

This poster will be a pictorial review demonstrating how the optimisation of just one setting for each case can have a dramatic impact upon the quality and diagnostic potential of the ultrasound images. It will focus on the settings which are most useful to the general ultrasound practitioner and will be most helpful to registrars and trainee sonographers. A brief explanation of the function of each of the illustrated settings will be given. The advice for each case will be applicable to most brands of ultrasound machine.

The aim of the poster is to encourage practitioners to perform ultrasound in a more dynamic way, increasing understanding and familiarity with ultrasound. This will also improve confidence in the technology that they use during a normal working week and on-call. The hope is that practitioners will begin to use optimising functions that are simple to employ but previously unknown to them. The implementation of this will improve diagnostic quality of ultrasound and minimise error rate.

Other

P-268 Radiologist's cluedo: Can you detect the signs?

Jenn Shiunn Wong; [Kirsten Pearce](#)

PHNT

Aims/objectives: This poster uses the well-known board game, Cluedo to provide a pictorial review of some radiological eponymous signs.

Content: Was it Colonel Mustard in the dining room with the spanner? We will attempt to link signs from different specialties through radiological eponyms, specifically using the murder weapons in Cluedo as our inspiration. We will present a number of cases with the relevant imaging, diagrammatic illustrations and accompanying explanations to help the general radiologists familiarise themselves with radiological presentations of conditions such as melorheostosis, femoro-acetabular impingement or ulcerative colitis. Answers and discussions for each of the cases will be unveiled in a quiz-style format to engage the reader.

Relevance/impact: This is aimed to be a memorable and fun teaching aid for the general radiologist. This poster can be used as an educational tool to either introduce new eponyms or to allow readers to revisit their existing knowledge.

Discussion: With over 8000 eponymous names in medicine, it can sometimes be difficult to memorise what each one stands for. In addition, the eponymous descriptors are often tenuous, making visual associations even more difficult to conceptualise. By using this novel method of teaching, conditions such as a lead pipe colon in ulcerative colitis, the pistol grip deformity in femoro-acetabular impingement or the dagger sign in ankylosing spondylitis become easier to visualise and remember.

P-269 The celestial art to radiology: A pictorial review

[Kirsten Pearce](#); Jenn Shiunn Wong

PHNT

Aims/Objectives: The aim of this poster is to widen the general radiologist's horizons regarding a constellation of different radiological signs.

Content: This is a light-hearted pictorial review of radiological eponymous signs, specifically those relating to astronomy. We aim to provide the reader with the imaging, descriptions, diagrammatic illustrations and explanations regarding a variety of radiological signs. These will include examples such as the galaxy sign, comet tail sign, half-moon sign and a starry sky etc. These examples take inspiration from a variety of radiological specialities.

Relevance/impact: Many radiologists will be familiar with some but not all of the signs provided in our poster. We hope this will be a memorable pictorial review for our readers, designed to aid their recall and help them appreciate the gravity of their clinical significance.

Discussion: Eponymous names with visual similes can be illuminating, memorable and can aid teaching, particularly to those learning about radiology for the 1st time or in subject area they are unfamiliar with. Equally the terms used can be tenuous and difficult to visualise. This article is not designed to exalt the benefits of eponyms, but hopefully our diagrammatic illustrations and explanations can make these eponyms more universally understood.

P-270 Vitamin D deficiency and insufficiency in the radiography population: Are we at risk?

Sara Al-Rubeyi; Warsan Farrah; Marjilla Furmully; Robert Meertens; Jenny Shepherd; Demelza Green; W D Strain; Karen Knapp

University of Exeter

Aims/objectives: This study explored sun exposure, serum Vitamin D (25OHD) levels and calcaneal stiffness index (SI), a surrogate measurement of bone mineral density among radiography students and academic staff in a University setting.

Content: 40 premenopausal student and academic radiographers were recruited (mean age 24.7 ± 8.9) and had their calcaneal SI measured using quantitative ultrasound (GE Lunar Achilles Insight, Bedford, UK), completed questionnaires on sun exposure and had their vitamin D measured via a venous blood sample.

Relevance/impact: Vitamin D deficiency is common in the UK population and is related to osteomalacia, rickets, muscular pain and an increasing range of non-musculoskeletal pathologies. Radiography students and academics spend a large proportion of time indoors during daylight hours, which potentially puts them at risk of low Vitamin D levels.

