P033 CT abdomen/pelvis scans efficiency for surgical patients using the national emergency laparotomy audit (NELA) tool emergency care pathway standards

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The term "acute abdomen" defines a clinical syndrome characterized by the sudden onset of severe abdominal pain requiring emergency medical or surgical treatment [1]. Abdominopelvic computed tomography (CT) has assumed an increasingly important role in the evaluation and diagnosis of patients presenting with acute abdominal symptoms and is widely used as an integral part of surgical triage (2,3) .A significant proportion of patients would proceed to surgical intervention and any delay in reaching a diagnosis could be life threatening (4) We used neighbouring trust (Dudley Group NHS Foundation Trust) Emergency Care Pathway as a standard to compare our data against, as it was one of the pathway examples suggested by The National Emergency Laparotomy Audit (NELA) tool carried out by the National Institute of Academic Anaesthesia's Health Services Research Centre (HSRC) on behalf of the Royal College of Anaesthetists (RCoA). The (Dudley Group NHS Foundation Trust) Emergency care pathways criteria: CT scan within 2 hours Report within 1 hours.

1-Gore, R.M., Miller, F.H., Pereles, F.S., Yaghmai, V. and Berlin, J.W., 2000. Helical CT in the evaluation of the acute abdomen. American Journal of Roentgenology, 174(4), pp.901-913 2-Sala, E., Watson, C.J.E., Beadsmoore, C., Groot-Wassink, T., Fanshawe, T.R., Smith, J.C., Bradley, A., Palmer, C.R., Shaw, A. and Dixon, A.K., 2007. A randomized, controlled trial of routine early abdominal computed tomography in patients presenting with non-specific acute abdominal pain. Clinical radiology, 62(10), pp.961-969 3-Rosen, M.P., Sands, D.Z., Longmaid III, H.E., Reynolds, K.F., Wagner, M. and Raptopoulos, V., 2000. Impact of abdominal CT on the management of patients presenting to the emergency department with acute abdominal pain. American Journal of Roentgenology, 174(5), pp.1391-1396 4-Howlett, D.C., Drinkwater, K., Frost, C., Higginson, A., Ball, C. and Maskell, G., 2017. The accuracy of interpretation of emergency abdominal CT in adult patients who present with non-traumatic abdominal pain: results of a UK national audit. Clinical radiology, 72(1), pp.41-51.

P034 CT and PET-CT findings in primary pancreatic lymphoma

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Background: Primary pancreatic lymphoma (PPL) is a rare subtype of pancreatic cancer and can be challenging to diagnose due the similarities in clinical presentation it has with the exceedingly more common pancreatic adenocarcinoma.

Purpose: We present the clinical and CT/PET-CT findings in a patient with PPL to improve awareness of this rare condition. A 75-year-old gentleman with a background of essential hypertension, hypercholesterolaemia, macular degeneration and a right ear neuroma underwent routine blood tests which detected abnormal liver function (bilirubin 43, ALP 321, ALT 732, GGT 943). The patient complained of dark urine but denied any jaundice, weight loss or night sweats. He underwent an abdominal ultrasound which revealed a 10cm epigastric mass. A CT-CAP was performed revealing a large mesenteric mass contiguous with the pancreas which was directly infiltrating the pancreatic head. There was associated retroperitoneal lymphadenopathy and the distal common bile duct (CBD) was obstructed with a degree of intrahepatic biliary dilatation. A CT-guided biopsy was performed and histology confirmed a diagnosis of PPL (a high-grade B-cell non-Hodgkin's lymphoma). A PET-CT prior to treatment revealed a 13cm metabolically active abdominal soft tissue mass with separate retroperitoneal sites of nodal disease. There was no evidence of skeletal, splenic or subdiaphragmatic involvement. The patient underwent ERCP with biliary stent insertion to relieve the CBD obstruction, followed by R-CHOP chemotherapy to treat the PPL.

Summary: Radiologists should be aware of the imaging findings of PPL and must consider PPL in the differential diagnoses for pancreatic masses.

