Malaysia Congress of Radiology 2025
MCOR Abstracts 5

PULMONARY EMBOLISM POST ENDOVENOUS LASER ABLATION (EVLA) PROCEDURE

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ABSTRACT

Background:
Pulmonary embolism (PE) is a life-threatening condition that may occur post-procedural, including after endovenous laser ablation (EVLA) for varicose veins. Case Presentation: A 66-year-old female presented with acute shortness of breath and syncope one day after undergoing EVLA. ECG showed S1Q3T3 pattern; echocardiography revealed right heart strain and visible thrombus in the right pulmonary artery. Pulmonary MSCTA confirmed acute pulmonary embolism. Fibrinolysis using alteplase 0.5 mg/hour was administered via catheter-directed therapy (CDT) for 24 hours. Discussion: The patient's unstable hemodynamics and right ventricular failure post-EVLA suggested a high-risk PE. Follow-up echocardiography showed improvement in right ventricular function, marked by increased TAPSE values. Arteriographic evaluation demonstrated thrombus reduction in the pulmonary arteries.

Conclusion:
This case highlights a rare but serious complication post-EVLA. CDT with alteplase proved effective in managing acute PE and restoring cardiopulmonary function in a hemodynamically unstable patient.

Keywords: Pulmonary Embolism, EVLA, Pulmonary MSCTA, Alteplase, TAPSE

LEFT VENTRICULAR TRUE ANEURYSM IN FEMALE WITH RECURRENT MYOCARDIAL INFARCTION

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ABSTRACT

Aneurysm of the left ventricle (LV) is one of myocardial infarction (MI) complication. A true aneurysm may result from fibrous scar formation, whereas pseudoaneurysm is a result of rupture of the ventricular free wall. The need to distinguish those types is essential. A 52-year-old woman with a history of MI presented with left-side chest pain. On physical examination, her vitals were stable. ECG showed ST elevation in V2-V6. Chest radiograph showed cardiomegaly. Echocardiography revealed a LV aneurysm and LV dilatation with reduced ejection fraction (34.8%). Additionally, cardiac MR (CMR) was confirmed the presence of true aneurysm arising from apical-mid anterior LV wall. Non-viable myocardial tissue was observed in all segment of apical-mid LV wall. Patient with recurrent AMI is at high risk for LV aneurysm. Echocardiography is valuable to detect LV outpouching structures. However, CMR may provide better image to differentiate between true and pseudoaneurysms and also evaluate myocardial viability.

Keywords: left ventricular aneurysm, myocardial infarction, MR cardiac

SEEING IS STAGING: A PICTORIAL SUMMARY OF THE TNM 9TH EDITION LUNG CANCER UPDATE

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ABSTRACT

Background
Accurate staging is crucial in lung cancer for guiding treatment and predicting outcomes. The 9th edition of the Tumor, Node, Metastasis (TNM) classification introduces refinements to the nodal (N) and metastasis (M) categories to improve prognostic accuracy and reflect disease burden more precisely.

Methodology
This pictorial review presents annotated imaging cases demonstrating critical updates across T, N, and M categories.

Results
Imaging plays a central role in applying TNM staging. PET-CT enhances accuracy in staging nodal and distant metastases, though with recognized limitations such as false positives in inflammatory conditions and false negatives in certain low-grade malignancies. The review highlights key radiologic features and potential pitfalls in staging.

Conclusion
The TNM 9th edition offers a more nuanced stratification of lung cancer, particularly for nodal and metastatic disease. Radiologists must be familiar with these changes to ensure accurate staging and optimal treatment planning.

Keywords: Lung cancer, Staging, Tumour Node Metastasis (TNM), Computed Tomography (CT), Positron Emission Tomography (PET)

THE ROLE OF SHEAR WAVE ELASTOGRAPHY IN ASSESSING DIAPHRAGMATIC DYSFUNCTION IN LONG COVID-19 SURVIVORS

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ABSTRACT

Background
Significant COVID-19 survivors experiencing persistent respiratory symptoms, collectively referred to as Long Coronavirus Disease. This condition arises from direct lung involvement but also underlying neuromuscular respiratory weaknesses, notably diaphragmatic dysfunction. Emerging evidence suggests that diaphragm weakness or paralysis causes prolonged dyspnoea and fatigue in this population. The present study aims to investigate the role of shear wave elastography (SWE) in assessing diaphragmatic dysfunction in long COVID survivors.

Methodology
The study included 65 participants: 49 normal individuals and 16 post-COVID-19 patients. Shear wave elastography (SWE) was used to measure diaphragm stiffness during inspiration and expiration on both hemidiaphragms. Diaphragm thickness was also assessed using ultrasound.

Results
Diaphragm stiffness was generally higher in post-COVID-19 patients compared to normal individuals, with the largest effect size observed in the left hemidiaphragm during inspiration ($d = 0.585$, $p = 0.046$). Diaphragm thickness measurements showed negligible differences between groups. The highest power (0.467) was observed for left hemidiaphragm stiffness during inspiration.

