRQoL Questionnaires were sent to twelve Cushing's members. Quantitative and qualitative analysis was performed on the data, including a scaling system which was used to measure the participants HRQoL during and post treatment.

Results: The response rate was 92%, the median age range 47 years. All participants were female and had consulted between 3 and 8 Health Professionals prior to their definitive Cushing's diagnosis. Time scale for diagnosis ranged between 2 months and 25 years and each participant had between 6 to 10 diagnostic tests prior to their diagnosis and included multimodality imaging.

Conclusion: The comorbidities and time delays in diagnosing affected their HRQoL even after, 'cure' and was compounded by the failure to diagnose due to a lack of Health Professionals awareness.

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P079 A single-centre retrospective analysis of treatments, side-effects and early recurrence in adjuvant therapy for stage-1 endometrial cancer patients

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Background: Endometrial cancer is the most common gynaecological malignancy¹. Adjuvant radiotherapy is indicated in early-stage disease for selected patients based on risk of recurrence. Vaginal brachytherapy (VBT) is seen to be as effective as pelvic external beam radiotherapy (EBRT) in reducing local recurrence in intermediate risk, with less toxicity.

Methods: Patients diagnosed with stage-1 endometrioid endometrial cancer between 2015-2019 in one teaching hospital were identified. A retrospective analysis of treatments, side-effects and early recurrence in those offer adjuvant therapy was performed using patient records and clinic letters.

Results: 62 patients with stage-1 endometrioid, clear, serous or mixed histology were offered adjuvant therapy, 9 of whom declined. Patients were grouped into VBT (n=15), EBRT (n=14), EBRT+VBT (n=12), Chemotherapy + EBRT (n=1), Chemotherapy+ EBRT+VBT (n=10) and Chemotherapy only (n=1). The average time to first adjuvant treatment was 83.5 days from diagnosis. There were 4 cases of recurrence despite adjuvant therapy (8%), including a single death (2%). 53% of all treated patients experienced some form of late toxicity but there was only a single case of severe toxicity across all treatment groups. EBRT



patients reported more bowel and urinary symptoms than VBT patients. Of those who declined treatment, one patient (11%) had a recurrence, which led to the only death in this group.

Conclusion: Local experience is consistent with existing literature in stage-1 disease. Recurrence and toxicity with adjuvant radiotherapy are infrequent in intermediate-risk patients. VBT appears to result in fewer side-effects than EBRT. These results have improved service planning and patient education.

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P080 Service evaluation of pulse dose rate (PDR) brachytherapy pathway for the treatment of endometrial cancer

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Background: Pulse Dose Rate (PDR) brachytherapy is used for patients with early stages of gynaecological cancer. This treatment is invasive and painful. It can be difficult for the patient to tolerate due to bed bound requirements¹. Although this treatment can be delivered in 12 to 21 hours, treatment times within the local department have been recorded as 28 hours. A service evaluation was undertaken to review the delivery of the service, to discover trends or bottlenecks to improve patient experience.

Method: A timestamp survey for all patients receiving PDR for endometrial and cervical cancer between February to September 2019 was undertaken. A data collection log was co-designed between key stakeholders to record the 19 activities, time taken to complete and any supplementary information relevant to the duration of the activity.

Results: The data for twenty patients was collected. The analysis identified 5 potential areas of delay; transfer of patient, plan optimization, physics checks, ward ready to start treatment and consultant contouring. On review of the qualitative notes, these could be attributed to poor communication, shortage of staffing, misplacements of documents, technical issues, patient related issues, staff awareness and availability of clinicians.

Conclusion: The evaluation highlighted the need to review several practices undertaken as standard during the PDR pathway. Making simple modifications to practice will streamline the process for these patients, reducing the PDR pathway and improving patient experience. This can be archived with library plans integration and by establishing a standard operator procedure for this pathway.

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P081 Sarcomas of the uterus

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To illustrate the imaging findings of Sarcomas of the uterus. To demonstrate examples of leiomyosarcoma, endometrial stromal sarcomas and rhabdomyosarcoma. To discuss common imaging features and important differentials. To illustrate the role of various imaging modalities in establishing diagnosis. Uterine sarcomas are a heterogenous group of rare tumours that cannot be differentiated on imaging alone. Leiomyosarcomas are the most common. Endometrial stromal tumours are rare accounting for less than 2% of all uterine tumours with rhabdomyosarcoma being even less common. Patients may present with non-specific symptoms such as abdominal pain and bloating, urinary symptoms or altered bowel habit. Ultrasonographic findings may initially be subtle and may be mistaken for fibroids or other benign pathology. We illustrate various cases of sarcomas of the uterus and discuss the imaging features encountered.

