



CORRELATION OF RADIOLOGICAL FINDINGS WITH FNAC DIAGNOSIS IN LUNG MASS PATIENTS

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ABSTRACT

Thoracic lesions is constituted by both benign and malignant conditions. Lung carcinoma (mainly primary) is a common entity throughout the world. Lung carcinoma is one of the commonest cancers and cause of cancer related deaths all over the world. The present study was undertaken to know the pathological spectrum of thoracic lesions and to correlate with imaging findings on various diagnostic procedures such as computed tomography, chest radiograph and ultrasound. Fine-needle aspiration cytology (FNAC) is an important investigation, and helps in rapid diagnosis of pulmonary mass lesion.

KEYWORDS : lung carcinoma, chest radiograph, computed tomography, FNAC, lung mass lesions.

INTRODUCTION

Lung cancer, also known as carcinoma of the lung or pulmonary carcinoma, is a malignant lung tumor characterized by uncontrolled cell growth in tissues of the lung. The main primary types are small-cell lung carcinoma (SCLC) and non-small-cell lung carcinoma (NSCLC). A lung tumor may manifest as a solitary nodule or mass or as an endobronchial obstructing lesion. All primary lung malignancies can be subcategorized as adenocarcinoma, squamous cell carcinoma, large cell undifferentiated carcinoma, or small cell carcinoma. CT also helps determine the anatomic location of the mass, the relationship of the lesion to the vascular hilar or mediastinal structures, and the extent of disease.

Fine needle aspiration cytology (FNAC) is an accurate and sensitive way for the diagnosis of Lung mass lesions.^{1,2} FNAC not only distinguishes between benign and malignant lesions but also helps in tumour typing of Lung cancer. So, initiation of specific therapy like chemotherapy or surgery, is possible without delay.

CASE SERIES

CASE 1: 82 years old male who presented with cough and loss of weight for 2 months with no history of fever. FNAC from lesion in left lung done and sent for examination.

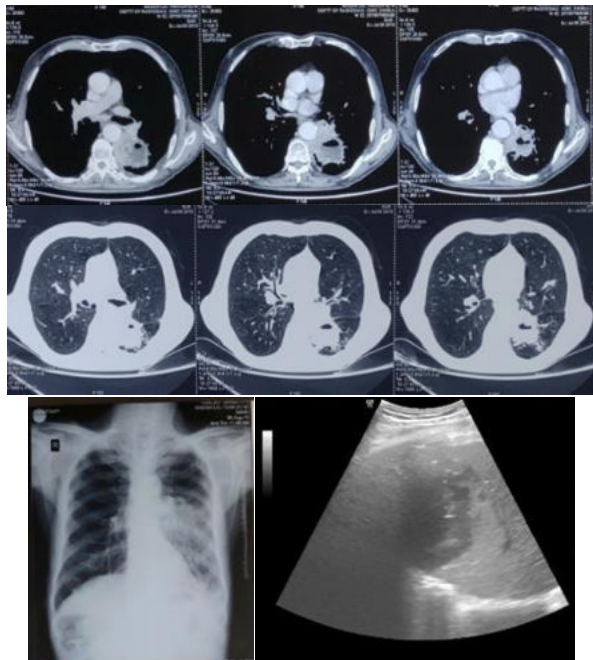


Figure 1 CECT thorax shows heterogeneously enhancing thick walled cavitatory lesion seen in the superior segment of LLL with spiculated margins and air fluid level with in it. Patch of consolidation with multiple nodules in medialbasal and posterobasal segments of LLL. Chest radiograph showing patch of consolidation in left mid and lower zone with mass lesion in left mid zone and sonography shows hypoechoic mass lesion with air foci in it.

FNAC report showed predominantly inflammatory pathology along with occasional cluster of atypical cells suspicious of malignancy.

CASE 2: 49 years old male patient presented with shortness of breath for last 2 months and cough for last 1 month

Bronchoscopic findings showed normal study. FNAC done from left lung lesion and sent for examination.

