is a disabling genetic disorder that affects muscles, tendons, ligaments and connective tissues to form/calcify into bone progressively, restricting movement (ifopa, 2009; Kriegbaum and Hillerup, 2013; fopaction, 2014).

Aim: The aim of this poster is to use a case profile approach to inform radiographers about this condition.

Discussion: Frequently, radiographers are the first point of contact with the patients visiting an NHS Trust for the first time. Children who have FOP, typically appear normal at birth. However, it is characterized by the congenital malformation of the great toes, thumbs or both (Kaplan, Chakkalakal and Shore, 2012; Kriegbaum and Hillerup, 2013). During the first decade of life, the children present sporadic episodes of painful soft tissue swellings and bone growth which are commonly mistaken for tumours. Biopsies or surgical attempts to remove the bone, result in more robust bone growth leading to severe disability, pulmonary complications and premature death by the age 50-60 years (Pignolo et al., 2011; Kriegbaum and Hillerup, 2013). There is no known cure for FOP and it is usually misdiagnosed, which could lead to a great deal of pain and suffering for the patients and their families. Increased awareness of this condition would enhance patient care and ensure that a more informed form of treatment can be given in the case of trauma or surgery.

Clinical: Head and neck

P025 Imaging of masses behind the eardrum

Elfadil Elmahdi; Huw Lewis-Jones; Rebecca Hanlon; Jehan Ghany
University Hospital Aintree

Aims: To discuss the imaging of masses behind the eardrum and give illustrative examples of important differentials.

Content: This is a challenging diagnostic area for the Radiologist. Differentials for masses behind the eardrum include Glomus tumours, Cholesteatomas, invasive head and neck cancers of the middle ear cleft and anatomical variants. Using these examples we will discuss a range of imaging protocols that can be used for investigation of such masses including unenhanced CT scans and contrast enhanced MRI scans. From this, we will then go onto present a protocol for the investigation of middle ear masses.

Relevance: This poster condenses the range of differentials as well as the important aspects of anatomical variants that should be considered by the Clinical Radiologist.

Outcomes: From the discussion and exploration of imaging of masses behind the eardrum we will then go onto to present a protocol for the investigation of such masses.

Discussions: The Clinical Radiologist is often referred patients for investigation who have a mass behind the eardrum. Sometimes this is described as either a reddish blue mass or occasionally a pearly white mass. These masses have a number of differentials ranging from normal variants and benign disease to the more serious malignant pathology. Thus the reporting Clinical Radiologist must have a good understanding of the sorts of pathology that can arise in the area so that the most appropriate imaging modalities can be selected to discern the more serious pathology from the benign.

P026 Assessment of the orthopantogram and common positioning errors

Danielle Hogg
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The orthopantogram is currently the most commonly performed extra oral examination. It provides a panoramic overview of the teeth and their supporting structures in a single image, allowing assessment of dental disease, teeth abnormality, trauma and treatment workup.

The development of this technique has resulted in vast improvements in image quality with decreased exposure to radiation and at a low cost. The quality of this examination relies upon the accurate positioning of the patients teeth

and surrounding maxillofacial bone structure. Poor patient positioning can result in a suboptimal image that can subsequently lead to misdiagnosis and the development of an inadequate treatment plan.

Therefore, this poster aims to identify the most common types of positioning errors and to suggest correct techniques. Discussion of how to determine if such positioning errors have occurred will be also be included in order to aid radiographic positioning technique.

P027 **Image quality and radiation dose in acute CT head: A CT optimisation study of Sinogram Affirmed Iterative Reconstruction (SAFIRE) implementation using phantoms**

Martine Harris[1]; John Huckle[2]; Denis Anthony[2]
Mid-Yorkshire Hospitals NHS Trust[1]; University of Leeds[2]

Aims/objectives: To determine whether a sytematically optimised volumetric CT head protocol with applied SAFIRE has the potential to provide objective and subjective image quality comparable to that of traditional Filtered Back Projection (FBP).

Content: A multi-phased study has been performed that utilises phantoms and simulates the clinical cranial CT head scenario. This study primarily evaluates the influence of decreasing tube current and reconstruction algorithm on traditional objective metrics, the noise power spectrum (NPS) and subjective image quality criteria. Diagnostic confidence and acceptability of optimised cranial image interpretation has been performed in a custom phantom.

