



## URORADIOLOGY GI AND HEPTOBILIARY POSTER PRESENTATIONS

### **P030 A survey comparing radiographers' perception of pelvic projectional imaging of ambulatory and emergency patients**

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**Background:** Achieving high quality radiographic images is imperative when imaging patients with suspected pelvic trauma. Imaging patients on trolleys often poses challenges not experienced with mobile patients. Repeat analyses often show a high rate of repeats in pelvic imaging. Despite this, no empirical research has been conducted into the difference in confidence levels of practitioners undertaking these examinations.

**Method:** Following University ethical approval a survey was disseminated via email and social media to student and qualified radiographers in the UK and internationally. Respondents were asked a series of closed demographic questions, a Likert scale measuring confidence across the different examinations (anteroposterior (AP) and horizontal-beam lateral (HBL) using an X-ray table versus a trolley) and an open question to discuss their reasoning.

**Results:** 79% of the 67 total respondents agreed pelvis X-rays are repeated more often when imaging patients on trolleys. Overall confidence rates were lower for both HBL and AP examinations on trolleys when compared to using the X-ray table. Years of experience did not correlate with increased confidence concerning trolley imaging. Challenges associated with using standard X-ray equipment in trauma situations accounted for 53% of responses to the open question.

**Conclusion:** Regardless of experience, practitioners reported lower confidence in undertaking AP and HBL pelvis examinations on trolleys versus the X-ray table, mostly due to the challenges posed by the equipment available. The development of equipment specifically designed for emergency imaging combined with specific training regarding adapting practice for these situations could positively impact confidence and pelvic imaging accuracy.

### **P031 Current abdominal X-Rays practice in accident and emergency -- an audit**

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Previous reviews revealed that abdominal x-rays (AXR) performed for the accident and emergency department (A+E), had low sensitivity, high rate of further imaging and non-alignment to the Royal College of Radiologists (RCR) justification guidelines. A single-site audit was performed to investigate the current practice.

An audit was performed at the largest A+E in Wales, in accordance with the RCR audit guidelines. All the AXR requests from A+E, regardless of the patient's age, within the 28 days period commencing 17th November 2021, were retrospectively assessed, excluding Non-A+E patients and abandoned examinations due to uncooperativeness.

The total number of AXR requests received by the A+E imaging department was 169, with 28/169 falling into the exclusion criteria.

Of the 141 included requests, five unjustified requests were correctly rejected; the remaining 136 requests were accepted and subsequently performed. Only 115/136 of these had justified indications. The most common justified and unjustified indications were obstruction and renal stones respectively. Additionally, 45/136 patients were referred for further imaging, mostly CT. Only 4% of reported AXR had non-foreign body abnormalities.

The small proportion of significant findings agreed with previous studies, suggesting a significant AXR overuse. Over 80% of non-compliant requests were performed, and awareness of the justification guidelines can be increased by clinical governance, posters, or an algorithm previously presented. The 32.4% further imaging rate, as opposed to the 73.7% reported previously, merits attention.

Stopping the overuse can minimise the dose received and relieve the pressure in imaging and reporting for patients who would have been benefited otherwise.

- Artigas Martín, J. M., Martí de Gracia, M., Rodríguez Torres, C., Marquina Martínez, D., and Parrilla Herranz, P. (2015) Radiografía del abdomen en Urgencias. ¿Una exploración para el recuerdo? *Radiología* 57(5): 380-390.
- Cobo, M. E., Vicente, A., Corres, J., Ana Royuela, and Zamora, J. (2009) Implementing a guideline for the request of chest and abdominal x-rays in nontrauma pathologic conditions in an ED. *American Journal of Emergency Medicine* 27(1): 76-83.
- De Grood, A., Blades, K., and Pendharkar, S. R. (2016) A review of discharge-prediction processes in acute care hospitals. *Healthcare Policy* 12(2): 105.
- Feyler, S., Williamson, V., and King, D. (2002) Plain abdominal radiographs in acute medical emergencies: an abused investigation? *Postgraduate Medical Journal* 78(916): 94-96.
- Kaboli, P. J., Go, J. T., Hockenberry, J., Glasgow, J. M., Johnson, S. R., Rosenthal, G. E., Jones, M. P., and Vaughan-Sarrazin, M. (2012) Associations between reduced hospital length of stay and 30-day readmission rate and mortality: 14-year experience in 129 Veterans Affairs hospitals. *Annals of internal medicine* 157(12): 837-845.
- Kellow, Z. S., MacInnes, M., Kurzencwyg, D., Rawal, S., Jaffer, R., Kovacina, B., and Stein, L. A. (2008) The role of abdominal radiography in the evaluation of the nontrauma emergency patient. *Radiology* 248(3): 887-893.
- Kyriakides, J., Khamar, R., Lunat, R., and Khani, A. (2020) The Role of Abdominal Radiography in the Evaluation of the Nontrauma Emergency Patient. Conference Poster presented at the BIR Annual Congress 2020.
- McEwan, S. (2020) Use of Abdominal X-Ray in the Emergency Department. Conference Poster presented at the BIR 2020 <https://www.eposters.net/poster/use-of-abdominal-x-ray-in-the-emergency-department>.
- Morris-Stiff, G., Stiff, R. E., and Morris-Stiff, H. (2006) Abdominal radiograph requesting in the setting of acute abdominal pain: temporal trends and appropriateness of requesting. *The Annals of The Royal College of Surgeons of England* 88(3): 270-274.
- Mowlem, P. J., Gouveia, A., Pinn, J., and Hardy, M. (2019) The evaluation of compliance with iRefer guidelines for abdominal imaging and the impact of the normal abdominal radiograph on the clinical confidence and decision making of emergency clinicians. *Radiography* 25(1): 28-32.