1. Boninsegna, E., Zamboni, G.A., Facchinelli, D. et al. (2018) CT imaging of primary pancreatic lymphoma: experience from three referral centres for pancreatic diseases. Insights Imaging. 9, 17â?"24.
2. Merkle, E.M., Bender, G.N., Brambs, H. (2000) Imaging findings in pancreatic lymphoma differential aspects. Am. J. Roentgenol. 174, 671-675.
3. Rad, N., Khafaf, A., Mohammad, A.H. (2017) Primary pancreatic lymphoma: what we need to know. J. Gastrointest. Oncol. 8(4), 749-757.

PAEDIATRICS POSTER PRESENTATIONS

P035 An audit into chest x-rays taken through A&E on children aged 2 and under

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Background: A&E departments can be stressful environments for children. It is imperative to obtain a radiograph of highest diagnostic quality as possible. However, this is not always straight forward when imaging children. The ideal chest radiograph would have real anatomical markers, four borders of collimation, no visible hands on the film, no

wires or artefacts, no text placed over anatomy, no rotation and image would be taken upon inspiration.
Method: 515 radiographs were analysed over a 2 year period of chest x-rays on patients aged 2 years and under. The imaging referrals were from A&E.
Results: There was variation across hospital sites. Site A achieved 37.68% of radiographs with real anatomical markers; compared to Site B with only 9.62%. Site A achieved 93.12% of radiographs collimated well; compared to site B with 64.85%. Site A had hands on the film on 17% of images and Site B had 8.7%. Wires and artefacts were visible on 21.38% of Site A images and 27.2% of Site B images. Text was placed over anatomy on 2.89% of Site A images compared to 47.28% at Site B. 88.77% of images at Site A and 91.63% were taken on inspiration. 9.78% of Site A and 12.55 % of Site B images were rotated.
Conclusion: Results varied across hospital sites but overall the results identified mostly good practice and an opportunity for positive feedback. Some areas where practice could improve include the use of anatomical markers and image processing in terms of placing text over anatomy.

1. Barr, L. ed. 1991. Handbook of Paediatric Imaging. United States: Churchill Livingstone.
2. Hardwick, J. and Gyll, C. 2004. Radiography of Children: A Guide to Good Practice. United Kingdom: Elsevier Churchill Livingstone.
3. Hardy, M. and Boynes, S. 2003. Paediatric Radiography. United Kingdom: Wiley, John & Sons.
4. Imaging for NAI – use of anatomical markers. Society and College of Radiographers and Royal College of Radiologists (2011).
5. Pati, D., Nanda, U. & Waggener, L. 2011. "Influence of Positive Distractions on Children in Two Clinic Waiting Areas". Health Environments Research & Design Journal. 4:124-140. [Online]. [Accessed 5 February 2020]. Available from: http://journals.sagepub.com/doi/pdf/10.1177/193758671100400310
6. Society of Radiographers. 2005. "The Child and the Law: The Roles and Responsibilities of the Radiographer". [Online]. [Accessed 23 January 2020]. Available from: http://www.sor.orgsystem/files/article/201202/sor_child_law_roles_responsibilities.pdf
7. Society of Radiographers. 2017. "Standard for Paediatric Imaging". [Online]. [Accessed 4 February 2020]. Available from: http://www.sor.org/learning/document-library/practice-standards-imaging-children-and-young-people/6-standards-paediatric-imaging

