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Research Paper

An article on common diseases presenting as pleural mass like lesions

Medical Science

KEYWORDS : pleural mass like lesions,ultrasound,computed tomography, ,tuberculosis

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ABSTRACT

Bronchogenic carcinoma is the most common cause of cancer death in the world. Sometimes it may present like pleural mass. Tuberculosis is commonly presenting as lung pathology. Rarely it can involve pleura without parenchymal involvement. We present the above conditions presenting as pleural mass like lesions. These conditions should be in our mind while evaluating pleural pathologies.

INTRODUCTION

Radiologic assessment of pleural tumors may be achieved with several imaging techniques.

Chest radiography and computed tomography (CT) are the standard noninvasive techniques.

MRI, ultrasound may be supplemented . The radiographic features of pleural abnormalities, including calcification, are usually well demonstrated on CT scan. CT is particularly useful in distinguishing pleural from peripheral pulmonary lesions .The location and extent of pleural masses can be defined using CT. MC Dynes, EM White and WA Fry(1992)found that among the various pleural tumors, metastatic disease represents the most common neoplasm. Less than 5% of pleural neoplasms are the primary tumors[1].In this article, we discuss two common conditions presenting as pleural mass like lesions

Case – 1:

39 year old male patient admitted in our hospital for complaining of dyspnea and right lower chest wall prominence. He is a non – diabetic, non- smoker. Chest x-ray PA view(fig-1) shows well upper marginated radio opaque lesion in the right lower hemi thorax. The lower margin merges with the right dome of diaphragm. Medial margin appears merging with vertebral bodies. Minimal blunting of costophrenic angle seen. Possible diagnoses include pleuro pericardial cyst, pleural mass, loculated effusion/empyema, branchogenic cyst, lower lobe mass. USG-shows mixed echogenic mass lesion (fig-2)without cystic components merging with diaphragm and displacing the diaphragm downwards(fig-3). CT scan of chest shows well defined lesion with inhomogenous enhancement with peripheral thick wall seen adhering the diaphragm(fig-4,fig-5). Patient underwent surgery for removal. Surgery revealed that the mass arises from the right lower lobe of lung(fig-6). HPE – suggestive of malignancy – an adeno carcinoma. In this case branchogenic carcinoma mimicks pleural mass like pathology.

Case – 2:

25 year old male came to the hospital for loss of weight and mild left sided chest pain.

Chest x-ray shows left apical pleural thickening(fig-7) , left hilar prominence and left diaphragm nodularity. Possible diagnosis is diffuse left pleural thickening causes include mesothelioma, pleural based benign tumors, Infective / Inflammatory thickening. CT Scan shows typical nodular thickening of left pleura (fig-8)involving both the mediastinal(fig-10) and costal pleura(fig-11), most thickening in the apical region(fig-9). No significant lung parenchymal pathology seen. Patient underwent surgery. Surgery revealed nodular multiple masses of pleura with pleural thickening(fig-12). HPE Suggestive of tuberculous etiology. In this case ,tuberculosis mimicks pleural mass like lesion.

DISCUSSION

Various benign, malignant, and tumor-like conditions can involve the pleura. Malignant neoplasms are more common than benign neoplasms. Pleural tumors can have a varied imaging spectrum – may be unilateral or bilateral, calcified, or noncalcified, and focal or diffuse.

Table;Benign and Malignant pathologies of pleura:

Malignant	Benign	Tumor like Conditions
Common: *Metastases *Malignant Mesotheliorna *Lymphoma.	Solitary fibrous tumour. Lipoma	Pleural thickening. Pleural pseudo tumour. Pleural plaque. Extra pleural hematoma.
Uncommon: *Malignant fibrous tumour. *Sarcoma.	Mesothelial cyst calcifying fibroma Pseudo tumour	Castleman disease Hemangio endothelioma.

A variety of imaging techniques can be used to evaluate the pleura and the pleural space.

Standard radiographs are the most common. Sonography allows easy identification of pleural fluid and loculation and differentiation from pleural masses; CT is best for characterizing location and composition of pleural masses; Tc MC lovd, CD flower(1991) found that for imaging superior sulcus carcinoma,MRI is the best[2]. Adenocarcinoma and undifferentiated large cell carcinoma are generally peripheral lesions manifesting as solitary nodules or masses. ML Rosado – de – Christenson , PA Templeton , CA Moran (1994)found that squamous cell carcinoma and small cell carcinoma are typically central and may manifest as hilar masses, atelectasis, or pneumonia[3]. In about 8-1 5% of cases, Pleural involvement in primary lung cancer occurs commonly [4]. Computed tomography (CT) is the primary imaging modality used in the diagnosis, staging,and follow-up of most thoracic cavity tumors.

Sara A Hayes, Andrew J, Plodkowski(2014)found that for chest wall invasion,intraspinal extension, and cardiac/vascular invasion, Magnetic resonance imaging is an important adjunctive imaging modality [5]. Fluorine-18–fluorodeoxyglucose positron emission tomography (18F-FDG PET)/CT has established itself as a supplementary tool to CT in lung cancer staging and in the assessment for distant metastases of many thoracic tumors.