### **P032 Clinical and imaging course of stricturing and penetrating Crohn's disease**

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**Background:** and objective The natural history and behaviour of CD are highly heterogeneous. Even though the most common initial presentation of CD is purely uncomplicated inflammatory disease, within 10 years of diagnosis more than 70% of CD patients develop a stricturing or perforating complication. An overlap may exist between stricturing and penetrating disease. No accurate and specific predictor for intestinal fibrosis exists. Therefore, we sought to identify clinical and imaging course of such CD patients that might predict such complication.

**Method:** We retrospectively evaluated clinical and imaging records of CD patients who were diagnosed on imaging to have stenosing and penetrating (or fistulizing disease), in a period of last 10 years at our hospital in Dhahran. Clinical parameters like age of presentation, gender, smoking, weight loss more than 5 kg, location of disease, need for steroid, and use of dual therapy were recorded. Imaging findings of bowel involvement, mucosal pattern (stratification), with or without stenosis, mucosal enhancement (on CT or MR enterographies), and diffusion restriction (on MRE) were documented. Period of development of fistula in disease course was also recorded. Imaging was interpreted with 2 senior radiologists with more than 10 years of body imaging experience.

**Results:** 35 patients of stenosing (13) and penetrating (10) CD were found. Most of these were females. Early presentation age, use of steroids, more than 5 kg weight loss, active inflammation on stenosing disease and subacute bowel obstructions during hospital visits found in fistulae (7/10).

**Conclusion:** Certain clinical and imaging features can predict fibrostensing and penetrating CD.

Hou JK, El-Serag H, Thirumurthi S. (2009) Distribution and manifestations of inflammatory bowel disease in Asians, Hispanics, and African Americans: a systematic review. *Am J Gastroenterol.*104(8):2100-9. van Rijn KL, Lansdorp CA, Tielbeek JAW, Nio CY, Buskens CJ, D'Haens GRAM, Löwenberg M, Stoker J. (2020) Evaluation of the modified Van Assche index for assessing response to anti-TNF therapy with MRI in perianal fistulizing Crohn's disease. *Clin Imaging.* 59(2):179-187. Rabilloud ML, Bajoux E, Siproudhis L, Hamonic S, Pagenault M, Brochard C, Gerfaud A, Dabadie A, Viel JF, Tron I, Robaszekiewicz M, Bretagne JF, Bouguen G; (Groupe ABERMAD). (2022) Long-term outcomes and predictors of disabling disease in a population-based cohort of patients with incident Crohn's disease diagnosed between 1994 and 1997. *Clin Res Hepatol Gastroenterol.* 46(9):101974.

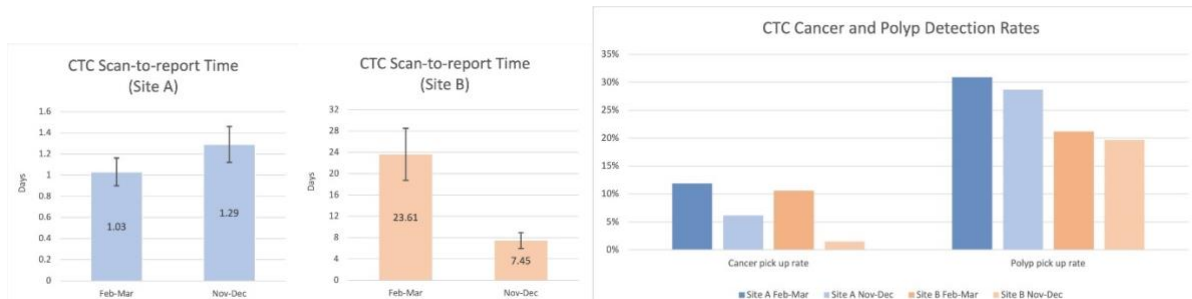
### **P033 The impact of a CT colonography advanced practice radiographer on a colorectal cancer diagnostic pathway in the DGH setting**

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**Background:** CT Colonography (CTC) examinations reported by advanced practice radiographers (APRs) can achieve accuracy comparable with radiologists. The GIRFT Radiology report outlined faster reporting times as a clear benefit of developing radiographer reporting in certain imaging modalities (1). The impact of integrating an APR to a radiologist-only CTC service was explored in the district general hospital (DGH) setting.

**Methodology:** A retrospective audit was undertaken comparing two sites of a UK DGH. In Site A, CTCs were reported by a team of 2 radiologists and 1 APR and in Site B by 3 radiologists. Scan-to-report times for studies undertaken between February-March 2022 were recorded alongside cancer and polyp detection rates. By the end of 2022, the APR from Site A was partially assisting Site B with CTC reporting. The impact of this assistance on scan-to-report times on both services was recorded between November-December.



**Results:** During February-March 2022, Site A had a scan-to-report time of 1.03 days ( $\pm 0.13$  95% CI) compared to site B: 23.61 ( $\pm 4.88$  95% CI). The reporting time for Site B between November-December significantly improved to 7.45 ( $\pm 1.49$  95% CI). There was no statistically significant impact on Site A's report time: 1.29 ( $\pm 0.17$  95% CI). Volume of CTC was higher at site A, whilst Site B remained unchanged. Polyp detection rates were comparable, however cancer detection rates reduced at both sites. Conclusion: This study demonstrates that integration of an APR to report CTCs has time advantages both through internal recruitment and integration of cross-site service.