Relevance/impact: In principle IR algorithms result in the ability to reduce exposure factors while maintaining or improving image quality. In reality as highlighted by local clinical practice this does not necessarily translate into radiological acceptance for clinical image interpretation. This reflects the complexities that exist exclusively within cranial CT (CCT) with regards to image noise, image texture and reader preferences requiring empirical study.

Outcomes: Compared to the standard reference protocol, increasing strength SAFIRE reconstructions resulted in lower image noise, increased Signal-to-Noise and Contrast-to-Noise Ratios. There was low agreement between observers with regards to subjective low-contrast resolution. ANOVA has been utilised to identify significant differences between imaging protocols for established diagnostic quality criteria.

Discussion: Within the limitations of a phantom study, a methodological approach to SAFIRE implementation with critical image quality investigation has yielded reduced dose, low IR strength diagnostic cranial CT protocols that justify true value verification in a patient cohort.

P028 **Sialosis: a modern era condition**

Iara Sequeiros; Susan Armstrong
University Hospitals Bristol NHS Foundation Trust

Objectives: The poster will describe the condition, its aetiology and typical and not so common presenting features. Case examples from our institution will be used to illustrate these.

Relevance and discussion: Sialosis is defined in the literature as chronic bilateral diffuse, non-inflammatory, non-neoplastic swelling of the major salivary glands. Most frequently the parotid glands are involved, but occasionally the submandibular glands and rarely the sublingual glands can be affected. Patients are aged between 30 to 70 years at onset of symptoms; both genders are equally affected.

The enlargement is usually bilateral, symmetrical and painless. However, we report several patients presenting with asymmetric and painful swelling of the parotid glands and sonographic evidence of sialosis.

Causes include diabetes mellitus, endocrine conditions, e.g. pregnancy, alcoholism, liver disease, obesity, chronic malnutrition and eating disorders. Drugs associated with the condition include anti-hypertensives, anti-thyroids and phenothiazines. The pathogenesis is thought to be an autonomic neuropathy.

We suggest that this condition is more prevalent and may have different presentations than previously described. It is the head and neck equivalent of the fatty liver.

P029 **So what if its hot? Evaluating incidental PET positive thyroid lesions**

Neena Kalsy[1]; Asim Khan[2]; Alexandra Roberts[1]
Royal Liverpool and Broadgreen University Hospital NHS Trust[1]; University of Liverpool Medical School[2]

Aims/objectives: To determine the significance of thyroid lesions showing uptake on PET imaging.

Content: Thyroid nodules are common, however the overall clinical implication of incidental nodules is uncertain, with evidence suggesting a high malignancy risk in PET positive thyroid lesions. Incidental uptake of tracer in the thyroid gland during PET imaging and often leads to further investigation with ultrasound and fine needle aspiration cytology. We have reviewed all cases of PET positive thyroid uptake from January 2013 to August 2014 with data obtained from subsequent ultrasound, FNA cytology and excisional histopathology to review the significance this finding in our centre.

Outcomes/impact: 47 PET positive thyroid lesions were identified, on FDG PET and F18 PET imaging in 46 patients. Uptake was focal, multifocal or diffuse in 29, 6, and 12 scans respectively. Ultrasound was performed in 24/46 (52%) patients overall, with ultrasound rate higher in patients with focal thyroid uptake (62%) compared to multifocal or diffuse change (both 33%)). 11 patients had FNA cytology of which 8 were benign (thy2)and 3 were indeterminate (thy 3F). Final histology confirmed 2 follicular adenomas, and no malignant lesions detected. 11 patients with focal uptake did not have US ultrasound performed.

Discussion: 0/47 cases of PET positive thyroid uptake showed malignancy. Provisional data suggests a much lower malignancy rate in incidentally detected PET positive thyroid lesions than published literature. We recognise restrictions to follow up and further work with larger sample size is on-going.

P030 **Procurement of a Cone Beam CT Scanner**

Colin Ross
University Hospitals of Leicester

Aims/objectives: A case study description of the different stages involved in gaining approval for the purchase of new piece of X-ray equipment (rather than straight forward like-for-like replacement) – in this case a Cone Beam CT Scanner, in an NHS hospital.

