

P-001 High resolution ultrasound features in early seronegative arthritis

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Objectives: The Radiological course of seronegative arthritis is subtle and diagnosis is often delayed by 5-9 years despite clinical evidence of symptoms and signs of inflammation. The diagnosis is based on recognised clinical classifications. Radiological features are often at the late stages of the disease and often present as secondary osteoarthritic changes and may lead to unnecessary surgery. The assessment protocols with high resolution ultrasound required defining.

Contents: Retrospective review of distribution of features on high resolution ultrasound of hands and wrists of over 300 patients classified clinically as seronegative spondyloarthritis. Our emphasis is on high resolution ultrasound of the hands and wrists to demonstrate the peripheral component and the systemic nature of the disease.

Outcomes: Early Synovial inflammation is identified in over 80% of patients at the sites of the patients symptoms and swelling rather than the expected radiographic sites. The absence of hyperaemia and erosions of rheumatoid arthritis is a feature. Effusions are minimal and often suppressed by ongoing treatment.

Impact: The spectrum of florid features of rheumatoid arthritis are not featured in seronegative arthritis. The spectrum and distribution of inflammation redefined our ultrasound interrogation protocols.

Discussions: MRI often fails to demonstrate convincing evidence to correlate with the patients symptoms and signs. High resolution ultrasound provides an opportunity to confirm clinical symptoms and findings. Known radiographic distribution of the disease is misleading and the assessment is best tailored to clinical features. Various outpatient imaging protocols are described for rapid clinical diagnostic confirmation such as the US 7 technique is complimentary.

P-002 MRI of spondyarthropathies - a reaudit of standardised MRI protocols and the knock on effects of clinical referral patterns over three years

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Background: Several criteria exist for the diagnosis of spondyloarthropathies (SpA), a group of related rheumatological disorders. Many modifications to diagnostic criteria have been made, however, there continues to be a significant lag between disease onset and diagnosis. The new ASAS criteria may allow shorter diagnostic delay by incorporating MRI.

Aims: A reaudit of all MR performed to a locally developed Ankylosing Spondylitis protocol, to assess the positive 'hit rate' over one year. The initial audit was from 2009-10 and the current period is 2010-2012.

Methodology: A total of 76 patients were obtained using the CRIS software search function. Local and national standards were used for the audit.

Relevance/outcomes: Increase in mean age (38 to 42), rheumatology and consultant specific referrals (90%), SpA protocol and specialist MSK review were significantly increased in the reaudit, with a reduction in the time to report.

Discussion: Studies show standard clinical protocols may omit inflammatory lesions in thoracic region, which highlights the need for following spinal AS protocols. The numbers of patients scanned to a standard 'Neuroradiology' spine protocol have significantly decreased due to radiographer education across the Trust. During the reaudit period, requests for AS protocol increased as well as consultant only referrals. The majority of referrals for MRI spine were from rheumatology and remained within the main specialist centre. The emphasis on specialist input as well as appropriate protocol may contribute to the subsequent increase in diagnostic hit rate for inflammatory spine disease and SpAs.

P-003 Size matters: Understanding and application of the true orthogonal view in the assessment of ulnar variance

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Aims: Evaluation of radiographer understanding and application of the true PA orthogonal view in the assessment of ulnar variance to ensure correct patient positioning, as inadequate technique can result in false interpretation of the radiograph and impact upon patient management.

Methods: A survey was conducted over a two week period of all radiographers specialising in plain film radiography within our radiology department. The survey was formulated by two specialist registrars in clinical radiology, one musculoskeletal consultant radiologist and one senior radiographer specialising in plain film radiography.

The standards were; 100% of radiographers understand the rationale and technique for using the orthogonal view and 100% apply this in their practice when asked to assess for positive ulnar variance.

Outcomes: Only 22% of radiographers knew the correct angle of abduction of the shoulder, while 92% knew the correct angle of flexion of the elbow. Only 32% of radiographers would always make a note if the arm could not be positioned correctly.

Discussion: The results demonstrate that within our department the plain film radiographers have a suboptimal understanding of the technique and application of the orthogonal view for the assessment of ulnar variance. The results have been fed back to the radiographers and other staff in the form of an audit presentation to highlight the importance of technique in the assessment of this condition, and the results will be re-audited in due course to ensure that there is an improvement in understanding and clinical practice.