1. Halliday, K. et al. (2020) GIRFT Programme National Specialty Report, [gettingitrightfirsttime.co.uk](https://gettingitrightfirsttime.co.uk). Available at: <https://gettingitrightfirsttime.co.uk/wp-content/uploads/2020/11/GIRFT-radiology-report.pdf>

### P035 Hepatic adenoma imaging characteristics on MRI - a pictorial presentation

*Sachin Sivakumar*

*North West School of Radiology*

**Background:** Hepatic adenomas (HA) are a benign liver tumour of uncommon prevalence. Histologically, these display well differentiated hepatocytes without bile ducts. Most classically, these occur in women of reproductive age, with further linked risk factors including oral contraceptives, obesity, androgen steroid administration, and familial adenomatous polyposis.<sup>1</sup> HAs are classified into four subtypes according to the molecular and genetic biology - inflammatory (I-HA), hepatocyte nuclear factor 1 alpha (HNF-HA), beta catenin mutated (B-HA), and unclassified (U-HA).<sup>2</sup> The modality of choice is MRI, in which recent research has made progress on identifying individual imaging traits.<sup>3</sup>

**Purpose:** The purpose of this pictorial poster is to provide a comprehensive summary of up-to-date information on the diagnosis and subsequent management of hepatic adenomas for the general imaging specialist.

**Summary:** This poster will explain the imaging characteristics of the different subtypes of HA on MRI, taking us primarily through identifying features of I-HA and HNF-HA. The characteristics of B-HA and U-HA are less well known, and may mimic hepatocellular carcinoma and necessitates referral for expert discussion. Distinguishing between these subtypes has crucial clinical implications, as they each have different predispositions to complications such as malignancy and haemorrhage. Whilst many of these focal liver lesions suspected to be adenoma will still require referral to the loco-regional MDT; if these conform to known imaging characteristics of the I-HA and HNF-HA - then the vast majority of these will be benign and can managed conservatively. This will help alleviate capacity, avoid unnecessary biopsy, and allow for enhanced patient care.

- Chang, C.Y. et al. (2013) Changing epidemiology of hepatocellular adenoma in the United States: Review of the literature, *International Journal of Hepatology*, 2013, pp. 17. Available at: <https://doi.org/10.1155/2013/604860>.
- Katabathina, V.S. et al. (2011) Genetics and imaging of Hepatocellular Adenomas: 2011 update, *RadioGraphics*, 31(6), pp. 1529-1543. Available at: <https://doi.org/10.1148/rg.316115527>.
- Shreenath, A.P. and Kahloon, A. (2022) Hepatic Adenoma - StatPearls - NCBI Bookshelf, *Hepatic Adenoma - Stat Pearls*. Available at: <https://www.ncbi.nlm.nih.gov/books/NBK513264/> (Accessed: February 12, 2023).

**P036 Liver sabr motion management: eebh vs abdo compression vs free-breath case study**

*Sunita Mahto; Caroline Sisodia; Benjamin Taylor; Marina Khan*

*Guys and St Thomas Hospital NHS Foundation Trust*

**Background:** The liver is significantly affected by respiratory motion, increasing the difficulty in treating liver tumours with focal therapies. This risks an increased size of radiotherapy target volume and reduced prescribed dose in order to keep the livers mean dose within safe limits. SABR accompanied with a motion management methods is the favoured method of treatment for HPB and liver mets. Motion management techniques can enable those with larger tumours, or those with large respiratory motion, to still be eligible for commissioned SABR. The aim here is to compare the volumetric PTV size and the Liver-GTV mean dose constraint for EEBH, Abdominal Compression and free-breath treatment techniques.

**Purpose:** 2 patients with Liver Mets. received 3 planning scan: \* 1st Scan: EEBH \* 2nd Scan: Free-breath (routine back-up for breath-hold scans, if EEBH is not achievable on-treatment) \* 3rd Scan: Abdominal Compression Volumes and Plans were produced on all scans. PTV volume size and Liver-GTV mean dose constraint were evaluated. As expected the plan produced on EEBH scan was significantly smaller (approx. 50%) volumetrically and also met lower mean liver constraints. This was followed by abdominal compression and finally free-breath. These patients would have required a change in fractionation, or might have been deemed inappropriate for treatment, if motion management was not an option. EEBH is concluded to be the superior method of motion management in comparison to abdominal compression and free-breath, and should be the preferred method used.

**Summary of content:** Poster will include method, results, graph, images showing volume size and conclusion.

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**P037 Setting up a 177 Lu PSMA therapy (Vipivotide Tetraxetan) service: Challenge and lessons learnt**

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**Aim of the study:** To draw inferences from our learning during the initial phase of introduction of 177 Lu PSMA therapy.

**Material and Methods:** There are several key legislative and licensing pre-requisites, including drug licensing, mechanism for re-imburement, ARSAC approval, drugs and therapeutics committee approval amongst a few more permissions prior to setting up a radiolabeled therapy service. In our journey, we identified Champions from each discipline involved in the service including Nursing, Radiopharmacy, Medical Physics, Clinical, to name a few and had frequent meetings to address key issues. Patient selection is one of the key parameters and we wanted to ensure that the early group of patients were reasonably early in their cancer journey so that they could undergo the treatment regime without clinical deterioration. This patient selection involves several discussions with the treating oncologists and the patients themselves. A few patients were excluded from the therapy due to them being unfit. We list our experience with the first 11 patients who were referred for 177 Lu PSMA therapy at our institute. In addition to clinical scenarios in these elderly patients of proven, treatment refractory metastatic disease we had to take care of multiple other aspects dealing with regulatory implications, logistical and technical support, radiation protection/shielding, radionuclide storage, administration, radioactive waste disposal, release of patient, readiness for handling of deceased person and involvement of other stakeholders in a multidisciplinary team setting.