P036 Mucopolysaccharidosis (Hunter syndrome) in a child: imaging findings

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Background: Mucopoysaccharidosis type II (Hunter syndrome- HS) is a rare, X-linked recessive disorder associated to mutation of a gene encoding lysosomal enzyme iduronate sulphatase. Enzyme deficiency in turn, leads to intracellular storage of abnormal mucopolysaccharides, causing progressive organ damage.
Purpose of poster: We review the musculoskeletal and neuroimaging findings of HS. HS occurs in 1 per 80,000 male live births and is rare in females. Multisystemic abnormalities follow a continuum, reflecting abnormal deposition of lipids and glycosaminoglycans in tissues. Patients manifest the clinical symptoms of metabolic disease (which varies widely in its severity) by the end of the first, or at the beginning of the second year of life. Progressive mental retardation, physical disability and death before age 20 are hallmarks of the severe form of disease. Symptoms may include coarse facial features and hoarse voice, short stature, frequent respiratory infections, organomegaly, cardiac disease, hydrocephalus, and musculoskeletal abnormalities known as dysostosis multiplex. Enzyme replacement therapy and stem cell transplantation may improve symptoms. A 15-year-old boy with cognitive impairment who had been regularly followed by the paediatrics unit was admitted to our hospital with pneumonia and seizures. Chest CT revealed lung consolidation. Spatulate ribs were seen. Brain MRI showed macrocephaly, hydrocephalus and prominent brain atrophy. Spine MRI depicted deformed vertebral bodies in the cervical spine, and thoracic scoliosis with a T12 hemivertebra, producing a gibbus deformity. Spinal cord compression was present.
Summary of content: Patients with HS exhibit a constellation of structural abnormalities that can be well appreciated on imaging studies.

1. Martin R, Beck M, Eng C, et al (2008) Recognition and diagnosis of mucopolysaccharidosis II (Hunter syndrome). Pediatrics 121 (2): e377-386 2. Morishita K, Petty R (2011) Musculoskeletal manifestations of mucopolysaccharidoses. Rheumatology (Oxford, England) 50: 19-25 3. White KK (2011). Orthopaedic aspects of mucopolysaccharidoses. Rheumatology (Oxford, England) 50: 26-33

P037 Macrosomia and megalencephaly: born a giant with chromosomal mosaicism of PIK3CA mutation

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Background: Somatic mosaicism of the PIK3CA gene is a rare genetic mutation associated with multiple abnormalities, including variable body overgrowth syndromes (macrosomia) and brain disorders [(hemi)-megalencephaly].
Purpose of poster: We present the musculoskeletal/neuroimaging findings of a PIK3CA-related somatic overgrowth variant, in a newborn. A premature (postnatal 34wks) neonate, weighing 4,700gr and measuring 54cm in length had a head circumference of 44cm (all somatometric measurements above 97th centile). In addition to generalized somatic overgrowth, infant boy had hypotonia and prominent forehead, wide nasal base, low-set ears with dysmorphic auricles, and no plantar creases. Cardiac sonography detected an atrial septal defect. Brain sonography at birth and CT examination suggested mild dilatation of lateral ventricles. All repeated brain sonographic examinations showed

bilateral, marked increase of the ventricular volume. Molecular next-generation sequencing identified mutation in the PIK3CA gene (PIK3CA:c.1093G>A), consistent with megalencephaly-macrosomia syndrome. Parents refused ventriculoperitoneal shunt surgery as part of routine care. At 6 months of age, brain MRI disclosed severe hydrocephalus with global reduction of brain mass. Prognosis was dismal.
Summary of content: Overgrowth of tissues is a common feature in a diversity of developmental disorders as well as cancer. PIK3CA gene mutations are numerous, occur in the early stages of development and have been associated with a broad spectrum of paediatric phenotypes. Presenting signs as head and brain overgrowth, with body overgrowth at birth should raise suspicion of PIK3CA-related overgrowth disorders. While molecular analysis will establish diagnosis of somatic mosaicism, imaging investigation may aid in the characterization of overgrowth developmental disorders.