Conclusion
The study indicates that post-COVID-19 diaphragm dysfunction is better characterized by changes in stiffness rather than thickness.Shear wave elastography (SWE) is important in assessing diaphragm mechanics beyond traditional thickness measurements. Post-COVID-19 patients experience altered mechanical properties in their diaphragm.

Keywords: shear wave elastography

ACCURACY OF DEEP LEARNING ALGORITHM IN DETECTING CARDIOMEGALY ON CHEST RADIOGRAPHS

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ABSTRACT

Background

Cardiomegaly is a key indicator of cardiovascular disease, a leading cause of mortality both in Malaysia and worldwide. Chest radiography remains widely accessible, low radiation and cost-effective imaging modality for its detection, typically assessed using the cardiothoracic ratio(CTR). This study evaluates the diagnostic performance of deep learning algorithm Multiscale Fully Convolutional Neural Network(MSFCN)U-Net in segmenting chest radiographs and automatically calculate CTR.

Methodology

A retrospective study was conducted using 810 posterior-anterior(PA) chest radiographs sourced from the Radiology Department Hospital Tuanku Muhriz UKM. Ground truth measurements were obtained from senior radiologists and a medical officer. The MSFCN U-Net algorithm was applied to segment the radiographs and calculate the cardiothoracic ratio automatically.

Results

The MSFCN, U-Net demonstrated strong diagnostic performance, achieving an accuracy of 95.7%, precision of 96.9%, recall of 75.8%, specificity of 99.6% and F1 score of 85.1%. Bland-Altman analysis showed strong agreement between the MSFCN U-Net generated measurements and those of radiologist.

Conclusion

To our knowledge, this is the first study in Malaysia to evaluate the diagnostic performance of the MSFCN, U-Net in detecting cardiomegaly. The deep learning algorithm shows promising potential as a reliable adjunct in radiologic workflows, providing rapid and accurate assessment of cardiomegaly.

Keywords: Cardiomegaly, chest radiographs, cardiothoracic ratio, deep learning algorithm, U-Net.

A RARE CASE REPORT OF SWYER-JAMES-MACLEOD SYNDROME (SJMS) PRESENTING AS UNILATERAL DIFFUSE CYSTIC BRONCHIECTASIS IN A MALAYSIAN ABORIGINAL ('ORANG ASLI')

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ABSTRACT

Swyer-James-Macleod syndrome (SJMS) is a rare pulmonary disorder marked by unilateral hyperlucency of the hemithorax, primarily due to postinfectious bronchiolitis obliterans (BO). Its prevalence is approximately 0.01%, but some studies indicate a higher incidence in postinfectious BO. We present a 15-year-old Orang Asli female with a history of bronchial asthma, who experienced an acute exacerbation precipitated by recurrent chest infections. Chest radiograph revealed reduced right lung volume with cystic lesions and compensatory hyperinflation of the left lung. High-resolution computed tomography of the thorax disclosed extensive cystic bronchiectasis in the right lung, alongside significant small airway disease, mosaic attenuation, and centrilobular nodules in the left lung. Typical SJMS findings include unilateral hyperlucency and attenuated bronchovascular markings. This case's radiographic findings contrast with previously documented studies, illustrating the diverse manifestations of SJMS, necessitating careful consideration by clinicians, especially in patients with history of recurrent lung infections and underlying bronchial asthma.

Keywords: Swyer-James-Macleod syndrome, Diffuse Unilateral Lung, Cystic bronchiectasis

PULMONARY ALVEOLAR MICROLITHIASIS: VARIABLE CT IMAGING FEATURES REFLECTING DIFFERENT DISEASE SEVERITY – A TWO-CASE COMPARISON

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ABSTRACT

Pulmonary Alveolar Microlithiasis (PAM) is a rare lung disease characterized by intra-alveolar calcium microlith accumulation. We report two cases highlighting the variable imaging features on High-Resolution CT (HRCT) of the lungs associated with differing disease severities. The first patient was incidentally diagnosed during routine screening and confirmed by transbronchial biopsy, remaining asymptomatic until developing dyspnea years later. HRCT of the lungs showed diffuse micronodular opacities, interlobular septal thickening, and subpleural linear calcifications. The second patient, who defaulted on follow-up after being told that no curative treatment was available, was admitted for Non-ST Elevation Myocardial Infarction (NSTEMI) with heart failure. Chest radiograph revealed the classic "sandstorm" appearance and vanishing heart sign. HRCT of the lungs demonstrated pathognomonic diffuse pulmonary calcifications, indicative of advanced disease. These cases highlight the importance of recognizing the spectrum of CT features in PAM—from incidental findings to severe progression—facilitating timely diagnosis, monitoring, and management.