**Summary:** We share our experience with setting up a Lu177 PSMA Therapy and hope that this will be useful for upcoming centres given the likely surge in theranostics treatments.

Herrmann K, Giovanella L, Santos A, Gear J et al. (2022). Joint EANM, SNMMI and IAEA Enabling Guide: How to Set Up a Theranostics Centre. Eur J Nucl Med Mol Imaging. 49(7):2300-2309.

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**P038 Comparison of initial image interpretation of appendicular radiographs by radiographers and emergency nurse practitioners: A single centre study using JAFROC**

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*<sup>1</sup>Guys' and St.Thomas' NHS Foundation Trust; <sup>2</sup>Canterbury Christchurch University; <sup>3</sup>UCLH*

**Introduction:** Independent preliminary radiograph interpretation has become a key aspect of Emergency Nurse Practitioners advanced practice within the UK. Image interpretation is taught to Radiographers, with it being a core competence to register with the HCPC. This study aimed to compare the initial image interpretation of appendicular trauma radiographs by ENPs and radiographers.

**Methods:** Twenty observers (ENP n=10, radiographers n=10) interpreted a test bank (n=32) of appendicular trauma images of a balanced design (normal n=16, abnormal n=16) with a range of findings including those of a subtle or discriminatory nature. Adult and paediatric imaging were included, with some common errors incorporated (for example, misinterpreted normal variants). Observer performance was analysed using jack-knife alternative free-response receiver operating characteristics and trends in misinterpreted radiographs collated.

**Results:** No apparent difference in the diagnostic accuracy of the ENPs and radiographers was found, Figure of Merit = 0.818 and 0.826 respectively (F=0.56, p=0.813). Results stratified by experience and percentage of time spent within an acute setting found no statistically significant difference. Whilst overall performance was similar, slight differences were found, ENPs demonstrating a higher sensitivity rate and radiographers a higher sensitivity rate (sensitivity 0.786, 0.750 and specificity 0.6, 0.693 respectively).

**Conclusion:** Initial image interpretation accuracy of ENPs and radiographers is similar. Whilst overall performance is similar, ENPs demonstrated a higher specificity rate with radiographers showing a higher sensitivity rate. A small sample size in this pilot study limits generalisability. Most common errors (paediatric interpretation) can be predicted. Findings support a collaborative approach to initial image interpretation.

1. Andrew, S. and Halcomb, E.J. (2007) 'Mixed methods research is an effective method of enquiry for community health research', *Contemporary nurse*, 23(2), pp. 145-153.
2. Benger, J.R. (2002) 'Can nurses working in remote units accurately request and interpret radiographs?', *Emergency Medicine Journal*, 19(1), pp. 68-70.
3. Berman, L., de Lacey, G., Twomey, E., Twomey, B., Welch, T. and Eban, R. (1985) 'Reducing errors in the accident department: a simple method using radiographers.', *Br Med J (Clin Res Ed)*, 290(6466), pp. 421-422.
4. Brealey, S. and Scally, A.J. (2001) 'Bias in plain film reading performance studies', *The British journal of radiology*, 74(880), pp. 307-316.
5. Busby, L.P., Courtier, J.L. and Glastonbury, C.M. (2018) 'Bias in radiology: the how and why of misses and misinterpretations', *Radiographics*, 38(1), pp. 236-247.
6. Chakraborty, D.P. (2014) JAFROC [0]. Available at: (Downloaded: 01/12/2020).
7. Coleman, L. and Piper, K. (2009) 'Radiographic interpretation of the appendicular skeleton: A comparison between casualty officers, nurse practitioners and radiographers', *Radiography*, 15(3), pp. 196-202.
8. College of Radiographers (2013) 'Preliminary Clinical Evaluation and Clinical Reporting by Radiographers: Policy and Practice Guidance', .
9. Crouch, R. and Brown, R. (2018) 'Advanced clinical practitioners in emergency care: past, present and future', *British journal of hospital medicine*, 79(9), pp. 511-515.
10. Dinh, M., Walker, A., Parameswaran, A. and Enright, N. (2012) 'Evaluating the quality of care delivered by an emergency department fast track unit with both nurse practitioners and doctors', *Australasian Emergency Nursing Journal*, 15(4), pp. 188-194.
11. Free, B., Lee, G.A. and Bystrzycki, A. (2009) 'Literature review of studies on the effectiveness of nurses ability to order and interpret X-rays', *Australasian Emergency Nursing Journal*, 12(1), pp. 8-15.
12. Gaziano, T.A. (2007) 'Reducing the growing burden of cardiovascular disease in the developing world', *Health affairs*, 26(1), pp. 13-24.
13. Hardy, M., Flinham, K., Snaith, B. and Lewis, E.F. (2016) 'The impact of image test bank construction on radiographic interpretation outcomes: A comparison study', *Radiography*, 22(2), pp. 166-170.
14. Hardy, M. and Culpan, G. (2007) 'Accident and emergency radiography: A comparison of radiographer commenting and 'red dotting'', *Radiography*, 13(1), pp. 65-71.
15. Health and Care Professions Council (2013) Standards of Proficiency: Radiographers. HCPC.
16. Hunt, A. and Wright, C. (2015) 'Radiographer Preliminary Clinical Evaluation: a safe approach to reduce waiting times in Accident and Emergency?', .
17. IBM. SPSS [0]. Available at: (Downloaded: .
18. Jennings, N., Lee, G., Chao, K. and Keating, S. (2009) 'A survey of patient satisfaction in a metropolitan emergency department: comparing nurse practitioners and emergency physicians', *International journal of nursing practice*, 15(3), pp. 213-218.
19. Lancaster, A. and Hardy, M. (2012) 'An investigation into the opportunities and barriers to participation in a radiographer comment scheme, in a multi-centre NHS trust', *Radiography*, 18(2), pp. 105-108.
20. Liberman, D.B. and McCarthy, T.J. (2019) 'The cost of callbacks: return visits for diagnostic imaging discrepancies in a pediatric emergency department', *Emergency radiology*, 26(4), pp. 381-389.
21. Lockwood, P. and Pittock, L. (2019) 'Multi-professional image interpretation: Performance in preliminary clinical evaluation of appendicular radiographs', *Radiography*, .
22. Mabrook, A.F. and Dale, B. (1998) 'Can nurse practitioners offer a quality service? An evaluation of a year's work of a nurse led minor injury unit.', *Emergency Medicine Journal*, 15(4), pp. 266-268.
23. McConnell, J., Devaney, C., Gordon, M., Goodwin, M., Strahan, R. and Baird, M. (2012) 'The impact of a pilot education programme on Queensland radiographer abnormality description of adult appendicular musculo-skeletal trauma', *Radiography*, 18(3), pp. 184-190.
24. Nash, K., Zachariah, B., Nitschmann, J. and Psencik, B. (2007) 'Evaluation of the fast track unit of a university emergency department', *Journal of Emergency Nursing*, 33(1), pp. 14-20.
25. Neep, M.J., Steffens, T., Owen, R. and McPhail, S.M. (2014) 'A survey of radiographers' confidence and self-perceived accuracy in frontline image interpretation and their continuing educational preferences', *Journal of medical radiation sciences*, 61(2), pp. 69-77.
26. Obuchowski, N.A. (2000) 'Sample size tables for receiver operating characteristic studies', *American Journal of Roentgenology*, 175(3), pp. 603-608.
27. Overton-Brown, P. and Anthony, D. (1998) 'Towards a partnership in care: nurses' and doctors' interpretation of extremity trauma radiology', *Journal of advanced nursing*, 27(5), pp. 890-896.
28. Piper, K.J. and Paterson, A. (2009) 'Initial image interpretation of appendicular skeletal radiographs: a comparison between nurses and radiographers', *Radiography*, 15(1), pp. 40-48.