1. Mirzaa G, Conway R, Graham JM, et al (2013). PIK3CA-Related Segmental Overgrowth. In: Adam MP, Ardinger HH, Pagon RA, Wallace SE, Bean LJH, Stephens K, Amemiya A, editors. GeneReviews. Seattle (WA): University of Washington, Seattle 2. Mirzaa G, Timms AE, Conti V, et al (2016). PIK3CA-associated developmental disorders exhibit distinct classes of mutations with variable expression and tissue distribution. JCI Insight 1(9):e87623 3. Park HJ, Shin CH, Yoo WJ, et al (2020). Detailed analysis of phenotypes and genotypes in megalencephaly-capillary malformation-polymicrogyria syndrome caused by somatic mosaicism of PIK3CA mutations. Orphanet Journal of Rare Diseases 15:205

P038 Reducing the risk of unintended high exposures to paediatric patients in plain film imaging

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Background: Following a CQC improvement notice in May 2016 around an overexposure on a paediatric patient, our department had a major overhaul of paediatric training, protocols and exposures. Final step was the addition of paediatric pre-set exposures to the DR planar imaging rooms for all body parts and ages, mirroring the department's paediatric exposure charts.
Method: Re-assessed paediatric competency on existing staff combined with updating and reiteration of paediatric protocols, parameters and exposure settings. Revamped induction pack for new staff members, with specific paediatric competency sign off. Optimised paediatric exposures, then worked with equipment manufactures to install paediatric pre-sets onto all 9 of our digital imaging rooms. Audited number of high and adult exposures being used on 8 different body parts for paediatric patients up to 14 years of age throughout this process.
Results: Prior to these measures being put in place, initial audits highlighted 14% high and 1.6 % adult exposures being used on paediatric patients. Post paediatric pre-set exposure installation, the number of high exposures reduced to 1.1%, with no adult exposures being used. Where there were no pre-sets on equipment, the number of high exposures had still reduced to 1.6 % but the number of adult exposures remained the same at 1.6 %.
Conclusion: The introduction of paediatric pre-set exposures has been very successful, decreasing the number of unnecessary high exposures significantly. Where equipment is without this application, education and training around paediatric exposures has also meant fewer higher exposures.

P039 Has covid 19 changed children's imaging forever

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Before Covid: parents/carers always encouraged to be involved with examinations. Toys and books available in waiting areas, rewards given after successful examinations Waiting areas always decorated with an appropriate theme depending on the time of year Minimal PPE required Large clinics with a walk in service available every day Patients allowed to attend early, along with family members and siblings. During lockdown: Only acute, urgent and oncology patients imaged, all routine patients and screening cancelled. Patient numbers requiring imaging was very low. Very few Covid positive paediatric patients. Introduction of the recommended PPE changed often. Radiographers became confident in Donning and Doffing, fit testing was a priority. Post lockdown: Parents/carers anxious about attending hospital, resulting in frustration and delay of care and diagnosis Only one parent/carer is allowed to attend with the patient, increasing anxiety Due to social distancing, children are alone for their examination when appropriate, once details have been checked. No toys, distraction aids, or themed decorations in waiting areas that patients have become accustomed to. Pressure from referrers due to backlog PPE has resulted in the `lack of smiles` and interaction from babies. Increased DNA rates, parents/carer contacted prior to appointments Outcomes Reduced job satisfaction due to PPE, interaction with patients and families, being unable to provide a familiar and inviting environment Improved relationships and communication with service users, who now recognise our limitations and respect our decisions Improved control over workflow Children are resilient and cope.

P040 Exploring the experiences of patients with autism when attending the diagnostic imaging department for projection imaging

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Background: Bjorkman et al. (2016) found that of 46 departments that examined children with Autistic Spectrum Disorder (ASD) none had any existing guidelines for radiographers to assist them in preparing for and undertaking imaging procedures for patients with ASD. Two studies undertaken in the UK explored the experiences of patients with ASD, from the parents' perspective (Brammer; 2016, Bond, 2017.) They recommended improving communication with the children, incorporating further training and development for radiographers and agreeing a process of needs assessment. Research into the experience of children with ASD when visiting an imaging department has yet to be undertaken and therefore a gap in current evidence has been identified.
Method: The participants were parents and their children with autism aged 6-12. Parents completed an online survey via Survey Monkey. From, the survey parents were be asked if their child would willing to participate in the second part of the study with their support and attend an interview. Five children were interviewed to discuss their experiences when attending for diagnostic imaging examinations.
Results: The survey responses will be quantitively analysed in order to discuss the findings. The themes identified from the interviews will be also discussed alongside that of the survey, related to current literature and contextualised in order to identify areas for improvement.
Conclusion: The findings will be used to make a series of recommendations as to how the experience of parents and their children attending for projection imaging can be improved in their future.

