Many complications are minor but symptomatic breast pain and lumps directly related to the substance often require investigation with imaging (mammography and ultrasound) leading to biopsy in order to diagnose, thus increasing patient anxiety.

Macrolane causes opacities, which may obscure glandular breast tissue, whilst concealing underlying pathologies on imaging. Migration of the substance into the pectoral muscle and glandular tissue can reduce the sensitivity of mammography.

Capsular contracture can lead to fibrosis and micro-calcifications may remain even after complete degradation of the substance, which may require stereo-tactic biopsy in order to differentiate from malignancies.

Ultrasound images of the breast indicate the similarities between cystic lesions, abscesses and Macrolane, whilst contrast-enhanced MRI is required for problem solving. These associated implications may directly affect patient pathway in the NHS breast screening programme, and delay diagnosis of breast cancer.

This review of clinical images obtained in mammography, ultrasound and MRI will provide knowledge and recommendations for practitioners who are beginning to encounter Macrolane for breast enhancement.

P-052 Local strategy for the accreditation and continuous professional development of assistant practitioners in breast imaging

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From January 2013 assistant practitioners who are members of the Society of radiographers will be asked to apply for accreditation. Although this is a voluntary register, the clinical activity relating to imaging or treatment performed by assistant practitioners who do not become accredited will not be recognised by the Society of Radiographers and their membership status will be identified as “support worker” or “radiography department helper”.

It is proposed that accreditation is a means of reassuring patients and employers that assistant practitioners are appropriately educated and trained, working to their scope of practice and engage in continuous professional development.

This poster aims to share experiences, ideas and information related to assistant practitioner accreditation and although the content is with particular reference to breast imaging we hope to offer an appreciation of the accreditation pathway for other modalities.

The objectives are:

- To identify routes to accreditation as documented in the Scope of Practice for assistant practitioners, with particular reference to local assistant practitioners in breast imaging.
- To illustrate practical methods for ensuring all necessary documentation is in place for accreditation.
- To suggest ways in which evidence to sustain bi-annual re accreditation may be achieved, with particular reference to service improvement and staff development.
- It is hoped that delivery of this poster will raise questions and encourage other departments to explore how they can achieve accreditation and implement a strategy for continuous professional development of assistant practitioners.

Clinical: Chest

P-053 Air spaces, percentages and time for an update: an audit and discussion into image guided lung biopsies against BTS Guidelines

Zain Karim; James Whittaker

Stepping Hill Hospital

The BTS guidelines for Image Guided Lung Biopsies published in 2003, give a best standards guide to the pre-procedure protocol, sampling accuracy, post-procedure care and acceptable complication rates. This poster presents

an audit of the Lung Biopsy service of a DGH against these guidelines to engage in a discussion on their suitability ten years post publication.

A retrospective analysis of case notes and PACS identified 52 biopsies (41 CT, 11 US) in an August 2010 to August 2011 cohort. 100% documented compliance was the standard for pre-procedure checks consisting of FBC, clotting and spirometry (87%); chest and abdominal CTs (100%); consent (97%); and without contraindications (100%). Against guidelines, 92% were adequate samples (>90% standards; sensitivity for malignancy >2cm was 94% (>80%; and there were no false positives (<1%). Both pneumothorax rate (27%vs20.5%) and chest drain necessity (10.4%vs<3.2%) were higher than accepted. All chest drain cases involved long intra-thoracic needle traverses and gave no long term consequences.

Increasing frequency of CT-guided biopsies leads to easier diagnosis of small immediate pneumothoraces versus standard plain films. More recent literature demonstrates consistently higher complication rates than suggested, especially small, sub-pleural lesions. Alternative sampling by Trans-bronchial biopsies or VATS involve considerably more risk, and where evidence suggests that there is no association between emphysema, cavitation, needle size, specimen number and post-biopsy positioning with pneumothorax rate, an argument exists that higher complication rates are tolerable where diagnostic sampling is high and patient safety is uncompromised. The re-audit data will be available at the time of presentation.

P-054 Failure to diagnose lung cancer on the chest X-ray: an audit

Rabea Haq; Chris Loughran

East Cheshire NHS Trust

Aims. Lung cancer mortality remains high. A reason may be a delay in making the initial diagnosis.