P-004 What the general radiologist needs to know about prosthetic orthopaedic implants; an aide memoire

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Aims: This presentation will provide an overview of common orthopaedic implants including their post operative radiographic appearances. Post operative radiographs have conventionally been used by the surgeons to assess for prosthetic position and post operative complications. These films are often reported by the general radiologist or a trainee registrar as 'metal work in situ, position as shown'. The aim of this poster is to familiarize the general radiologist with the different types of prosthesis and their range of normal post-operative imaging appearances including ideal positions and complications.

Content: We will present a pictorial series encompassing commonly used implants both in the acute and elective settings. These will include joint replacements and trauma prosthesis. For example a patient with a dynamic hip screw fixation following an extra capsular neck of femur fracture would require the tip apex distance to be within 2cm and centred within the femoral head for best results. We endeavour to encompass a range of prosthetic implants for example; different types of hip replacements, hip fracture fixation prosthesis like the dynamic hip screw/targon plate/cannulated screw fixation, femoral prosthesis like LISS plates and intra medullary nail fixations amongst others.

Relevance: The general radiologist / trainees need to be aware of the different types of commonly used prosthetic appliances, their normal/abnormal appearances and potential complications.

Conclusion: This would be an aid memoire to help the general radiologist identify normal and abnormal appearances of commonly used prosthesis in Trauma and Orthopaedics.

P-006 Critical evaluation of the role of imaging modalities in decision pathways of osteosarcoma

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Aim: This study aims to evaluate the role of diagnostic imaging investigations in management of osteosarcoma. It will also provide an insight of the role of multidisciplinary teams in clinical decision making process for the appropriate choice of imaging investigation and its influence on patient management. Recommendations from guidelines and international standards for the diagnostic pathway of osteosarcoma will also be discussed.

Materials and methods: Patients diagnosed with osteosarcoma were selected during multidisciplinary team meetings and followed prospectively. Patients' clinical notes and details of medical investigations were accessed

from the hospital information system (HIS) and Picture Archiving and Communication System (PACS). Patients' personal information ie. name, medical record number and Images of medical investigations were anonymised following the RCR standards for patient confidentiality and PACS (2008). Informed consent was obtained from patient before using patients' case notes. A critical review of all the imaging investigations was done comparing with the international standards.

Conclusion: Imaging examinations are essential in the work-up and staging of osteosarcoma. The critical role of diagnostic imaging modalities in detecting, staging and treatment planning was reviewed. This case-study highlighted unjustified imaging examinations and the decision making process at every step of patient management. The key to efficient patient diagnosis and management is proper utilisation of these imaging modalities by adhering to guidelines. Analysis of this case study provided an insight to achieve best patient outcomes.

P-007 A pain in the neck: Analysis of screening cervical spine CT based on NICE guidelines

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Background: The 2007 National Institute for Health and Clinical Excellence (NICE) Head Injury Guidelines included imaging criteria to triage trauma patients for immediate computed tomography (CT) scan of the cervical spine (C-Spine). Inasmuch as our goal is to reduce unnecessary radiation exposure to the thyroid gland, which is 14 times greater for CT as compared to radiography, we evaluated CT request compliance with NICE criteria.

Methods: A retrospective assessment of all adult patients presenting to the Emergency Department (ED) for CT C-Spine imaging requested over a 6 month period were enrolled. The CT scans were reported to confirm the presence or absence of cervical spine fracture by a consultant radiologist. ED requests were evaluated for compliance with NICE criteria for immediate cervical spine CT.

Results: Of the 246 CT C-Spine examinations, 87.8% (216) were negative for the presence of C-spine fracture. Only 12.2% (30) were positive. 30 CT examinations which had fractures, 80% (24) met the NICE criteria and 20% (6) did not. When criteria were met (n=116), 20.7% (24) had fractures as opposed to 4.6% (6) when criteria not met (n=130). Applying NICE criteria identified a statistically significant number of fractures (P=0.00012004). The NICE criteria had a sensitivity of 80% and specificity of 57.41% for identifying C-spine fractures. The positive and negative predictive values were 20.69% and 95.38% respectively.