1. Bjorkman, B., Berglund G., Enskar K., Fareso M. and Huus K. (2016). Peri-radiographic guidelines for children with autism spectrum disorder: a nationwide survey in Sweden. Child: care, health and development, 43, 1, 31-36. 2. Bond J. (2017). Rising to the challenge. Imaging and Therapy Practice, Nov, p12-17 3. Brammer A. (2016). Reasonable adjustments, the law and the imaging department. Imaging and Therapy Practice, April, p21-25.

P041 Imaging the fetal lung -- comparing normative data from in utero MRI and post-mortem MRI at different gestational ages

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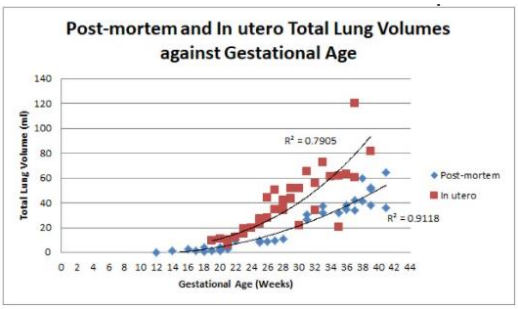
Objective: The objective is to see if lung volumes at different gestational ages (GAs) are the same when measured on in utero fetal MRI and post-mortem fetal MRI.
Methods: 79 fetal MRI images were accessed. All scans were taken on a 1.5 Tesla Siemens Avanto scanner (Erlangen, Germany) on a T2 weighted SSFE sequence. Using RadiAnt DICOM Viewer (Medixant, Poland) fetal lungs were traced on each slice in the coronal orientation. The areas of each slice were summed and multiplied by the MRI slice thickness to calculate lung volume measurements. Graphs were obtained by plotting volume against GA. Interobserver variation was represented on a Bland Altman Plot.
Results: GA ranged from 12- 41 weeks and 19-39 in post-mortem and in utero cases respectively. 40 post-mortem fetal MRIs and 37 in utero fetal MRIs were measured; two cases were excluded as they had known lung abnormalities. Both post-mortem and in utero values increased with GA. The line of best fit for post-mortem values had the equation: $V = 0.0602g^2 - 1.3014g + 6.3682$, $R^2 = 0.9118$. The line of best fit for in utero values had the equation: $V = 0.0007g^{3.2041}$, $R^2 = 0.7905$.



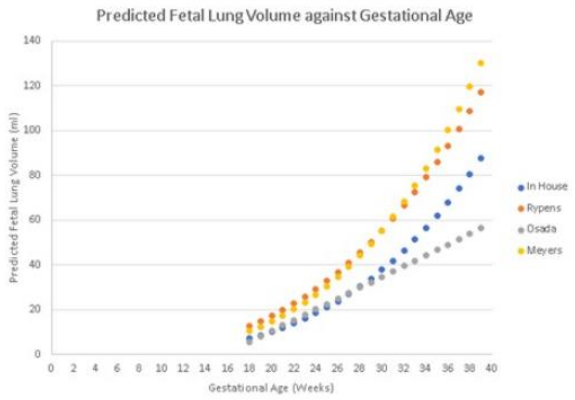
Conclusion: Our results show a clear difference between normative post-mortem and in utero fetal lung measurements on MRI at the same gestational ages. Post-mortem measurements were consistently lower than in utero measurements.

042 The value of in house data compared to published formulae for predicting in utero fetal lung volume on MRI

Madeleine Carling; Charlotte Hart; Elspeth Whitby
University of Sheffield

Objective: To compare in utero MRI fetal lung volumes predicted by published formulae, with in house data, against gestational age.