Methods. We performed a retrospective review of GP referrals from 2009 & 2011. We examined time from (i): GP referral to CXR (ii)CXR to report (iii) Report to CT (iv) CT performed to report and (v) total delay. (In this study CT demonstration of a lung mass was regarded as the point at which the diagnosis of malignancy was made)

Results in 2009 – 33 patients were examined and in 2011 - 20 patients. 80% had a CXR performed within 5 days of referral, 90% had a CXR report within 5 days of CXR . The main delay was from CXR to CT performance, 42% took 6 - 10 days - longest interval 40 days. 92% of CT reports were verified within 1 day of scan.

Discussion . Areas for improvement focussed on a more critical CXR review by radiologists especially hilar areas, lung apices, behind the heart, and costophrenic angles. Where “pneumonia” is diagnosed – especially when over 50 - follow up needs to be undertaken., The policy of re x-ray in 10 days (with pneumonia) needs review and consideration given to CT scans directly more often. More lateral radiographs need to be encouraged – especially when over 50 with a smoking history and a significant history e.g. haemoptysis. A high (140 KV technique) should be performed whenever possible . GP requests need expeditious reporting.

P-055 CT guided lung biopsies-can a DGH perform to expert standards?

Melvyn Ang; Eddie Gibson

Clinical Radiology Department, Northern Health and Social Care Trust, N Ireland

Background: CT guided lung biopsies are now performed more frequently to obtain diagnostic tissue sample to guide management. We conducted a study to determine our diagnostic accuracy and complication rates compared to the current literature.

Methods: Retrospective review of all patients who underwent a CT guided lung biopsy in 2011. The diagnostic accuracy and complication rates were analyzed.

Results: 64 patients underwent CT guided lung biopsy in 2011.

Our Diagnostic Accuracy	Royal College of Radiologists (RCR) Audit Template	British Thoracic Society(BTS)

Overall 92% (95% for lesions greater than 2cm)	80%	85-90% for lesions greater than 2cm

	Simple Pneumothorax	Pneumothorax Requiring Chest Drain Insertion
Our Complication Rates	24%	6%
British Thoracic Society	20.5%	3.1%
More Recent Publications (2004-2010)	23-42.3%	5-8.8%

Conclusion: Our overall diagnostic accuracy and accuracy for lesions greater than 2cm are above the suggested standards set by both the RCR and BTS at 92% and 95%. Although our complication rates are much higher then suggested by BTS, we feel that the figures are ambitious and the evidence used was published in journals dating from 1988 to 1999. Our figures were comparable to the more recent publications. We propose that standards for complication rates secondary to CT guided lung biopsy need updated in line with changing practice and as reflected in the current literature.

P-056 Percutaneous CT guided lung biopsies

Sze Mun Mak; Anuradha Anand; Richard Hartley

James Cook University Hospital, Middlesborough

Purpose: Percutaneous CT guided lung biopsies are commonly performed to diagnose lung lesions. The indications include a new or enlarging solitary mass not amenable to diagnosis by bronchoscopy, multiple noules or persistent infiltrates of unknown origin, and hilar masses following negative bronchoscopy.

Methods: We audited the CT guided biopsies performed in our hospital between 01/01/2009 and 31/12/2010. We then compared our results with the British Thoracic Society guidelines (2003), particularly accuracy of sampling and complication rates. We looked at sensitivity and specificity, haemoptysis, post-procedural pneumothorax rates, and the proportion of these which required chest drains. The recent trend of icnreasing numbers of biopsies was also considered.

Results: A total of 254 biopsies were performed. 196 of these confirmed malignancies, 41 demonstrated benign pathology. There were 17 cases of missed maliganncy. 6 were lost to follow up, and considered benign. On analysis, this yielded a sensitivity of 92%, specificity of 100%. There were 59 pneumothoraces (23%), of which only 3 (1.2%) needed drainage. 10 patients (4%) had CT detected intrapulmonary haemorrhage. 16 (6.3%) had recorded haemoptysis, of which only 2 were large. Only 1 death (0.4%) occurred indirectly. The number of biopsies had increased consistently since 1999, from 25 to 127 cases per year. We also found that, in our trust, CT biopsies had picked up approximately 34% of confirmed malignancies.