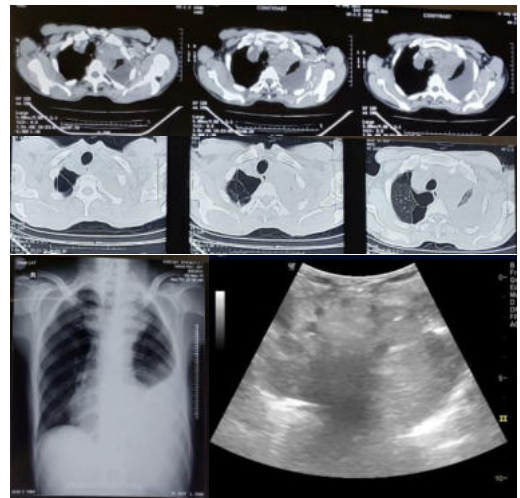


Figure 2 CECT Thorax shows heterogeneously enhancing soft tissue density lesion in the apical region of left hemithorax, broadly based to the apical and mediastinal pleura compresses the adjacent lung. Massive left sided pleural effusion causing complete collapse of lower lobe and inferior segment of lingular lobe with right sided mediastinal and tracheal shift . Necrotic mediastinal lymph nodes. Features s/o pleural malignancy? Mesothelioma. Chest radiograph shows mass lesion in left lung apex with left sided pleural effusion. Sonography shows mass lesion in left apex .

FNAC shows cytomorphological features are suggestive of Non-small cell carcinoma , possibly non-keratinizing squamous cell carcinoma.

CASE 3: 76 years old male presented with cough and blood-tinged sputum for 3 weeks. Sputum for AFB negative. FNAC from left lung lesion.

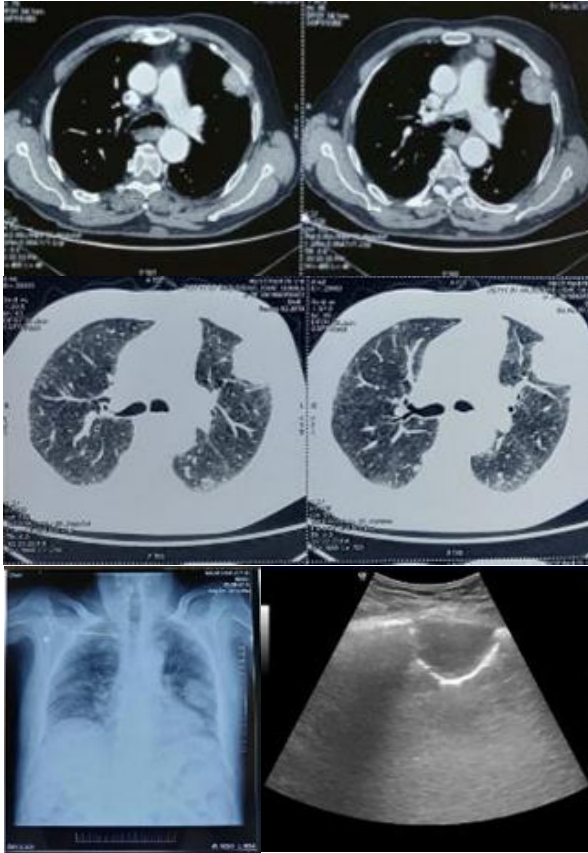


Figure 3 CECT thorax shows heterogeneously enhancing lobulated soft tissue mass in anterior segment of LUL with broad base towards pleura – Carcinoma left lung with? metastatic mediastinal lymphadenopathy. Chest radiograph shows oval mass lesion in left mid zone abutting thoracic cage .Sonography shows mass lesion abutting pleura .

FNAC of left lung mass shows cytomorphological features suggestive of small cell carcinoma.

CASE 4: 70 y old female Presented with cough with sputum for 6 month and shortness of breath for 3months.USG guided FNAC from right lung was done.