Conclusions: Strict application of the NICE Head Injury guidelines for imaging of the cervical spine would reduce over-utilization of CT and its potentially harmful radiation exposure.

P-008 The microcirculation of the intervertebral disc

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Low back pain is a costly societal issue. Although its aetiology is unclear, it has been associated with degeneration of the intervertebral disc, caused in part by poor nutrition. In this study the equine caudal disc is utilised as a model with which to study perfusion in disc tissue. X ray and MRI imaging and classical histology were employed to investigate the structural anatomy of the disc and the uptake of tracers within the disc tissue.

Though the anatomy of the human and equine caudal discs was similar, the equine annulus consisted of an average 5 lamellae with a width range of 140 to 1110 microns as opposed to 15 to 20 lamellae and a width range of 200 to 400 microns in the human. The equine discs were circular in transverse section and the endplates had concave superior and inferior surfaces. The nucleus showed local order in the orientation of collagen fibres.

It was found that to reach tracer equilibrium it took up to 22 hours in the outer anterior annulus for the manganese ion but only 5 ½ hours in the central nucleus with Gadovist. Diffusion was found to be fastest overall in Gadovist and slowest in manganese. Partition coefficients were also found to vary. A partition coefficient of 6 for manganese and 0.5 for Magnevist in the nucleus area was found.

These studies demonstrate that the perfused equine disc is a useful model in which to study nutrition and drug uptake which is of clinical importance.

P-009 Role of Short Tau Inversion Recovery (STIR) sequence in community referred spinal imaging

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Aims: To assess value of STIR sequence in MR imaging of community referred patients, mainly focusing on lumbar MR.

Content: Audit performed over a month's period, reviewing all spinal MRI performed. Two Consultant Musculoskeletal Radiologists and a Radiology Resident double read each examination (123 patients). All data was analyzed in an Excel word sheet, with graphical representation of the results. A final result, discussion and plan was put together. The final plan is set in accordance with American College of Radiology revised MR guidelines 2012.

Impact: All community-referred patients undergoing a spinal MRI at York District Hospital, along with sagittal T1 and T2 sequences undergo a STIR sequence. By assessing value of STIR in this setting, the sequence could be reserved for a selected patient cohort, decreasing examination time and improve throughput of the scanner.

Outcomes: On review of the lumbar spine STIR sequences, 4.83% had MR findings not seen with standard sagittal sequences (T1 and T2). On evaluation of further spinal imaging low value added in cervical and thoracic examinations.

Discussion: In summary, it would improve working efficiency of MR scanning, in the context of out patients, by selecting a cohort of patients where a STIR sequence would add value. This would be guided by the clinical history provided. In initial imaging for back pain, in potential surgical candidates with symptoms of radiculopathy or spinal stenosis, standard sagittal sequences (T1 and T2) should be employed and STIR only used where further clarification or confirmation is deemed necessary.

P-010 Review and update of correct nomenclature for lumbar spine disc disease

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Learning objectives: To review, update and unify the classification in disc pathology nomenclature according to current recommendations to ensure accurate communication between radiologists and their referring clinicians.

Background: There is currently a wide variety of radiological interpretation of what constitutes a particular disc pathology. For example the distinction between a disc protrusion and an asymmetrical disc bulge is often open to individual interpretation. This lack of consistency is also prevalent in the literature with a variety of guidelines being used. We reviewed the database from our institution over the last 5 years and analyzed the number of MRIs performed of the lumbar spine and cross referred to findings of disc disease. In total 5, 860 lumbar spines were performed with reports and images available in 5, 223 cases. Out of these 3, 823 had disc disease. Cases from these cohort were utilized for this educational exhibit.

We reviewed the literature to assess best current practice in correctly diagnosing disc disease. Articles were mainly found in the orthopedic and radiological literature. In total 16 articles were found to be appropriate for reference sourcing. Illustrative diagrams defining disc pathology as well as representative images have been utilized in this exhibit to clearly define the correct interpretation of disc disease.

Conclusions: In this educational exhibit we illustrate the correct nomenclature of disc pathology based on the most current literature using both illustrative diagrams as well as cases from our cohort. We describe methods of standardization of language allowing for a unified approach to correct and reliable terminology of disc disease.