Outcomes: The mean serum 25OHD was $46.3\text{nmol/L} (\pm 28.5)$, with 35% considered deficient, 23% insufficient and only 42% having normal levels. There were no significant differences in SI, time spent outside, body mass index or age between these groups. 10% reported Vitamin D supplementation (mean 25OHD $70.0\text{nmol/L} \pm 28.0$ for users versus $43.6\text{nmol/L} \pm 27.2$ for non-users) and the use of sun screen was wide-spread.

Discussion: Radiographers in the academic setting have the potential to suffer Vitamin D insufficiency and deficiency, with a potential for long-term negative health outcomes associated with this. If national recommendations for safe sun exposure or Vitamin D consumption are not adhered to, then supplementation may mitigate the risk.

P-271 Measuring abdominal fat distribution using retrospective computer tomography and magnetic resonance imaging – a comparative study

Amal Sharaf; Mohammed Abdul Waduud; [Iain Roy](#); Rosario Gonzalez; Giles Roditi; John Biddlestone

NHS Greater Glasgow and Clyde

Aim/objectives: We demonstrate an interchangeable mathematical relationship between CT and MRI imaging modalities that allows quantification of visceral and subcutaneous fat and abdominal circumference (collectively; abdominal fat distribution [AFD]). This technique is designed to work without pre-defined criteria and on scans taken at different times.

Content: (a)Our method of measuring AFD using free software is demonstrated.(b)The mathematical relationship between imaging modalities is described.(c)One clinical role in the operative planning of breast reconstruction is shown. Relevance/ImpactQuantification of the AFD is clinically useful for operative planning and risk stratification since high AFD is associated with adverse clinical outcome.

Outcomes: The AFD was quantified at the level of the umbilicus on paired CT and MRI scans from 15 patients planning to undergo breast reconstruction. In total 30 scans were analysed. The mean time between the imaging modalities was 11.9days (95% CI, -69.6, 45.8). Pearson's correlation demonstrated strong relationships between imaging modalities for total abdominal fat ($R=0.846, p<0.001^{***}$), visceral fat ($R=0.858, p<0.001^{***}$), subcutaneous fat ($R=0.844, p<0.001^{***}$), and abdominal circumference ($R=0.617, p<0.05^*$). The mathematical relationship between imaging modalities was determined by linear regression and intra- observer and inter-observer variability was shown to be insignificant.

Discussion: We have validated a method for the quantification of AFD by MRI and CT that is designed to work without pre-defined criteria and on scans taken at different times. This method has a high inter- and intra-rater reproducibility and requires no additional cost to perform. This method has clinical use in operative planning and risk stratification.

P-272 Magnetic resonance imaging quantification of visceral and subcutaneous fat mass and its relationship to anthropometric measurements routinely used to quantify health risks

Saeed Alqahtani^{1,2}; Jon Fulford¹; Jude Meakin¹; Rachel Palfrey¹; Karen Knapp¹

¹Exeter University; ²Najran University

Aims/objectives: This study investigated the correlation between anthropometric measurements and visceral fat as measured using magnetic resonance imaging (MRI).

Content: Abdominal MRI data (1.5 Tesla, GyroScan Intra; Philips, The Netherlands) from 49 participants were analysed. All participants were female aged 20-75 years with a body mass index (BMI) range of 18.4-45.9 kg/m² and were scanned using a T1-weighted pulse sequence. All participants were healthy with no ongoing medication or current illness that might affect their fat or lean mass. Visceral and subcutaneous fat mass were quantified separately using a single slice at the L4-L5 level on all participants. Data were analysed using STATA (SE13), to determine the correlation between waist diameter-to-height ratio and visceral fat mass, between waist diameter and visceral fat and BMI and visceral fat.

Relevance/impact: Abdominal obesity rather than overall obesity has well been recognised as a good predictor of the link between obesity and cardiovascular disease. Thus, it is of importance to quantify the abdominal fat and particularly the visceral part of abdominal fat.

Outcomes: There was a positive correlation between waist diameter-to-height ratio and the visceral fat mass with $r=0.66$ ($p<0.01$). The correlation between waist diameter and visceral fat mass was higher at $r=0.80$ ($p<0.01$), while visceral fat and BMI was lower at $r=0.57$ ($p<0.01$).

Discussion: The patient abdominal diameter at L4-L5 level is a better predictor of visceral fat mass than both waist diameter-to-height ratio and BMI in our study population.