Methods: The in house data scans were taken on a 1.5 Tesla Siemens Avanto scanner (Erlangen, Germany) on a T2 weighted SSFE sequence. Using RadiAnt DICOM Viewer (Medixant, Poland) fetal lungs were traced on each slice in the coronal orientation. The areas of each slice were summed and multiplied by the MRI slice thickness to calculate lung volume measurements for in house data. Data gathered from Meyers, Osada and Rypens was similarly collected by planimetric analysis. Meyers also used 3D volumetric analysis. Graphs were obtained by plotting volume against GA for in house and published formula values.



Results: We plotted each formula against GA at one week periods from 18 to 40 weeks' gestation, including our own formula. Using this GA range means that each formula has been extrapolated. **Conclusion:** All formulae predict that fetal lung volume increases with GA; our in-house data followed a similar trend to the published formulae. The in-house data trend was most similar to the Rypens trend, however the Rypens values were consistently larger at each GA. In-house values were most similar to the Osada values in the 18-29 week GA period. Knowledge of in house data trends should be taken into consideration when making clinical decisions based on lung volumes.

1. Meyers ML, Garcia JR, Blough KL, Zhang W, Cassady CI, Mehollin-Ray AR. Fetal lung volumes by MRI: Normal weekly values from 18 through 38 weeks' gestation. Am J Roentgenol. 2018 Aug; 211(2):432-8. 2. Osada H, Kaku K, Masuda K, Iitsuka Y, Seki K, Sekiya S. Quantitative and qualitative evaluations of fetal lung with MR imaging. Radiology 2004; 231:887–892. 3. Rypens F, Metens T, Rocourt N, Sonigo P, Brunelle F, Quere MP, et al. Fetal lung volume: Estimation at MR imaging - Initial results. Radiology. 2001 Apr; 219(1):236-41.

P043 Paediatric research radiographers: Great Ormond Street Hospital

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Traditionally, diagnostic radiography has been perceived to be a consumer of research rather than a producer (Gymiah, 2018). Previously, practice was based upon tradition and experience rather than peer reviewed evidence. Meanwhile, continuous technological development, clinical trial participation and advanced diagnostic procedures (Reid & Edwards, 2011) have increased the demands for research radiographers. Can we make a clinical difference? While the number of diagnostic research radiographers increase alongside an increase in the number of doctoral level qualifications (Gambling et al, 2003), they are still in a minority with many departments still facing barriers. These include staff shortages, time constraints, lack of research skills and funding (Ooi, 2012). This poster aims to showcase the opportunities available for research candidates in the Radiology Department at Great Ormond Street Hospital. We outline the training schemes and support networks available to radiographers within the Trust and how this method harnesses the clinical expertise of the profession to provide an evidence-based high-quality imaging service. Learning outcomes include how to initiate a successful research culture, the importance of clear goals, effective leadership, and delivery to the clinical service. In addition, access to a specialized knowledge and skills base is essential when developing professional practice.

Gambling, T., Brown, P., & Hogg, P. (2003). Research in our practice-a requirement not an option: Discussion paper1. Radiography, 9(1), 71-76. https://doi.org/10.1016/S1078-8174(03)00007-5 Gyimah, P. A. (2018). Barriers to Research Utilisation amongst Diagnostic Radiographers in the UK [Sheffield Hallam University]. https://doi.org/10.7190/shu-thesis-00233 Ooi, C.-C., Lee, S. H.-E., & Soh, B. P. (2012). A survey on the research awareness and readiness among radiographers in Singapore General Hospital (SGH). Radiography, 18(4), 264-269. https://doi.org/10.1016/j.radi.2012.06.004 Reid, K., & Edwards, H. (2011). Evaluating the role of the diagnostic research radiographer. Radiography, 17(3), 207-211. https://doi.org/10.1016/j.radi.2011.02.004

P045 Diagnostic imaging: an essential method of diagnosing Cushing's syndrome and disease