Conclusion: Our institution's performance was foudn to be in line with the BTS 2003 guidelines.

P-057 A pneumothorax, not a pneumothorax but a pneumothorax!

Haniya Kazi; Naeem Jagirdar

South Tyneside District Hospital

Background: Pneumothorax is a common clinical emergency presenting to A&E with chest pain, shortness of breath and tachypnoea. It has a reported incidence of 18 to 28 per 100,000 men per year and 1·2 to 6 per 100,000 women per year.

Secondary spontaneous pneumothorax occurs in older subjects with underlying lung disease. It usually follows from ruptured bullae in patients with COPD.

Iatrogenic pneumothorax may follow a number of procedures such as mechanical ventilation and interventional procedures such as central line placement, lung biopsy, percutaneous liver biopsy and pleural drains.

Methods: This case report emphasises the pitfalls of not considering the common differentials for this medical emergency.

Results: We present a pictorial review of a patient with COPD and bullae, which was misinterpreted as a pneumothorax in A&E and had an intercostal drain, following which he deteriorated and had complications including massive surgical emphysema, a pneumothorax and broncho-pleural fistula and finally succumbed.

Key Messages:

Not all lucencies on chest radiographs are pneumothoraces.

Other differentials need to be considered and a thorough history and clinical examination play a vital role in establishing the diagnosis.

Comparison with previous chest radiographs would be helpful where available.

A CTscan would differentiate between bullae and pneumothorax and urgent discussion with the radiologists is recommended if there is clinical doubt.

P-058 Scalpel or wire? A case of yellow nail syndrome & literature review of percutaneous emoblisation in chylothorax

Chun Lap Pang; Delilah Khan; Ajay Sahu; Ivan Walton; Kate Devere-Smith

Peninsula Radiology Academy, Plymouth NHS Hospital Trust; Clinical Perfusion Science Department, Plymouth NHS Hospital Trust

Aims/objective: We aim to present the latest evidence of percutaneous embolisation in treatment-resistant chylothoraces.

Content: Due to the rarity of ongoing chyle leak, the evidence of treatment derives from case reports and a small number of retrospective studies. We aim to summarise and compare the available therapies, especially examining the effectiveness of embolisation. Given the complexity of care, we present a unique case of spontaneous chylothorax in yellow-nail-syndrome to aid understanding.

Impact: Chylothorax is a serious condition, there is currently no universal agreement on management. Low/ no fat diet, repeated intercostal drainage, pleurodesis and ligation of thoracic duct used to be the only options. Although embolisation itself can be technically challenging, successful cases are associated with low morbidity and mortality rates. The advance of interventional radiology provides a minimally invasive solution.

Discussion: While spontaneous chylothoraces are rare events, thoracic duct can be compromised by common surgical procedures, e.g. during oesophagectomy, leading to chylothorax post-operatively. A staged management that initiates from conservative management to radiological or surgical intervention would be regarded as a logical approach. Embolisation should be considered before more invasive procedure. The current evidence shows that percutaneous management of chyle leak is feasible and has low complication rate.

P-059 A pictorial review of mediastinal masses and their radiological differences

Cindy Leung; Victoria Trainer; Angharad Eynon

Cardiff and Vale University Health Board

Purpose/Aim: Here we aim to review the mediastinal anatomy and demonstrate with radiological images a variety of anterior, middle and posterior mediastinal masses. In addition we will highlight any characteristic cross-sectional imaging features of these mediastinal masses.

Content Organization: Diagrammatic and cross-sectional compartmental demonstration of mediastinal anatomy.

Plain film, cross-sectional and endoscopic ultrasound imaging; including both typical and more unusual causes of mediastinal masses.

Summary: It is important for the radiologist to be clear with their diagnosis and differential of a mediastinal mass. Clinical management is often largely based on the radiological findings and mediastinoscopy or surgical intervention

in the mediastinum has associated risks, morbidity and mortality. It is therefore necessary and useful for the clinician to attempt to differentiate between benign and malignant disease.