P-273 Life and time of early radiation pioneers at St Bartholomew's Hospital

Paul Bland; Sophie Willis

City University London

This presentation will detail the narrative of the early x-Ray pioneers at St Bartholomew's Hospital, London. Specifically it will discuss their role in establishing the radiology and oncology departments in the United Kingdom to still remain on its original site in London.

Originally termed an 'Electrical department' Physician William Edward Steavenson was appointed to take charge in October 1882. Following Steavenson's death, Dr Henry Lewis Jones was appointed head of the Electrical Department in 1891. In early March 1896 members of the St Bartholomew's Hospital Photographic Society attended a demonstration of the Electrical Department's X-ray equipment, and subsequently, in April 1896 the first X-ray plant was installed under the charge of Hugh Walsham who had been appointed Assistant Medical Officer to the Electrical Department in 1896.

The x-ray department separated from the Electrical Department in 1912, with Hugh Walsham being appointed as head of the department. At the time, nationally, X-ray and radium therapies had been introduced into clinical practice as treatments to destroy malignant tumours. However at that time the work of the department was still mainly diagnostic. Specifically, the treatment of cancers was significantly limited by the small amount of radium which the St Bartholomew's Hospital possessed, which was inadequate for radiotherapeutic use. When Neville Samuel Finzi joined the X-ray department as its Chief Assistant in 1913 he donated his own radium stock and began treating cases of malignancies – initiating the current radiology and oncology services that remain at St Bartholomew's Hospital to this day.

P-274 The archaeology and imaging of rickets

Kate Kingston¹; Susie Dick¹; Alan White²; Malin Holst³;

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Aims/objectives: To review the macroscopic appearances of rickets in archeological specimens, comparing with radiographic images of skeletons and current patients.

Content: We present a pictorial essay illustrated with photographs of skeletons that manifest the features of severe rickets from UK archeological sites. We will provide comparative radiographic images from the skeletons and living



patients. We will discuss the historical context of the era in which the people lived and the factors contributing to their development of the disease and contrast that with present day scenarios.

Relevance/impact: Rickets is defective mineralisation of bones before epiphyseal closure in immature skeletons. It is predominantly due to dietary deficiency of Vitamin D or calcium, but is also seen with impaired metabolism of Vitamin D, phosphorus or calcium. Rickets is still seen today albeit on a sporadic basis but during the Industrial Revolution it was far more prevalent with up to 80% of children showing some features of the disease. Variation in severity was mainly due to lifestyle and living conditions, being more prevalent and severe in the overcrowded, industrial, smoke and fog bound towns and cities. Malnutrition and lack of sunlight would both have contributed.

Discussion: Rickets like skeletal deformities in infants were reported as early as the first and second centuries AD, it was defined as a disease in 1645 with a Treatise on the subject appearing in 1650. We will show archeological and radiographic examples of rickets and discuss them in their historical and social context, contrasting past with present.

P-275 Incidental findings on whole body computerised tomographic scanning (WBCT) in a tertiary trauma centre
[Emma Merrick](#); [Sumita Chawla](#); [John Taylor](#)

University Hospital Aintree

Aims/objectives: WBCT have become a standard assessment in the assessment of major trauma patients. As well as trauma related findings inevitably there will be significant incidental clinical findings which may require further investigation or intervention. Previous reviews have shown significant incidental findings (IF) in up to 8% of patients however we are not aware of a similar review in a UK major trauma population.

Content: A radiology database search was conducted using the key phases CHNTPC and TRAUMA to identify any WBCT scans performed on trauma patients from September 2014 to February 2015. Scans that were WBCT and performed at first presentation of trauma were included. The written radiology report was then assessed to identify IF.

Relevance/impact: IF were grouped into 3 categories: Category 1, benign findings of no clinical significance; Category 2, findings of minor clinical significance which may require future investigations and Category 3, previously unknown clinically significant findings that require further investigations.

Outcome: 97 patients fit the criteria and were investigated. Overall there were 119 IF in 65 patients. Therefore 67% of patients had an IF. Age group 0-40 34% of patients had an IF; 40-65 53% had an IF and 65-100 90% had IF.

Discussion: We found a significantly higher rate of IF particularly in the older population which although may be explained by the trauma population profile in the UK. The majority of incidental findings may prove benign but there needs to be improved systems to ensure appropriate follow up.

Congress organisers

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