Content: A description of the advantages (to the hospital, patients, and clinicians) of having this sort of scanner e.g. dose reduction, relieving pressure on conventional CT scanners, reducing waiting lists, shorter appointment slots, improving patient flow; a description of the approval process and gateways involved; a timeline; and some reflection on my own learning from having driven forward a business case to procure a Cone Beam CT Scanner.

Relevance/impact: My experiences, and obstacles, are likely to be similar to those of other people trying, or thinking about trying, to gain approval to procure a Cone Beam CT Scanner, or other new technology in an NHS hospital.

P031 **An audit to assess compliance with new NICE head injury guidelines**

Sultana Hasso; Sunil Dasan
St George's Hospital

NICE head injury quality standards were newly updated in 2014. Emphasising prompt imaging for those deemed to have life threatening features and introduced a new reporting standard. As part of a busy tertiary London Accident and Emergency, the changes are likely to stretch CT scanner and radiology resources.

The aim is to audit compliance with NICE standards for:

- Time to CT for patients with life threatening features
- CT head reporting times

We conducted a retrospective study over a month of all attendees triaged with "Head injury". The NICE standard is that 100% of high-risk CT's are performed within 1 hour of risk factor identification, and 100% are reported within 1 hour of CT scan.

196 patients were triaged as "Head injury", 24% went on to have a CT. 70% of patients with life-threatening signs had a CT within 1 hour of request. With regards to reporting, 79% occurred within 1 hour, those that missed the standard had scans outside of classic working hours.

All patients that missed the 1 hour CT target were within the hours of 9-5 when scanner resources are stretched. Standards for reporting were harder to achieve out of hours, when radiologists are most stretched. None of the requests categorised the urgency of the scan. This highlights the need for all head injury CT's to be clinically indicated with clear requests that communicate the urgency of the scan; further departmental education and a head injury proforma are being introduced with re-audit to evaluate changes.

Clinical: Neuroradiology

P032 **Head injuries in a level 1 trauma centre: Is it safe for radiology trainees to report these scans?**

Alina Denisa Dragan; James Edmund Sarkodieh; Ashok Adams
Barts Health NHS Trust, Royal London Hospital

Background: The demands on Radiology services are increasing, not only in the number of scans and procedures but also through an element of time pressure brought on by new recommendations like the NICE guidelines for head injuries (January 2014).

Aim: Our aim was to determine the incidence and grade of discrepancies in CT scan reporting in head trauma in a busy level I trauma centre.

Methods: We performed a retrospective review of all CT scans done for head injuries over a week, in our hospital. A comparison was made between the provisional report submitted by a trainee (SpR) and the Neuroradiologist's review the next day. All discrepancies were graded according to the potential and/or actual harm to the patient.

Results: During the week under review, 601 CT scans were reported, 333 of these being emergency scans requested by the A&E department. 66 CT head scans were performed for head injuries. Out of these, we found an overall rate of discrepancies in reporting of 23%, but 15% were negligible (no harm to patient). Two cases had a potentially major discrepancy. In both of these instances, the overlooked findings were on the background of other significant intracranial abnormalities that had been described.

Discussions: The practice of having Radiology trainees reporting CT scans of head injury patients seems to be a safe one even in a busy level I trauma centre. We still advocate prompt consultant review and regular auditing of trainees oncall reporting.

P033 **Complex orbit and facial trauma - what you need to know and what you need to look out for**

Tim Skinner; John Adu; Ashok Adams; Amit Roy
Barts Health NHS Trust

Aims: Drawing on our experience of complex facial and orbital trauma cases from a Level 1 trauma centre, the aims of this poster are to:
1. Provide a pictorial review of common facial trauma fracture patterns and their categorisation
2. Provide a pictorial review of common traumatic injuries of the globe of the eye
3. Increase awareness of the potential sequelae of complex of facial fracture

Content:

CT appearances of:

- Zygomatico-maxillary complex fractures
- Naso-orbito ethmoid fractures
- Frontal sinus fractures
- Le Fort I, II and III fractures
- Mandibular Fractures