**P039 Optimised bowel preparation processes for CT colonography**

*Jon Shaw; Mark Thurston; Mark Puckett; Joanne Cleary; Kerrie Killeen; Odran Farrell; Claire Boxall*

*University Hospitals Plymouth NHS Trust*

**Background:** In CT colonography (CTC), a process involving multiple different manual steps across different departments was previously relied upon for the supply of Gastrografin bowel preparation to each patient. The previous convoluted process was identified as a frequent source of delay, impacting upon our ability to meet our internal targets for 2 week-wait cancer investigations (85% imaged within 10 days of request). As patients are now increasingly referred for cancer investigations after remote consultation, medications cannot be routinely provided at the point of clinic attendance. A robust pathway for supply of pre-imaging medications is vital to ensure no additional delay is introduced.

**Methods:** We used open-source software to automate a key part of the process. An emailed daily PDF provides details of all patients requiring bowel preparation for appointment allocated the previous day. Any potential contraindications to bowel preparation highlighted by the referrers are flagged for manual review. Making the service safer and more robust.

**Results** The new pathway has had the following benefits:

- Improved time to supply bowel preparation o Staffing shortages at key points are less likely to result in process blocking
- Improved booking staff satisfaction o Less manual intervention required means staff can focus on safety checks and communication with patients
- Reduced risk of human error o Any bugs are logged, investigated, and improved

**Conclusion:** Improved process efficiencies for supply of bowel preparation have improved the ability of our imaging department to perform CTC within the target time frame. At the beginning of this project internal compliance was at 0% and this project has improved this.

**P040 Same-day staging CT for jaundice hotline patients with suspected Pancreatico-Biliary (PB) cancer**

*Nabih Hanbali; Amjad Chamsi Basha; Nang Thiri Phoo; Abeer Mohamed; Dushyant Shetty*

*Royal Cornwall Hospital*

**Background:** Pancreatico-Biliary (PB) cancer has a high morbidity and mortality (Valle et al., 2016). The primary staging for PB cancer in our institution is a late arterial phase CT abdomen followed by a portal venous CT thorax, abdomen and pelvis. Prompt cross-sectional staging and MDT discussion makes a significant difference in this patient cohort. The initial intervention tends to be biliary decompression, this is essential in enabling ongoing care, whether pathway is palliative or curative.

**Purpose:** We implemented a same day staging CT service for patients presenting to the Jaundice Hotline Service at our hospital who were found to have biliary dilatation or a mass on index ultrasound imaging. This was then assessed by looking at the effect of same day CT service on time from index US to staging CT, first MDT discussion and first attempt at biliary decompression. The first six months following commencement of the service was compared with the six months immediately prior. All cases of non-malignant causes for acute jaundice on CT were excluded. The average time from index US to staging CT reduced from 16 days to 0, US to first MDT discussion from 20 days to 3 and US to first attempt at biliary decompression 20 days to 13.

**Summary of content:** A same day staging CT service for jaundiced patients found to have biliary dilatation and/or a mass on US significantly reduced waiting times to staging CT, MDT discussion and biliary decompression. Our intervention could be easily replicated in other departments, even with limited resources.