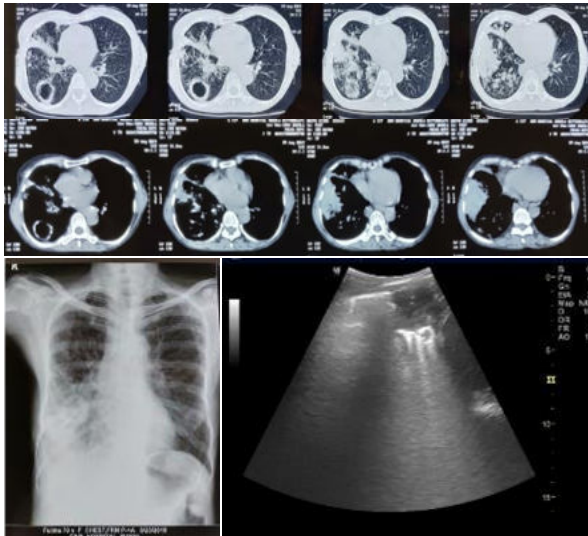


Figure 4 Multiple centrilobular nodules right lung in tree in

bud appearance with thick-walled cavity measuring 40 X38mm in right lung lower lobe. Soft tissue density enhancing lesion measuring 68 X 40 mm noted in right lung lower lobe, subpleural region. Multiple discrete sized oval homogeneously enhancing LNs are seen in paratracheal, paraaortic subaortic and subcarinal region largest measuring approx. 1.9 X1.8 cm in pre-carinal region. ill defined mass radio-opacity seen in left lower zone surrounded by consolidated areas.

FNAC done from right lung mass shows cytomorphological features suggestive of tuberculosis.

CASE 5: 55 years old male presented with cough for 3 months and loss of weight and anorexia with cervical lymphadenopathy.

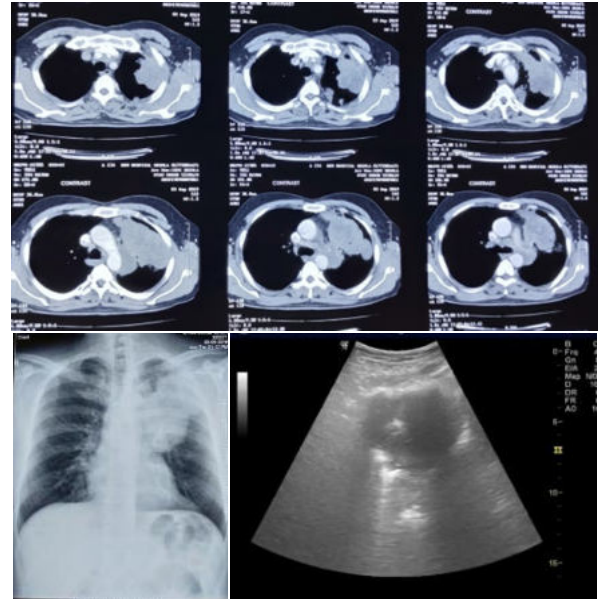
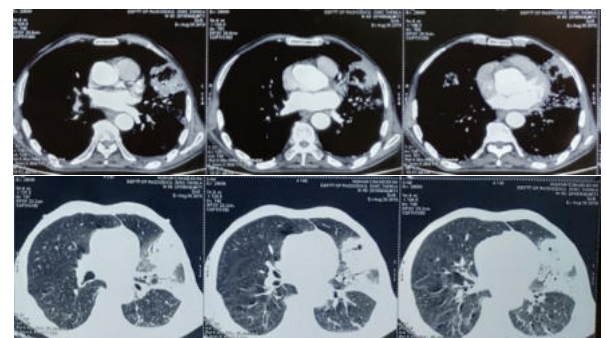


Figure 5 Large heterogeneously enhancing mass in anterior and apico-posterior segment of left upper lobe measures about 8X6.9X 6cm in (AP X trans X CC). The mass is encasing left MPA and causing left upper bronchus cut off. Laterally reaching up to the lateral pleural surface . Small subcentimetric sized pleural based nodules and adjacent pleural thickening is also seen in left upper lobe contiguous with this mass representing metastatic deposits, Small pleural based nodules are also seen in right middle lobe along costal pleura. The largest of these nodules measures 1.2 X1cm .Few enlarged and small subcentimetric sized pretracheal ,subcarinal lymph nodes.Chest radiograph shows round opacity in left upper and mid zone silhouetting with thoracic cage and left hilum.Appearance of mass on ultrasound chest .

