PAEDIATRICS POSTER PRESENTATIONS

P053 Paediatric neurogenic bladder caused by abnormal ossification of the sacrum: MR imaging findings

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Background: The sacrum develops from 60 ossification centers, which ossify and fuse from the fetal period to the age of 30 years. Bony aberrations including unfused, partially or completely fused ossification centers may occur involving both the primary and secondary ossification centers. We describe a paediatric case where asymmetric, abnormal maturation of the sacrum was responsible for the development of neurogenic bladder.

Purpose: A 2-year-old male with recurrent episodes of urinary tract infection underwent MRI of the brain and spinal cord for investigation of the cause of symptoms. Careful evaluation of the sacrum disclosed multiple unfused ossification centers in the costal process of S1 vertebra. A cleft was formed between the costal process and sacral centrum. The exiting ventral S1 nerve was entrapped by abnormal sacral bony segments that exerted pressure on the nerve. Neural arch was fused to both costal processes. To decompress the offended nerve, surgical excision of redundant bone was performed along with mechanical release of S1 nerve and the symptoms improved promptly.

Summary of content: In children, neurogenic bladder occurs in association with spina bifida (myelomeningocele), cerebral palsy, or sacral agenesis. Neural entrapment of sacral nerve(s) due to abnormal maturation of the sacrum (developmental anatomic abnormality) as in this patient, to our knowledge, has not been described before and deserves reporting as an additional and challenging cause of paediatric neurogenic bladder. MRI proved indispensable for visualization of the sacral nerve itself and the documentation of sacral neuropathy accountable for neurogenic bladder and related urinary tract infections.

1. Cardoso H, Pereira V, Rios L (2014). Chronology of fusion of the primary and secondary ossification centers in the human sacrum and age estimation in child and adolescent skeletons. Am J Phys Anthropol 153(2): 214-252 . 2. Broome DR, Hayman L, Herrick R, Braverman R, Glass R, Fahr L (1998). Postnatal maturation of the sacrum and coccyx: MR imaging, helical CT, and conventional radiography. AJR Am J Roentgenol 170(4):1061-1066.

P054 A narrative review of EOS and projectional radiographic imaging in adolescent idiopathic scoliosis

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Background: Adolescent idiopathic scoliosis (AIS) patients receive ongoing projectional radiographic spinal imaging throughout their treatment during the time they are most susceptible to cancers from ionising radiation increasing their carcinogenic risks. The EOS system can significantly reduce dose in spinal imaging but is expensive to implement and the quality is comparable to projectional imaging. The aim of this review was to compare the image quality, radiation dose burden and costs of traditional projectional radiographic imaging and the EOS system.

Method: A narrative review of literature was undertaken, utilising medical databases such as Ovid Medline, Scopus, CINAHL, with specific search terms and Boolean operators. Prisma and CASP tools were used to appraise literature from the last ten years.

Results: Image quality is comparable between projectional imaging and EOS system images. The accuracy is dependent on protocols used within the EOS system. Radiation dose is significantly reduced to patients when using EOS system. There may be additional risk factors to scoliosis patients genetically linked to certain cancers. Although the cumulative dose of an adolescent patient is claimed to be under the threshold for IR(ME)R legislation, this is based on adult safety levels and does not consider patient age. Furthermore, research beyond the UK shows with a matched population AIS patients are five times more likely to develop cancer.

Conclusion: The EOS system could significantly reduce cancer risk in patients with AIS, with further research needed to be compare cost effectiveness and cancer risks in a matched population in the UK.

P055 A narrative review of paediatric magnetic resonance imaging (mri) scan completion rates, cost effectiveness, time efficiency and patient experience, when comparing general anaesthesia and sedation to alternative strategies in relieving patient anxiety

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Background: Sedation and general anaesthesia (GA) are commonly used for children, too anxious to undergo awake magnetic resonance imaging scan (MRI). However, they pose further health risks to children and not all are tolerant to GA as a method of intervention. It is important to review alternative strategies to allow for successful scan completion of all children and reduce additional health risks. The aim of this study is to review strategies that could be used in terms of scan completion rates, cost effectiveness, time efficiency and patient experience.

Method: Literature was gathered from Scopus, MEDLINE and Google Scholar databases, using the most appropriate search terms. These were combined and replaced using the 'BOOLEAN' operators 'AND' and 'OR'. Duplicates were removed and papers were assessed for eligibility against suitable exclusion and inclusion criteria. This aimed to assess the currency of the literature and whether it addressed the research question and target population.

Results: The most interactive strategies (mock scanning, kitten scanning, virtual reality (VR) and artificial intelligence (AI) apps) are >80% successful when comparing scan completion rates and are enjoyed by paediatric patients; however, these strategies have also proven to be the most expensive and often time consuming.