P-060 Pictorial review of cavitating lesions of the lung

Vijaya Bhaskar Pakala; Shahid Hussain

Heartlands Hospital

Aims/objectives: Plain radiograph and CT are the common modalities used for investigating chest pathology. A cavitating lung lesion is one of the common findings. The aetiology is wide. The aim/focus of this review is to provide clinicians and radiologists an overview of the common and uncommon causes and their associated findings which help in diagnosis.

Content: We present a pictorial review of all of the different cavitating lesions imaged on plain radiographs and CT including benign; malignant; infective; autoimmune, iatrogenic and vascular aetiologies.

Relevance/impact: The cavitating lung lesion is a common finding in chest imaging. The aetiology is wide from congenital or acquired; infectious or non infections; benign or malignant etc. Identification, assessment and appropriate further management is important in treating the condition. A delay in identification can be detrimental to the patient outcome.

Discussion: Knowledge of the differential diagnosis of the cavitating lung lesions; the associated radiological findings to come to a working diagnosis to arrange appropriate further investigation or start treatment will ensure good patient outcome. It is not always possible to make a single diagnosis just based on imaging. Though obtaining a histological diagnosis is a definite way to make an accurate diagnosis this is not always appropriate in infectious cases. Having a better understanding of the radiographic appearance of the cavities like location, number, size of the wall and contents is useful in narrowing down the differentials. This short pictorial review will be a quick guide and a useful tool in routine daily practice of both clinicians and radiologists.

P-061 Do acute medical clinicians give CXR findings in the clinical history, when requesting CT investigation of the chest?

Shieh Ning Yao; Amdad Ahmed; Shahid Hussain

Heart of England NHS Foundation Trust

Introduction/Background - Assessing the appropriateness of investigating chest symptoms with a CT is dependent on adequate clinical information being provided on the request card. This is particularly the case with admissions via A&E/ Acute medicine.

Aims – The purpose of this audit was to determine whether the findings of an initial CXR performed in the emergency department are documented as part of the clinical information given on the request card.

Methods – Retrospective analysis of 100 cases at our trust across 3 hospital sites was performed. All patients who were admitted via the acute admissions units were eligible for inclusion except trauma patients who would not necessarily have had a CXR first. Population statistics were obtained. CXR findings and correlation between A&E interpretation and radiology report was made.

Results - 6 patients out of a sample size of 100 patients did not have a CXR prior to a CT examination. Out of the patients who had a CXR prior to CT scan, only 37% (35 out of 94) had the CXR findings documented on the CT request information. 78 of the CT studies were CTPA examinations, 61 of these were normal. The positivity rate was 22%.

Discussion – Emergency teams are poor at documenting CXR findings on request cards but when findings are documented there is usually good correlation between A&E and Radiology reports.

Conclusion(s) – More effort should be made by vetting radiologists to ensure that findings from relevant previous investigations should be included on CT requests

P-062 Variation in ventricular ratio measurement in CT pulmonary angiogram

Paul Armstrong; Brian Mucci

South Glasgow University Hospitals

Introduction: Detection of Right Ventricular (RV) enlargement in patients with pulmonary embolus (PE) helps identify patients with PE at risk of adverse clinical events. Radiologists should comment on RV/LV ratio when reporting PE at computed tomography (CT). We have looked at variation in measuring this amongst a group of radiologists and between that group and a radiologist with a specialist interest in cardiac CT.

Methods: 25 cases of proven pulmonary embolus on CT angiography were reviewed. The RV/LV ratio was measured by a radiologist with special interest in cardiac CT and by 5 general radiologists. The variation in measurement within the group and between the general radiologists and the expert reader was assessed.

Results: Mean standard deviation for the measured ratios was 0.165 with a range between cases of 0.386 to 0.085. Mean variation from the expert was 0.282 with a range of 0.8 to 0.1. If the threshold of abnormal is above 1.0 then there was normal/abnormal disagreement within the readers in 10 (40%) and between expert and others in 9 (36%)of cases.

Discussion: RV/LV ratio is important in PE. We see a wide range in ratio measurement between a group of radiologists and wide variation from a measurement estimated by an expert radiologist with special interest. We discuss various strategies to improve measurement including use of 4 chamber views, specific training for such measurement. We emphasise the importance of specifying criteria of measurement and suggest the use of a standard test set for training and assessment.