Valle, J.W. et al. (2016) 'Biliary cancer: ESMO Clinical Practice Guidelines for diagnosis, treatment and follow-up?', *Annals of Oncology*, 27, pp. v28-v37. Available at: <https://doi.org/10.1093/annonc/mdw324>.

**P041 Abdominopelvic actinomycosis - a review with cases**

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**Background:** Actinomycosis is a chronic suppurative bacterial infection, caused most commonly in humans by *Actinomyces israelii*. Actinomycosis can affect a number of different body systems, with 20% of infections occurring in the abdomen and pelvis, where the organism is endogenous in the mouth, gastrointestinal tract and female genital tract 1.

Actinomycosis can pose a diagnostic challenge for radiologists, often mimicking malignancy or other inflammatory processes. The hallmark of infection with this organism is extensive spread across fascial and connective tissue planes, with an enhancing inflammatory mass and abscess formation 1. As such, these findings on imaging should raise the suspicion of actinomycosis, as correct diagnosis can avoid unnecessary surgical intervention and ensure appropriate antimicrobial therapy is commenced in a timely fashion.

**Purpose:** This poster presentation aims to highlight the classical imaging features of abdominopelvic actinomycosis. Important diagnostic pitfalls will be demonstrated, enabling the radiologist to identify the key radiological aspects of this disease entity and how it differs from the conditions it often mimics.

**Summary of content:** Multimodality imaging of cases of colonic and pelvic actinomycosis are used to illustrate typical radiologic appearances, whilst drawing attention to potential diagnostic pitfalls.

1. Heo, S.H., Shin, S.S., Kim, J.W., Lim, H.S., Seon, H.J., Jung, S., Jeong, Y.Y. and Kang, H.K. (2014) Imaging of Actinomycosis in Various Organs: A Comprehensive Review. *RadioGraphics* 34(1), 19-33.

**P042 A study to explore the variation of treatment verification matching of magnetic resonance imaging (MRI) derived prostate clinical target volumes (CTV) using cone beam computed tomography (CBCT)**

*Roeum Butt; Aisling Krishnan; Daniel Megias*

*Mount Vernon Cancer Centre*

**Background:** Advancements in prostate radiotherapy will increasingly mandate the use of MRI-derived CTV's. Therefore, careful consideration will be required to ensure the improved accuracy of MRI CTV's is retained when verifying radiotherapy treatment using CBCT in the absence of fiducial surrogates.

**Method:** A retrospective review of 5 patients who received 36.25Gy in 5 fractions inclusive of pre-treatment MRI for target volume delineation were reviewed. 10 radiographers were equally split into cohorts of trained (TR) or no training (NTR). The difference in the image match shift values in 3D were calculated against a peer-reviewed gold standard. 1 radiographer in each of the groups also rematched the images a second time to explore intraobserver variation. Descriptive statistics were calculated, and the Kappa (k) test was used to analyse the agreement of results.

**Results:** An overview of the results can be found in figure 1. The standard deviation (SD) of the difference in match values were Vrt:0.11cm, Lng:0.09cm and Lat:0.03cm for both TR & NTR participants, with an interquartile range of <0.05. k-value between NTR & TR overall was 1.00 (p<0.05), however comparison in the long shift was -0.019 (p<0.669) suggesting poor agreement between TR&NTR. The SD for intraobserver variation was <0.3cm for both TR & NTR participants, with an interquartile range of <0.05.

**Conclusion:** The results indicate there was overall good agreement between groups suggesting CBCT can be adequate for treatment verification without fiducials for MRI-derived CTVs. Whilst the k-value for the long suggests poor agreement, this value was not significant.

**P043 Diagnostic performance of Pi-radsv2.1 in detecting clinically significant prostate cancer on pre-biopsy Mpmri.:**

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**Background:** mpMRI prostate is the optimal diagnostic tool for prostate cancer. PIRADS was created to allow for a more structured and homogenous reporting system with the goal of improving prostate cancer detection on MRI. This

audit looked to evaluate the diagnostic performance of PI-RADSv2.1 in detecting clinically significant prostate cancer (CSPCa) on pre-biopsy mpMRI.

**Methods:** Retrospective analysis of 216 patients with pre-biopsy mpMRI, specifically assessing serum PSA concentration, MRI findings using PI-RADSv2.1, and subsequent histopathological biopsy outcomes.

**Results:** 66 patients were eligible with 80 lesions. Of these, 53% were CSPCa. Cancer detection rates of the PIRADS assessment categories on a patient level performed as expected, with higher PSA levels having higher cancer detection rates. Of the PI-RADS category 5 lesions, there was an 85% positive predictive efficiency for the detection of CSPCa. Of the PI-RADS category 3 lesions, only 15% had CSPCa, giving rise to a negative predictive value of 64%. Additionally, there was a clear disparity in PI-RADS v2.1 scores between patients with or without CSPCa in the PZ cores, indicating that PI-RADS V2.1 is valuable in identifying CSPCa in the PZ.

**Conclusion:** Our results confirmed that PI-RADSv2.1 is a valuable tool for CSPCa detection. The audit further demonstrated that PIRADS category 3 lesions in our institution was associated with a low CSPCa probability, for which routine surveillance would be a more pragmatic approach rather than targeted biopsy. Although PI-RADS v2.1 does not include management recommendations, these results affirm its value in the decision-making process, taking into consideration clinical markers such as PSA density.