Conclusion: With the current financial pressures on the National Health Service (NHS), investment of alternative strategies to GA and sedation, at present, cannot happen until 100% conclusive. If the NHS were to invest, the most successful, cost effective, time efficient and well-liked strategy by paediatrics was the use of AI app intervention.

P056 Paediatric abdominal ultrasound appearances in acute hepatitis patients in a tertiary paediatric hospital

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Background: There has been an increase in reports of acute hepatitis of unknown cause in children. Abdominal ultrasound including Doppler assessment (UABDO) is the first line imaging modality for paediatric patients with acute liver pathology. We aim to present our UABDO findings in a series of children with hepatitis referred to a single paediatric liver-transplantation centre between January 1st and July 24th 2022.

Method: A retrospective cohort of children (< 16 years old) with hepatitis meeting the U.K. Health Security Agency case definition for acute non-A-E hepatitis were identified from a local hepatology case list (UK Health Security Agency, 2022). Further blood tests enabled differentiation of acute hepatitis (AH) from cases of acute on chronic hepatitis (ACH). The images and reports from admission US exams of each patient were reviewed by a consultant sonographer and radiologist.

Results: A total of 24 children were included, of which 17 had AH and 7 had ACH. The median age was 5 years and male to female ratio was 1.4. The most common findings seen were a heterogenous liver echotexture in 75% (82% AH v 57% ACH), gallbladder wall thickening in 54% (71% AH v 14% ACH), splenomegaly in 46% (29% AH v 85% ACH) and hepatomegaly in 42% (41% AH v 43% ACH).

Conclusion: US findings in cases of acute hepatitis are described to assist clinical teams assessing children with AH and ACH. The aim is to raise awareness and improve US imaging technique and reporting.

1. UK Health Security Agency. (2022) Investigation into acute hepatitis of unknown aetiology in children in England. Technical briefing 4. London: UK Health Security Agency.

P057 Evaluating the role of diagnostic imaging in the diagnosis and management of a paediatric rhabdoid tumour of the neck - case study

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Background: Making an accurate diagnosis of paediatric soft tissue tumours requires a combination of diagnostic imaging tests, each chosen for its ability to provide specific information about different aspects of the patient's condition. Each imaging modality has its own advantages and disadvantages, and it is important to remember that no single imaging test can provide all the data required for a thorough evaluation.

Purpose: Evaluating and diagnosing a soft tissue neck mass can be a multi-step process that involves considering the patient's symptoms, medical history, and physical examination results, as well as conducting various diagnostic imaging tests. This is a complex case study is of a 1-year-old female who presented with a large neck swelling which when diagnosed was a malignant Rhabdoid tumour of the left neck and base of skull. The tumour was complex and in a difficult location, encasing the carotid artery, making the patient not viable for surgery and underwent a variety of diagnostic imaging at our hospital. The patient experienced multiple complications throughout her time with us, including a venous thrombus of her internal jugular vein, left venous occipital infarct, volume loss in the cerebellar and eventually developed intracranial disease of hydrocephalus with evidence of leptomeningeal spread of disease and paralysis of vocal cords and larynx.

Summary of content: This poster will show how a variety of diagnostic imaging including ultrasound, CT and MRI was used to help with a prompt diagnosis and aid the patient's clinical treatment and management of a malignant rhabdoid tumour.

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OBS & GYNAE POSTER PRESENTATIONS

P059 Inclusive pregnancy status in a radiotherapy setting - implementation and evaluation

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Background: Discussing pregnancy status can be a sensitive subject, specifically for patients with a cancer diagnosis, who may have existing or treatment related infertility1. The UK has 5-600,000 people who identify as transgender, gender diverse or intersex, which also challenges discussions surrounding pregnancy2. In light of this, the Ionising Radiation (Medical Exposure) Regulations (IR(ME)R) were updated in 2017 to include gender neutralised language and pregnancy checking prior to exposure for all patients aged 12-55 years regardless of gender3. The 2021 Society of Radiographers' (SoR) inclusive pregnancy status (IPS) guidelines recommended radiographers apply it in a sensitive, educationally informed manner2.

Method: In this presentation, we share findings and reflections relating to the local implementation of the SoR IPS guidelines, considering radiation safety and cultural responsibility. Impacts on patient care and staff education, ascertained from staff feedback questionnaires prior to and 6 months after implementation, will be discussed.

Results: Staff reported experiencing emotional and professional benefit from the changes and patients have welcomed the updated and improved conversations. Certain points from the training have enhanced a positive