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Background: Cushing's syndrome (CS), was named after Harvey Cushing (1869-1939), a neurosurgeon who during a case study proved his hypothetical theory that hypoadrenalism was linked, "to minute basophilic adenomas of the pituitary gland," the pluriglandular syndrome became known as CS. His main aims were to improve the survival rates of patients after complex neurosurgical procedures for intracranial tumours and introduced x-ray imaging for the diagnosis of brain tumours. Today's technological advancements in diagnostic imaging have proved to be a vital tool in testing the differential diagnosis and in making a definitive diagnosis.
Methods: As part of a Quality-of-Life 2020 survey on 86 CS members of the Pituitary Foundation UK, 3 questions asked which type of diagnostic imaging examination(s), that they had undergone prior to their diagnosis. The objective being to ascertain, if diagnostic imaging continues to remain vitally important for the diagnosis of CS and Cushing's disease (CD).
Results: 66% of the study population had a CT scan to ascertain the presence of adrenal adenoma(s), and 62% had an MRI to confirm pituitary adenomas. When asked if they had been referred for any other type of diagnostic examinations/procedures for their CS diagnosis, 84% named 15 other types of imaging examinations, (mean = 2, min= 1, max=6). The collective number of examinations was 185.
Conclusion: Results from this survey suggested that diagnostic imaging is one of the 2 essential methods of diagnosing CS and CD, the other is biochemical testing.

Ellis H, (2012). Harvey Cushing: Cushing's diseaseJournal. Perioperative Practice, Sept; 22(9), Pp.298-9.

OBS & GYNAE POSTER PRESENTATIONS

P046 Apparent Diffusion Coefficient and texture may help predict the severity of placental invasion

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Background: Placenta accreta spectrum (PAS) causes 7% of maternal mortality (1). Diagnosis is still not definitive. This raises the need for a complimentary approach to assess placental invasion. Diffusion and textural analysis have shown a correlation with some types of tumors (2). The use of radiomics can give a clue into the microstructural feature as significant results were found between normal and abnormal placental disorders (1). Objectives: to evaluate the utilization of ADC and texture analysis in PAS diagnosis.
Methods: A retrospective review of 153 cases. ADC values were obtained from the area above the bladder and the entire placenta on a midline sagittal image by 2 readers. Heterogeneity of the placenta and placental dark bands were also noted. Pathological diagnosis was obtained from medical records. Texture study of a sample size of 33 images was also analysed using radiomics program (LIFEx) by a single reader. Texture and matched ADC results were then analysed.
Results: Total placental ADC is higher in abnormally invaded placentas. The degree of placental invasion showed a correlation with total placental texture. Normal placentas had lower values than invaded placentas. Texture grey level co-occurrence matrix (GLCM)- homogeneity showed an increment level proportional to the degree of placental invasion. Bland-Altman plot showed that regional placental ADC showed an agreement with no potential bias between the 2 readers.
Conclusion: ADC measurements have to be complimented with other MRI signs of placental invasion and texture to aid confidence in the imaging diagnosis.

1. Chen E, Mar WA, Horowitz JM, Allen A, Jha P, Cantrell DR, et al. Texture analysis of placental MRI: can it aid in the prenatal diagnosis of placenta accreta spectrum? Abdominal radiology (New York). 2019;44(9):3175-84. 2. Sarioglu FC, Sarioglu O, Guleryuz H, Ozer E, Ince D, Olgun HN. MRI-based texture analysis for differentiating pediatric craniofacial rhabdomyosarcoma from infantile hemangioma. Eur Radiol. 2020;30(10):5227-36.

P047 Inter-fractional uterus motion during radiotherapy for cervix cancer after ultrasound confirmation of bladder volume

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Background: Uterus motion is linked to changes in bladder volume during radiotherapy for cervix cancer. Ultrasound is used in our department to confirm bladder volume is within 100ml of planned volume before each treatment. The inter-fractional movement of the uterine fundus in a group of patients who had ultrasound to confirm adequate bladder volume before treatment was compared to a group of patients who were previously treated without