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Original Research Paper

Radiology

SYMPTOMATIC RARE CASE REPORT OF PLEURAL LIPOSARCOMA – ROLE OF HRCT CHEST

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ABSTRACT Primary pleural liposarcoma is a rare malignant tumor of the pleura. The diagnosis of PPL may be suspected on chest imaging based on radiologic features such as large pleural mass showing areas of fat with or without calcification. Here, we present the case of a 38-year-old male whose contrast-enhanced computed tomography scan of the chest revealed a large, hypodense, right pleural-based mass with predominant fatty component and calcification within it. Histopathology was performed, which confirmed the diagnosis of a pleural liposarcoma.

KEYWORDS : Primary pleural Liposarcoma (PPL), Liposarcoma (LPS) pleura, pleural neoplasms, sarcoma

Case Summary

A 38-year-old male with complaints of chest pain, breathlessness and body weakness. On physical examination, reduced chest expansion, hyporesonance, dull percussion. The patient was referred to radiology departmen, for CECT chest imaging to rule out underlying chest pathology. The patient was otherwise asymptomatic.

INTRODUCTION

Liposarcoma (LPS) is one of the most frequent soft-tissue malignancies, following malignant fibrous histiocytoma. Liposarcoma is a malignant mesenchymal tumor that accounts for 15% to 20% of all malignant mesenchymal tumors. LPS usually develops in patients between the 5th and 7th decade of life. Only less than 1% of mediastinal tumors are LPSs. On imaging studies these tumors are incidental, and the clinical course is asymptomatic until the lesion begins to displace and compress surrounding structures. The main objective of this article is to provide valuable insight into clinicopathological features of pleural space LPS and consolidative approach to diagnose it.

Imaging Findings :-

Computed tomography of chest with contrast was performed on MDCT scanner system. (Figure 1a, 1b) Anteroposterior and lateral chest scenography revealed large well-defined radio opacity in right lower zone, obscuring right cardiac border, right hemi diaphragm with obliteration of right cardio phrenic angle. On frontal projection, the hilar vessels seen distinctly through the mass.

(Figure 2a, 2b,2c) A large well-defined peripherally enhancing heterogeneous density, predominantly fat density pleural space lesion (HU value -100) seen at right cardio phrenic angle, right lower hemithorax with few septa within. Few small heterogeneously enhancing nodular areas within. The lesion shows mild wall enhancement with peripheral rim of calcifications. (figure 3a, 3b, 3c, 3d, 3e) Anteriorly the lesion shows loss of fat planes with anterior coastal pleura, medially show loss of fat planes with right atrium, ventricle, IVC with normal contrast opacification. No obvious bone invasion or extra-thoracic extension. Rest of lung parenchyma and cardiac chambers are normal.

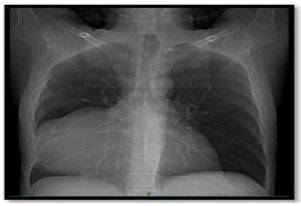


Fig.(1a)

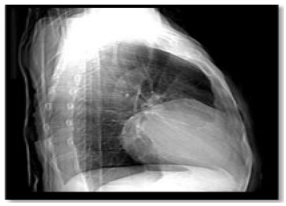


Fig.(1b)

Anteroposterior and lateral chest scannogram reveal large well-defined radio opacity seen in right lower zone, obscuring right heart border, right hemi diaphragm

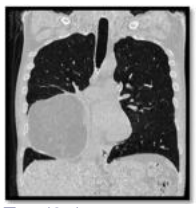


Fig. (2a)

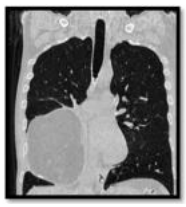


Fig. (2b)

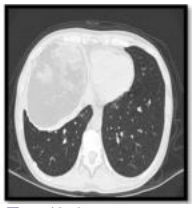


Fig. (2c)

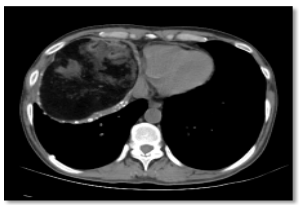


Fig. (3a)