P-011 The value of routine postoperative radiographs after elective lumbar spinal fusions surgery

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Aims: Both intra-and post-operative radiographs are traditionally obtained after instrumented lumbar spinal surgery; however the clinical advantage of routine post operative images has not been demonstrated. This study aims to explore the usefulness of routine pre-discharge postoperative radiographs in patients undergoing instrumented spinal surgery.

Methods: Patients (n = 124) who underwent a lumbar spinal fusion were identified from a retrospective database, 58 patients were excluded. Unaltered intra-operative and pre-discharge post-operative PACS images for 66 patients were reviewed and were scored for: i) Quality (0 = non-diagnostic, 1 = suboptimal, 2 = diagnostic, 3 = good quality), ii) Focus (number of vertebra and disc seen), iii) Centering using a numbered (1- 9) grid system, and iv) Rotation.

Results: 66 radiographs were analysed for i) Quality: 60 AP and 56 lateral intra-operative images while 57 AP and 39 lateral postoperative images were diagnostic, ii) Focus: average number of unnecessary vertebra seen in intra-operative AP and lateral images were 0.89 and 1.09, while on post-operative AP and lateral images were 8.05 and 6.45 respectively, iii) Centering: 48 AP and 51 lateral intra-operative images, while 27 AP and 20 lateral post-operative images were adequately centered and iv) Rotation was adequate in both intra-operative and post-operative images.

Conclusion: Intra-operative images scored higher in all parameters suggesting that routine post-operative pre-hospital discharge radiographs are unnecessary unless specifically indicated and this practice should be discontinued with benefits including reduction of radiation dose (and subsequent sequelae), fiscal burden and length of stay.

P-012 Imaging post hip arthroplasty - what the orthopods need to see

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Aims/objectives: To evaluate post-operative hip arthroplasty complications demonstrated on plain film radiography.

Content: Comprehensive guide to post-operative hip arthroplasty complications, their radiographic appearances and implications.

Relevance/impact: Appreciation of what the orthopaedic team need from this imaging can help radiographers to achieve quality diagnostic imaging. Recognition of significant complications by the reporting radiographer can minimise the impact through rapid diagnosis and reduced misses.

Discussion: Plain film radiography is the primary method of follow up for hip arthroplasty complications. Comparison of initial post-operative and follow up imaging can reveal subtle abnormalities in the painful arthroplasty. Complications may be acute (eg. incorrect placement, infection, fracture, cement extrusion) or chronic (eg. loosening, hardware failure, fracture, heterotopic ossification). Such complications require monitoring and may lead to revision surgery.

P-013 Revision hip arthroplasty: What the radiologist needs to know

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Hip joint replacement surgery has improved quality of life by reducing pain and increasing mobility for many patients. A percentage will fail, often due to instability, infection and dislocation in the short term and mechanical loosening and late infection in the long term. With increased life expectancy and younger age at primary implant, revision surgery is an expanding field of orthopaedic surgery. Revision hip surgery is complex with critical pre-operative planning and a wide variety of implants available. The mechanism of failure is important in terms of the type of revision implant used and whether one or both components is replaced. Radiologists play an important role in detection of early signs of failure as well as requiring an understanding of revision techniques and some knowledge of the types of implants used and their expected radiological appearance.

Loosening may initially be asymptomatic and subtle radiologically, in contrast to the gross features of advanced osteolysis secondary to particle disease. Reduced bone stock has treatment implications and may require specialist reconstruction methods including bone grafting and mega-prostheses. Fixation of some implants is secondary to

bony ingrowth. Post-operative cables and wiring may be used following trochanteric osteotomy as part of revision surgery and longer stems with additional acetabular fixation are often seen.

We illustrate the common causes of failure, highlighting the spectrum of radiological features in differing patient populations. We describe the common revision implant types and correlate with radiographic appearances to guide radiologists through the essentials of this rapidly expanding field.

P-014 A pictorial review of the MRI appearances of the synovial disorders of the knee

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Introduction: Synovial disorders often affect the knee joint and are a common cause of morbidity. MRI is the imaging method of choice for detection and further characterization of predominantly soft tissue lesions around the knee. With the advances in MR imaging, more useful information can now be provided to referring clinicians regarding further management of the synovial disorders. MR is the imaging modality of choice for demonstrating synovial changes due to its superior soft-tissue contrast.