1. Kubihal, V., Kundra, V., Lanka, V., Sharma, S., Das, P., Nayyar, R., & Das, C. J. (2022). Prospective evaluation of PI-RADS v2 and quantitative MRI for clinically significant prostate cancer detection in Indian men - East meets West. *Arab journal of urology*, 20(3), 126–136. 2. Muller BG, Shih JH, Sankineni S, et al. Prostate cancer: interobserver agreement and accuracy with the revised prostate imaging reporting and data system at multiparametric MR imaging. *Radiology*. 2015. Dec;277(3):741–750. 3. Oerther, B., Engel, H., Bamberg, F. et al. Cancer detection rates of the PI-RADSv2.1 assessment categories: systematic review and meta-analysis on lesion level and patient level. *Prostate Cancer Prostatic Dis* 25, 256–263 (2022). 4. Patel NU, Lind KE, Garg K, et al. Assessment of PI-RADS v2 categories  $\geq 3$  for diagnosis of clinically significant prostate cancer. *Abdom Radiol. Internet*. 2018. Aug 31 cited 2018 Nov 2; 43:1807–1812. 5. Peng Y, Jiang Y, Yang C, et al. Quantitative analysis of multiparametric prostate MR images: differentiation between prostate cancer and normal tissue and correlation with gleason score—a computer-aided diagnosis development study. *Radiology*. 2013. Jun;267(3):787–796. 6. Rudolph, M.M., Baur, A.D.J., Cash, H. et al. Diagnostic performance of PI-RADS version 2.1 compared to version 2.0 for detection of peripheral and transition zone prostate cancer. *Sci Rep* 10, 15982 (2020). 7. Vos EK, Kobus T, Litjens GJS, et al. Multiparametric magnetic resonance imaging for discriminating low-grade from high-grade prostate cancer. *Invest Radiol*. 2015. Aug;50(8):490–497. 8. Wei C, Jin B, Szweczyk-Bieda M, et al. Quantitative parameters in dynamic contrast-enhanced magnetic resonance imaging for the detection and characterization of prostate cancer. *Oncotarget*. 2018. Mar 23 9(22):15997–16007. 9. Westphalen AC, McCulloch CE, Anaokar JM, et al. Variability of the positive predictive value of PI-RADS for prostate MRI across 26 centers: experience of the society of abdominal radiology prostate cancer disease-focused panel. *Radiology*. 2020; 296:76–84.

#### P044 Geographical variations in the diagnostic pathway of muscle invasive bladder cancer does it exist?

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**Background:** Muscle Invasive bladder cancer (MIBC) comprises approximately 25% of bladder cancers and is associated with significant morbidity and mortality. There is 36%, 1 year survival if the patient presents with metastatic disease. Delayed MDT review of imaging and histology can delay treatment onset with adverse prognostic impact. In our region (South Yorkshire), referrals from four DGHs (are discussed centrally at Royal Hallamshire (RHH)). We aim to assess whether there are geographical variations in healthcare within these hospitals resulting in an adverse impact on prognosis for the patient.

**Methods:** Retrospective audit of all patients referred to a regional tertiary uro-oncology MDT. Two years data 01/01/19- 31/12/19(pre covid) and 01/04/21- 31/3/22 (post covid) was analysed including time from diagnostic staging to MDT, oncology clinic/ treatment and outcomes.

**Results:** 505 patients with suspected bladder cancer were discussed pre covid (44 excluded as referred without imaging) 152 RHH, 304 DGH, 443 post covid (23 excluded as no imaging) 145 RHH, 273 DGH. Average time (days) from CT scan to MDT were 37 RHH (SD 25), 40 DGHs (SD 31) (2019) and 35 RHH and 45 DGHs (2021/2022). One external site compared to central RHH took significantly more time from scan to MDT (68 days compared to 34). P value of 0.01 for post covid data set.

**Conclusions:** There is evidence of geographical disparities in health care with external smaller cities taking longer (in one case) double the time frame from initial imaging to central MDT discussion which can cause delays in oncology/radical treatment.



**P047 Multi-disciplinary treatment of a rare prostatic sarcoma in a dog**

*Sharyn Bray; Gerard McLauchlan*

*AURA Veterinary*

**Background:** A 4 year old Male (entire) Labrador Retriever presented with faecal tenesmus and abdominal distension of 2 weeks duration. A large cystic mass associated with the prostate gland was identified on ultrasound and CT; a prostatic inclusion cyst was suspected. This was managed by partial resection and omentalisation of the cyst, combined with castration and sub-total prostatectomy. Unexpectedly, histologic analysis of the prostatic tissue revealed a prostatic fibrosarcoma. Systemic chemotherapy with doxorubicin was started. Prostatic embolisation was also performed. Vascular access via the right carotid artery enabled selective angiography of the prostatic artery. Polyethylene-glycol microspheres were slowly injected under fluoroscopy guidance. Angiography confirmed complete stasis of the left prostatic vasculature. Repeated CT imaging revealed a residual prostatic mass without distant metastasis. A second doxorubicin treatment was given. Unfortunately, 105 days after initial presentation, the dog was admitted as an emergency. Abdominal ultrasound demonstrated progression of the caudal abdominal tumour. The owners decided on humane euthanasia. Sarcoma of the prostate is rare in the dog. This is similar to humans, where prostatic sarcoma may account for only <0.1% of all primary prostatic cancers. Purpose This case report describes treatment of a rare cancer variant of the prostate in a dog. Although the prognosis of this tumour-type is universally poor, a multi-disciplinary approach in this case provided the dog with an excellent quality-of-life.

**Summary of content** The poster will summarise the clinical details of this case. Illustrations will include CT images and fluoroscopic images revealing the successful embolisation of the prostate gland.