FNAC left lung lesion shows cytomorphological features are suggestive of Adenocarcinoma.

CASE 6: 67 years old male presented with cough, SOB for last 3 months with no history of fever.



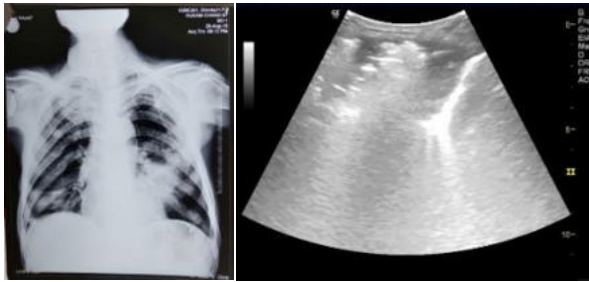


Figure 6: CECT Thorax shows multiple heterogeneously enhancing soft tissue nodules seen scattered in bilateral lungs with feeding vessel sign with spiculated margins ?metastasis.Patch of consolidation involving left upper lobe predominantly in lingular segment and anterobasal segment of LLL and RML with left sided minimal pleural effusion.Chest radiograph shows ill defined radio-opacity seen in left lower zone with spiculated margins.Similar radio-opacity seen in right upper zone .

FNAC done from left lung lesion suggestive of inflammatory lesion.

DISCUSSION

In India, lung cancer constitutes 6.9 per cent of all new cancer cases and 9.3 per cent of all cancer related deaths in both sexes, it is the commonest cancer and cause of cancer related mortality in men, with the highest reported incidences from Mizoram in both males and females (Age adjusted rate 28.3 and 28.7 per 100,000 population in males and females, respectively).³

Lung cancer is classified as either non-small cell lung cancer (NSCLC) or small cell lung cancer, with the NSCLC accounting for the vast majority (87%).⁴ Chest radiograph is the first investigation which is performed while investigating a suspected case of lung cancer.

Sometimes the tumour resembles an infective pathology and is seen as an area of consolidation, a ground-glass opacity, or both. Such an appearance is more commonly seen with adenocarcinoma and its subtypes.

CONCLUSION

Chest Radiograph is a preliminary investigation tool for investigating pulmonary masses. However, Contrast enhanced computed tomography is an important tool for characterization of lung mass and provides important information about mass lesion.

FNAC is an accurate and safe method for the evaluation of lung nodules and it enables sub classification of bronchogenic carcinomas in the vast majority of cases. It is also useful for the diagnosis of tuberculous pulmonary nodules.⁵

REFERENCES

1. Mullan CP, Kelly BE, Ellis PK, et al. CT-guided fine-needle aspiration of lung nodules: Effect on outcome of using coaxial technique and immediate cytological evaluation. *Ulster Med J.* 2004;73(1):32-36.
2. Cox JE, Chiles C, McManus CM, et al. Transthoracic needle aspiration biopsy: Variables that affect risk of pneumothorax. *Radiology.* 1999;212(1):165-168.
3. Indian Council of Medical Research; 2013. [accessed on January 21, 2014]. National Cancer Registry Programme. Three Year Report of Population Based Cancer Registries: 2009-2011.
4. *Cancer facts and figures 2008.* Atlanta, Ga: American Cancer Society; 2008. American Cancer Society.
5. Tan KB, Thamboo TP, Wang SC, et al. Audit of transthoracic fine needle aspiration of the lung: Cytological sub classification of bronchogenic carcinomas and diagnosis of tuberculosis. *Singapore Med J.* 2002; 43 (11) : 570-575.