In the English literature, Pleural tuberculosis presenting with multiple pleural nodules and masses without parenchymal involvement or lymphadenopathy is rarely reported [6]

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Nandparel and Sushmita Chondhury (2013)found thatTuberculous involvement of the pleura usually presents as pleural effusion, empyema or pleural thickening. multiple epitheloid cell granulomas in Pathological examination of the biopsy specimen confirms the diagnosis[7] . To enable appropriate treatment, recognition and understanding of the common and uncommon radiologic manifestations of tuberculosis is must was shown by Dvangkamon Prapruttam MD, Sandeep S. Hedgive MD, Sunithi Elizabeth Mani MD on 2014[8]. The various radiologic features of tuberculosis should be familiar as tuberculosis can mimic a number of other disease entities to ensure early, accurate diagnosis[9]. Rickard S. Nyman, J.Brismar , C.Hngosson(1996) found that sometimes pleural thickening,Consolidations within the lungs were indistinguishable from malignancy [10]

Conclusion

Bronchogenic carcinoma in lower lobe can also present like pleural pathology. Tuberculosis is a very common problem in developing countries . It should be considered in the differential diagnosis of pleural masses without radiographically visible parenchymal lung disease as treatment is highly successful.so we should remember the above common conditions in our mind while evaluating pleural pathologies.

fig-1 chest xray well marginated radio lesion right dome of diaphragm

fig-2-usg show mixed echogenic mass lasion without cystic componets

fig-3-mass displacing the diaphragm downwards

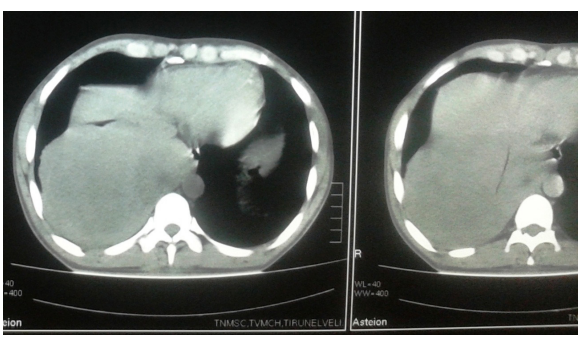

fig-4-CT shows mass in right lower hemithorax

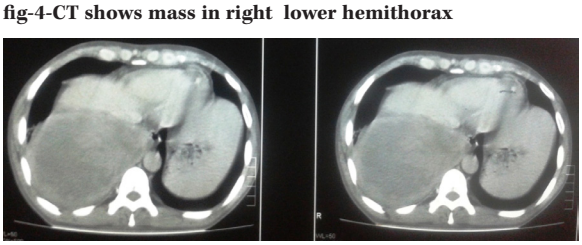

fig-5-mass showing inhomogenous enhancement

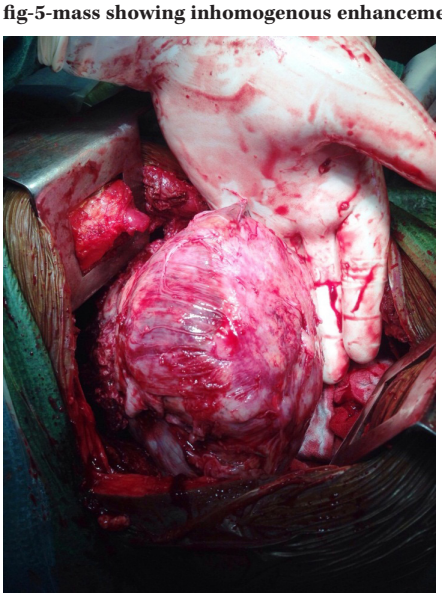

fig-6-surgical removal of mass

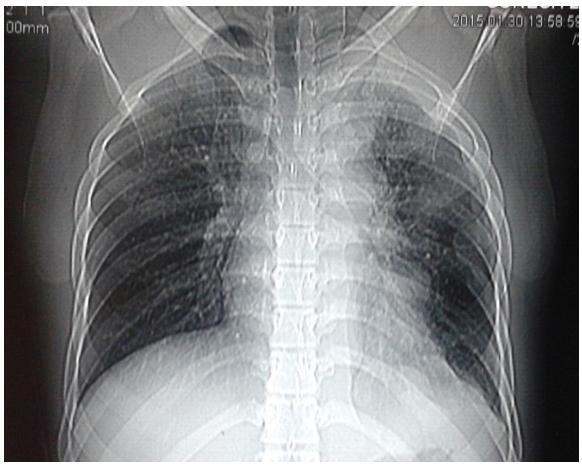

fig-7-shows left apical pleural thickening , left hilar prominence and left diaphragm nodularity

fig-8-CT shows gross apical pleural thickening

fig-9-left apical pleural thickening

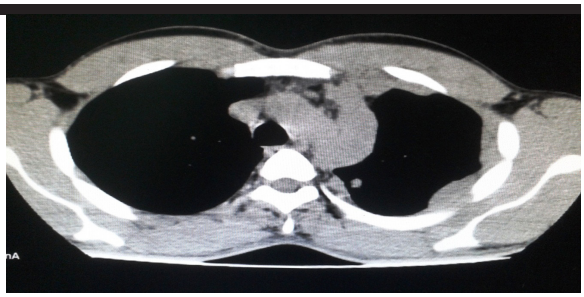

fig-10-mediastinal pleural thickening

fig-11-left costal pleural thickening

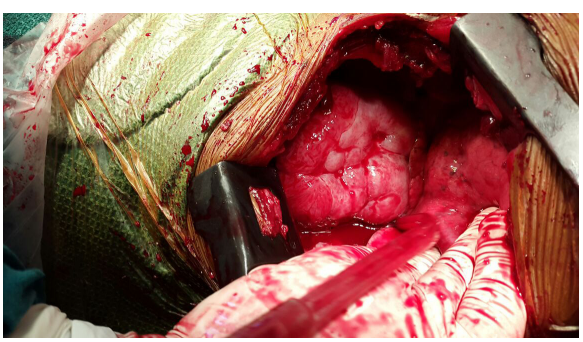

fig-12- pleural thickening in surgery

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