Aims/objective: The aim of this pictorial review is to highlight important MRI findings for articular mass like lesions with illustrative case examples from our institution. This presentation will help orthopaedic surgeons and MSK radiologists to understand important MRI findings to help diagnose and characterize mass like lesions adjacent to the knee joint in more detail.

Materials and methods: In this pictorial review, we will present common and interesting uncommon illustrative articular lesions simulating masses, with their MR imaging features. We will include conditions like focal or diffuse pigmented villonodular synovitis, scarring/capsulitis, siderotic synovitis, suprapatellar plica synovialis syndrome, synovitis, lipoma Arborescence, giant cell tumour of tendon sheath, synovial chondromatosis, osteochondromatosis, rheumatoid arthritis and rice bodies.

Conclusion: An understanding of the imaging characteristics of articular mass like lesions is important for making a diagnosis and alleviating patient's anxiety. This pictorial review will facilitate development of an easy systematic approach for their diagnosis.

P-015 Effects on function, bone mineral density and lean tissue mass 12 months following total knee replacement in a female postmenopausal population

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Disuse osteopenia is a known consequence of reduced weight-bearing on lower limbs. Knee Osteoarthritis (OA) commonly necessitates joint replacement with limited mobility for a variable period post-surgery. Although OA is associated with higher levels of BMD, a significant increase in hip fracture incidence in the year following total knee replacement (TKR) has been demonstrated. This study investigated the extent of disuse-related bone loss at the hip following TKR and its potential contribution to post-surgical fracture risk.

DXA measurements (GE Lunar Prodigy) were taken of BMD at the neck of femur (NOF) and total hip (TH), and leg lean tissue mass (LLTM) in a sample of 19 postmenopausal female TKR patients compared to 43 controls. Ipsilateral/contralateral weight-bearing, lower-limb function, 3-day pedometer readings and falls were recorded. Data were collected at pre-surgery baseline and at six weeks, six and twelve months post-surgery.

Despite showing improvement in most areas of function and activity, recovery following TKR was slow and incomplete one year after surgery. The effects of immobilization following TKR were an immediate and statistically significant loss ($p < 0.05$) of ipsilateral bone mass at the total hip and at the NOF (after 6 months), accompanied by significant ($p < 0.05$) bilateral muscle atrophy that continued gradually over the following 6 months and remained one year after surgery. The clinical significance of these reductions in hip BMD are an increased risk of hip fracture that may be exacerbated by muscle loss which could affect patients' gait and postural stability thereby increasing the risk of falls.

P-016 Early magnetic resonance imaging features of seronegative arthritis of the ankle and foot

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Objectives: Sero negative spondyloarthritis presenting as pain and swelling at the ankle and foot show subtle appearances on MRI and are often dismissed as osteoarthritis. The florid features of gross effusions and synovial thickening associated with rheumatoid arthritis is absent. The primary objective of ankle MR imaging is often as a prearthroscopic roadmap. The subtle inflammatory features are dismissed as osteoarthritis and may lead to unrewarding major surgical intervention. The objective is to demonstrate the nature of the disease and the spectrum of appearances on MRI to expedite the clinical diagnosis and medical management.

Contents: A retrospective review of 25 ankles with diagnosed seronegative spondyloarthritis.

Impact: Understanding the systemic nature of the disease and identification of the changes provides the ability not only to qualify the spectrum of appearances but also to quantify the disease severity. A check list of changes identified on MRI and supplemented by ultrasound findings provides the clinician with an early diagnostic tool.

Discussion: The diagnosis of seronegative spondyloarthritis is on accepted clinical classifications of presentations and the exclusion of rheumatoid arthritis. Radiographs demonstrate late features and clinical diagnosis is often delayed by 5-9 years. High resolution ultrasound is able to provide high resolution images of tenosynovitis and synovitis at the joint margins. MR imaging permits the early demonstration of synovial-enthesis complex inflammation within bone and soft tissues.