Keywords: Pulmonary Alveolar Microlithiasis (PAM), High-Resolution CT (HRCT), Sandstorm Appearance, Hyperdense Micronodules, Diffuse Pulmonary Calcifications

A RARE BENIGN TUMOR WITH MALIGNANT MIMICRY: FDG-AVID PULMONARY SCLEROSING PNEUMOCYTOMA

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ABSTRACT

Pulmonary sclerosing pneumocytoma (PSP) is a rare and benign pulmonary tumour that has a propensity for middle-aged Asian women. Although described as indolent behaviour, it may present with imaging features that mimic primary or metastatic malignancy. We present an atypical case of a 27-year-old asymptomatic female with no significant medical or family history, in whom a well-defined right hilar opacity was incidentally detected on chest radiograph during a routine pre-employment medical screening. Contrast-enhanced Computed Tomography (CECT) of the thorax revealed an enhancing right lung mass with punctate calcification at the oblique fissure. PET Positron Emission Tomography (PET) examination demonstrated Fluorodeoxyglucose (FDG) avidity, raising suspicion for malignancy. However, CT-guided biopsy confirmed the diagnosis of PSP. In view of benign histology and absence of symptoms, patient opted for active surveillance and remains clinically well. Although uncommon, this case highlights the importance of considering PSP in the differential diagnosis of FDG-avid pulmonary nodules.

Keywords: Sclerosing Pneumocytoma, Pulmonary nodule, FDG-avid lung lesion, PET-CT

RATIONAL USE OF COMPUTED TOMOGRAPHY SCAN HEAD IN THE EMERGENCY DEPARTMENT OF A HIGH-VOLUME TERTIARY CARE PUBLIC SECTOR

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ABSTRACT

Background
The most common CT scan done in an emergency department is CT head, which falls under two categories i.e., post traumatic and non-traumatic CT head. There are risks related to overuse of CT scans as each scan involves radiation, not justifying scans done for marginal reasons. The overuse of CT scan is closely related to changing trends in medical practice and easy access to CT scan with lower barriers and thresholds to performing the test.

Methodology
Patients presenting to the emergency department with post traumatic and non-traumatic indications for CT head were included. Imaging was performed on Optima 16 multi slice CT system (GE). The imaging protocol included slice thickness of 3-5mm, non-contrast study in case of trauma or stroke. Where needed intravenous contrast was administered. CT images were reported on PACS by senior residents under the supervision of consultant radiologist.

Results
Out of 4284 CT scans performed in emergency department 90.8% were CT head (3893). Among 3893 CT scan head done in ED, 2581 cases were reported normal (66.29%), while 1312 cases had positive findings (33.7%), including post traumatic and non-traumatic.

Conclusion
Misuse of CT head is common especially in an emergency setting. Emergency physicians should be encouraged to obtain a detailed history and perform a thorough physical examination with reference to internationally standardized guidelines, while ordering CT scan.

Keywords: CT scan, Emergency department, Rational use

IMPACT OF IMAGING ON SURGICAL MANAGEMENT OF PENETRATING CHEST TRAUMA: EXPERIENCE FROM A HIGH-VOLUME TRAUMA CENTRE IN A RESOURCE-CONSTRAINED ENVIRONMENT

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ABSTRACT

Background

Penetrating chest trauma is a significant cause of morbidity and mortality, with the need for accurate and timely diagnosis being crucial in determining appropriate management. This study aims to evaluate the role of computed tomography (CT) imaging in the assessment and surgical management of patients with penetrating chest trauma at a high-volume trauma centre in a developing country.

Methodology

A cross-sectional observational study was conducted in the Thoracic Surgery and Radiology Departments of Lady Reading Hospital, Peshawar, from January 2024 to June 2024. A convenient sampling technique was used to include 139 patients with penetrating chest trauma. Demographic details, trauma complications, and management strategies were recorded. Non-contrast, axial, chest CT scans were performed and reviewed by a consultant radiologist. Data analysis was carried out using SPSS version 26.

Results

The study included 139 patients with a mean age of 26.7 years. The majority were male (126), and the commonest mode of injury was firearm trauma (83). The most frequent complications were pneumothorax (110), haemothorax (112,), and lung injury (88). Fractures were noted in 54 patients, with rib fractures being the commonest (31). The most common management approach was tube thoracostomy (116), followed by conservative management (10) and open thoracotomy (6).

Conclusion

CT imaging is an invaluable tool in the assessment of penetrating chest trauma, aiding in the identification of hidden injuries and influencing surgical management decisions. Although thin-slice contrast-enhanced CT is the standard protocol in our resource-constrained setting, non-contrast axial CT scans offer critical diagnostic information and guide timely management. Its use significantly improves patient outcomes, especially in a resource-limited setting.

Keywords: computed tomography (CT) imaging, penetrating chest trauma, pneumothorax, surgical intervention, trauma management