P082 Hysterosalpingography (HSG): Debunking some myths – Tips, tricks and challenges

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Hysterosalpingography, a method of imaging the female genital tract, is commonly performed to investigate sub-fertility and other reproductive disorders. A number of myths surround hysterosalpingography which extensive experience of over 15,000 cases suggest need to be debunked. Myth 1: an HSG is just a test for tubal patency. Nice Guidelines suggest that hysterosalpingography is performed to assess tubal patency in women with no known co-morbidities. In reality referral is made not only to assess patency but also to delineate the site and nature of tubal disease, as a precursor to selective salpingography, to evaluate the uterine cavity and to assess the cavity and tubes following surgical intervention such as ERPC, myomectomy, UAE and tubal surgery. Myth 2: an HSG is inevitably painful. An internet or literature search suggests that hysterosalpingography is associated with severe pain. That is not the authors' experience, we discuss how to minimise pain and discomfort during hysterosalpingography. Myth 3: performing an HSG is a simple and straightforward examination that can be delegated to inexperienced or junior staff. An HSG that is well tolerated and answers the clinical questions raised by the referral requires



meticulous procedural and radiographic technique. A detailed knowledge of relevant anatomy, physiology and pathology and an understanding of the physical and emotional complexity of subfertility is essential. The authors' will demonstrate that to provide a comprehensive HSG service requires experienced and empathetic operators, extensive clinical knowledge, a range of equipment, the technical skills to utilise it and close co-operation with referring clinicians.

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P083 Down under: Ultrasound below the cervix, pathology and anatomy explained

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Background: When assessing the uterus and ovaries during transvaginal ultrasound, common radiological blind spots include the vagina and urethra. Pathology in this region can include Bartholin, Skene and Gartner duct cysts. Varices may be identified.

Urethral pathology can include diverticulae, silicone injections and the effects of prolapse. Incidental soft tissue masses such as lipomas may also be seen. Malignant lesions include vulval carcinoma.

Purpose: It is important to be aware of pathology in this region. A careful and deliberate review of these areas by the operator may reveal a diverse range of clinically relevant pathology. An understanding of the anatomy and use of trans-perineal scanning when required can aid this.

Summary: We present a pictorial review and explain the relevant anatomy and scanning techniques.

PAEDIATRICS

P084 Variation in laryngeal mask airway positioning and its impact on a proton beam therapy plan – A case study

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Introduction: Proton beam therapy (PBT) dose distributions are particularly sensitive to density changes, which alter Bragg peak position, potentially leading to under dosing the target and overdosing of normal tissue. In our photon practice, paediatric patients treated under daily general anaesthetic (GA) require a laryngeal mask airway (LMA) for airway maintenance. We have observed variation in LMA position and resultant soft tissue and airway displacement on CBCT. This study aims to quantify this variation and explore the potential impact on a PBT plan.

Method: A case study was carried out on a patient with a target adjacent to the LMA. The airway and LMA were contoured on the planning CT scan and 4 weekly CBCTs. The volumes of the structures (cm³) were then compared and the dice coefficient calculated to quantify similarity. A PBT plan was created and recalculated with density overrides.

Results: The average dice coefficient between the contoured airway volume on the planning scan and CBCT scans were 0.54 (range: 0.5-0.59). The average dice coefficient between the contoured LMA on the planning scan and the CBCTs were 0.26 (range: 0.15-0.36). The density changes affected the planned PBT dose distribution and deposited large hot spots in the plan.

CBCT number	Planning Airway Volume (cm ³)	CBCT Airway Volume (cm ³)	Overlap Volume (cm ³)	Dice Coefficient
CBCT1	58.9	59.9	32.51	0.55
CBCT2	58.9	52.94	32.89	0.59
CBCT3	58.9	45.57	26.23	0.50
CBCT4	58.9	45.38	27.86	0.53

Conclusion: This case study demonstrates variation in LMA position during treatment can cause density changes within a patient with a target volume adjacent to the LMA. In this case, the planned dose distribution in the PBT plan was affected, which could have a potential clinical impact.