P-017 A retrospective study of General Practice (GP) referrals for Dual-Energy X-ray Absorptiometry (DXA) scanning

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Introduction: Dual Energy X-ray Absorptiometry (DXA) predicts fracture risk. General Practitioners (GPs) refer patients for DXA but waiting times are long. The Fracture Risk Assessment tool (FRAX) developed by the National Osteoporosis Guideline Group (NOGG) is based on patient risk factors. The score recommends either; 1/ lifestyle management, 2/ DXA, or 3/ medication only. The aim of this study was to determine if the patients referred for DXA by GPs would have been referred based on FRAX.

Method: The FRAX score was calculated for a cohort of consecutive GP patients (n = 141) referred for a DXA scan over a six month period at a district hospital. The number falling into each group, advise, scan or treat, was summarised to determine whether unnecessary scans had been requested.

Results: The FRAX score showed that 30% (n = 43) of patients required advice only, 60% (n = 84) required DXA and 10% (n = 14) direct treatment without DXA.

Conclusion: A total of 40% of DXA scans performed were unnecessary according to FRAX results. The FRAX tool is available to GPs both online, on paper and as an application for a smartphone. Promotion of FRAX to GPs could reduce the pressure on DXA scanning by substantially cutting down the number of GP requests for DXA. A larger study is recommended to further quantify the problem. Increasing GP awareness of FRAX may also reduce referrals, save time and cut costs.

P-018 The use of localising markers in foreign body radiography

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Background: Searching foreign bodies on the radiograph is a frequent encounter in day-to-day imaging practice. To confirm or confute the presence of foreign body in soft tissue could be a real challenge. Placing a localising marker at the point of skin entry helps immensely to tackle this.

Aims: To assess the compliance of our radiology department in the use of localizing markers in soft tissue foreign body X-rays.

Methods: A retrospective review of 100 soft tissue foreign body X-rays performed at the trust in December 2012.

Results: 100 soft tissue foreign body X-rays of head, neck, and limbs were evaluated. Age range: 1 to 87 years. Mean age: 32. Patients in 20s were the largest group. Male to female ratio was 3:2. The upper limb was most frequently involved while glass was the commonest foreign body concerned. In 85% of the radiographs, localising markers were used; either ballpoint pen, paper clip, or arrow marker. No markers were identified in remaining 15%. One reason for not using these was noted to be affected limb being fully dressed.

Conclusion: We aim to maximize the result by raising awareness and highlighting value of localizing markers among radiographers, radiologists and A&E staff, and ensuring availability of markers in all X-ray rooms. We also encourage to take foreign body radiographs prior to full dressing of the limb unless clinically indicated otherwise. Even if fully dressed, a marker can still be applied following locating the wound by the patient, or a nursing staff.

P-019 An exploration of the drivers and barriers surrounding radiographer commenting in the community hospital

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Aim: This study sought to explore the perceptions of radiographers (n=8) in North East Scotland in the community hospitals regarding the drivers and barriers to radiographer commenting on musculo-skeletal trauma images.

Content: The findings from this qualitative study using interviews will be discussed with regards to the perceived drivers and barriers to the practice of radiographer commenting in community hospitals.

Relevance: Radiographer commenting would appear to offer the prospect of benefiting the NHS by streamlining the patient pathway particularly in Scotland with its many remote and rural hospitals where radiological support is often limited.

Outcomes: This study revealed that radiographer commenting in the community provides a valuable opinion on musculo-skeletal trauma images which is appreciated by minor injury unit (MIU) staff. This appreciation induced feelings of job satisfaction and acts as a driver to provide a commenting service and thus enhance the patient pathway. A lack of support was deemed a perceived barrier to commenting.

Discussion: Research has revealed that MIUs are less likely to use radiographer abnormality detection systems (such as commenting) than larger centres with an emergency department. Additionally, it is proposed that due to a lack of on-site medical expertise patients attending MIUs could benefit more from a radiographer's opinion than those attending an ED.

However, Snaith and Hardy (2008) found that only 10% of the 30 Scottish departments that responded to their questionnaire operate a radiographer commenting scheme. The reasons surrounding this poor participation in Scotland is unknown.

1. SNAITH B, HARDY M. 2008. Radiographer abnormality detection schemes in the trauma environment – An assessment of current practice. *Radiography* 2008;14:277-281

P-020 Documentation of referrer opinion on A&E radiographs

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Aims: To determine the number of extremity radiographs from A&E have a documented referrer opinion prior to being viewed by a radiologist.

To evaluate the rate of discrepancies between referrer opinion and radiology report.