Ding, B et al (2021) Adult primary prostate sarcoma: A multi-centre cohort study and comparison between Chinese and American cases. *Asian J Surg* **44**(1), 247-253

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**P048 Pictorial review of incidental findings in multiparametric prostate MRI**

*Kiran Lingaraju; Deepak Pai*

*Northern Lincolnshire and Goole NHS trust*

Incidental findings are common in imaging. Although many of these findings are benign in nature and will not change patient management, around 5-10% of these are clinically significant and hence affect patient management and outcomes. We present here variety of clinically significant incidental findings identified in our routine imaging done for prostate.

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**P049 Audit of incidental findings in multi-parametric MRI of prostate**

*Kiran Lingaraju; Deepak Pai*

*Northern Lincolnshire and Goole NHS trust*

Incidental findings are fairly common in imaging. Approximately 5-10 % of these are clinically significant (1, 2). We did a institutional review of 1300 MRI prostate examinations done in the year 2021. Studies with clinically significant incidental findings were referred appropriately and followed up. Although varies studies have reported up to 60% incidental findings, we have identified and referred only clinically significant findings which would affect patient management and outcomes. We had 6% significant incidental findings. Out of which, 93% have been actioned upon with 37% cases being other organ neoplasm. Hence it is important to actively look for incidental findings and act upon them to have better patient outcomes.

1. Sherrer RL, Lai WS, Thomas JV, Nix JW, Rais-Bahrami S. Incidental findings on multiparametric MRI performed for evaluation of prostate cancer. *Abdom Radiol (NY)*. 2018 Mar;43(3):696-701. doi: 10.1007/s00261-017-1237-x. PMID: 28677001; PMCID: PMC8983105. 2. Yee J, Satta S, Aslam R, Yeh B. Extracolonic findings at CT colonography. *Gastrointest Endosc Clin N Am*. 2010 Apr;20(2):305-22. doi: 10.1016/j.giec.2010.02.013. PMID: 20451819.

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**P051 What is the benefit of MR guided radiotherapy for Gastric MALT lymphoma?**

*Joseph Drabble; Ben George; Sara Mallandain; Andy Gaya; Ebison Chinherende; veni Ezhil*

*GenesisCare*

**Background:** As the stomach is a deformable organ, a large planning target volume (PTV) margin is required with gastric mucosa-associated lymphoid tissue (MALT) lymphoma treatments to account for shape variation in conventional radiotherapy. This study assessed the benefits of using MR-guided radiotherapy (MRgRT) for these patients.

**Method:** The clinical Target volume (CTV) and nearby organs at risk (OARs) contours were manipulated each fraction to account for interfractional changes. Treatment plans were then re-optimised and adapted based on anatomical changes for each fraction. Predicted vs adapted plan statistics were used to assess the benefit of plan adaption. Intrafractional imaging was recorded through 2D MRI cine imaging and treatment was delivered through shallow inspiration breath hold with an 8mm gating boundary. Each fractional verification image was retrospectively fused to the baseline simulation to determine the total PTV margin size that would have been required to cover the CTV in all fractions.

**Results:** Adapted re-optimised plans achieved PTV dose criteria in all fractions. Predicted results of fractional anatomical changes without plan adaption showed all 12 fractions would not have achieved the PTV dose criteria. Four fractions required intrafractional interventions due to stomach variational changes during a treatment. The fractional average ( $\pm$  SD) CTV volume was 225cc  $\pm$  27cc compared to 260cc at baseline. A uniform total PTV margin of 2.7cm was required to cover the CTV volumes in all fractions.

**Conclusion:** MRgRT plan adaption of OAR contours and dose optimisation allowed for a smaller of PTV margins compared to conventional radiotherapy.

**P052 Audit of ultrasonography findings in cases of abnormal magnetic resonance cholangiopancreatography (MRCP)**

*John Kelliher; Clare Roche*

*Galway University Hospital*

**Background:** Royal College of Radiologists (UK) suggests 90% of cases with extrahepatic dilatation on a magnetic resonance cholangiopancreatography (MRCP) should be identified on a preceding ultrasound and 100% of ultrasound reports should have a specific comment referring to either the presence or absence of dilatation with an appropriate recommendation for further imaging or referral if the cause is not identified.

**Methods:** All patients who had an MRCP showing extrahepatic dilatation with a preceding abdominal ultrasound in the previous month between 10/07/2021 to the 10/10/2022 were included. Data was collected from hospital imaging software in a single institution.

**Results:** 105 patients were included in this study. In MRCP-confirmed extrahepatic dilatation, 77% (81/105) of abdominal ultrasounds performed in the previous month also identified dilatation. In the ultrasound reports, 87% (91/105) had commented on the presence or absence of extrahepatic dilatation. When the cause for extrahepatic dilatation was not identified, 56% (41/74) had an appropriate recommendation for further imaging or referral in the report.

**Conclusion:** Target percentage for detection of extrahepatic dilatation by ultrasound was not reached which suggests common bile duct dilatation may be overlooked on ultrasound. While the majority of ultrasounds had commented on the presence or absence of extrahepatic dilatation it was still below the target of 100%. Finally, only 56% of ultrasounds included further recommendations in the report when dilatation was identified without a cause. Imaging is essential for the management of patients but requires adequate communication of findings.

*Audit of ultrasonography findings in cases of abnormal MRCP. The Royal College of Radiologists. Available at: <https://www.rcr.ac.uk/audit/audit-ultrasonography-findings-cases-abnormal-mrcp> (Accessed: February 11, 2023).*