Standard: 100% of extremity films from A&E should have a documented referrer opinion.

Methods: Retrospective audit looking at 100 radiographs from A&E over a 2 month period.

Results: 89% of radiographs had a documented opinion from the referrer. The remaining radiographs without an opinion were mainly ankle and foot films. The rate of discrepancies between the referrer's opinion and final radiology report was 10%.

Outcomes: Results were shared with the A&E department where clinicians were reminded to document their opinion at the time of viewing the film. Local teaching was provided on ankle and foot films.

Discussion: It is a routine practice for many radiology departments to report extremity films from A&E in retrospect, well after the patient has been seen by the A&E clinician. In our hospital, the referring clinician from A&E documents his or her opinion of the radiograph electronically which is then attached to the film. This attachment is accessible to the reporting radiologist, who will be able to determine if there are any discrepancies between the referrer opinion and final radiology report. This is then highlighted to a senior on duty in A&E who will review the case and change patient management accordingly, thus improving overall patient safety.

P-021 Assessing the quality of post-cochlear implant radiographs - an audit

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Bradford Teaching Hospitals is a supra-regional Cochlear Implant Centre with a large catchment area covering Yorkshire and beyond. Following implantation all patients currently undergo AP and modified Stenvers radiographs to assess the position of the device. A complaint from ENT regarding poor quality radiographs prompted this audit whose aims were to examine both the technical adequacy of these images and our ability to interpret them.

Over a 12 month period from April 2012 to March 2013 76 patients aged from 1 to 89 years underwent 77 procedures. 22 of these were right sided, 31 left sided and 24 bilateral implants. M:F (40:36). Using Departmental guidelines criteria were devised to assess the quality of the radiographs including penetration, positioning and coning. Results show that only 22% of AP views and 53% of Stenvers view were technically adequate when these were applied. Reasons for 'failure' include not centring unilateral AP radiographs over the orbit on that side resulting in exposure of both orbits to the primary beam. AP radiographs were often malpositioned craniocaudally with suboptimal placement of the petrous ridge over the orbit. On three radiographs the implant had actually been omitted from the film.

Despite this it was possible to assess electrode position clearly in 88%, with difficulty in 8% and not at all in 4%. Examples of good and poor radiographs will be shown along with the criteria used for assessment and relevant radiological anatomy. Discussion will cover factors contributing to poor technical results, improvements to be made and plans for re-audit.

P-022 Pearls and pitfalls when reporting MRI in the investigation of sensorineural deafness in adults

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Aims: To demonstrate the variety of pathologies that should be considered when interpreting MRI in the investigation for unilateral sensorineural deafness in adults.

Content: A pictorial review of the common pitfalls of imaging adults with sensorineural deafness and highlight conditions which may be easily overlooked.

Relevance: MRI brain with an internal auditory meatus protocol should be performed when evaluating the causes for sensorineural deafness in adults. When assessing these images a common error is to simply exclude a cerebellar pontine angle mass and not fully evaluate for potential underlying inherited conditions.

Sensorineural hearing loss can be hereditary or acquired and nonsyndromal or syndromal. Although the majority of inherited hearing loss occurs at birth, some children will inherit the predisposition to develop hearing loss later in life. Deafness during adulthood is often attributed to age related hearing loss or environmental triggers. Cholesteatoma and dysplastic conditions including vestibular aqueduct syndrome, otosclerosis & pagets disease as well as inherited disorders including absent VIII cranial nerve and pendreds syndrome are some of a few diagnoses which can cause adult onset hearing loss.

Outcomes: To provide a learning tool for radiologists when assessing MRI in adults with sensorineural deafness highlighting conditions which may be easily overlooked by radiologists.

Discussion: Interpreting MRI of the internal auditory meatus involves considering inherited and acquired causes of sensorineural hearing loss. As a general radiologist it is important to be aware of the common pitfalls of imaging adults with sensorineural deafness and we highlight conditions which may be easily overlooked.

P-023 Diagnostic accuracy of FNAC in neck nodes in lung cancer: A DGH experience

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Introduction: Lung cancer is a leading cause of death in UK. Recent NICE and SIGN guidelines recommend the use of FNAC in N2/3 disease for staging and tissue diagnosis.