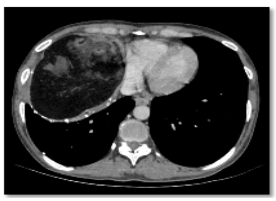


Fig. (3b)

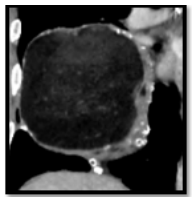


Fig. (3c)

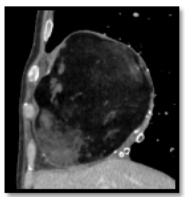


Fig.(3d)

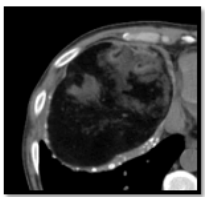
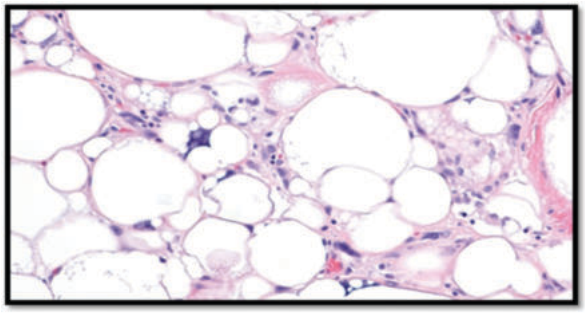


Fig.(3e)

Precontrast and post contrast CT axial, coronal and sagittal soft tissue window images reveal welldefined hypodense predominently fat density lesion seen at right cardiophrenic region and pleural space with few heterogeneous enhancing areas within and peripheral rim of calcifications



Histopathology Image: Lipoblast with cytoplasmic vacuolization (Atypical fat cells

Differential Diagnosis:

Differentials of predominantly fat containing pleural space neoplastic mass lesions includes

- Lipo-sarcoma
- Atypical lipoma
- Teratoma
- Fat lineage tumour metastasis

DISCUSSION:

This index case conclude the fact that only large LPS can cause significant symptoms. However, in this case, the CT scan helped in reaching the diagnosis as it revealed the pleural origin of the lesion. CT is used to determine the possible the site of origin of liposarcoma, but if not found the term "intrathoracic liposarcoma" is used. [1]

According to the World Health Organization classification, based on their complex histological components the liposarcomas are divided into well-differentiated, myxoid, pleomorphic, and dedifferentiated subtypes. Two common subtypes are well-differentiated and myxoid types which have the best prognosis. However poor prognosis seen in dedifferentiated and pleomorphic types with local invasion and possible metastatic disease.

The most common soft tissue sarcomas in adulthood are liposarcomas, with a peak incidence seen in between 40 and 60 years, with common locations are the retroperitoneum and thigh. However, primary pleural sarcomas are extremely rare malignant tumours ,90% of the cases are secondary to metastasis or lymphoma[2].

Malignant pleural disease has a very bad prognosis. Only 10% of them are malignant pleural mesothelioma or other tumours such as liposarcoma [3]. Only 15% of liposarcoma's in thoracic cavity are asymptomatic however rest (85%) have symptoms, and are diagnosed through a routine chest radiography. These patients presents with symptoms of chest pain, cough, dyspnea and pleural effusion frequently. The first main differential diagnosis based on imaging findings is lipoma. In both lipoma and liposarcoma, fat is predominant finding on CT (< 20 HU) and MRI (depending on the sequence used). On CT, attenuation value is minus 50 to minus 100. Contrast may help define the tumour margins, invasion and reveal vascular areas [3].

The common subcutaneous fat-containing lesions are lipomas. Some of them may contain connective tissue septa and calcifications. There are different categories of liposarcomas, such as well differentiated liposarcomas or atypical lipomas (our case), myxoid liposarcomas, pleomorphic and round-cell liposarcomas and dedifferentiated liposarcomas.

Well differentiated liposarcomas or atypical lipomas show fat as predominant component (more than 75%) [4]. Pathologic examination is necessary to establish a diagnosis as there are three main subtypes: lipoma-like, inflammatory and sclerosing well-differentiated. Recurrence is common if there is no complete surgical removal, but they do not metastasize

Declaration Of Patient Consent

Declaration of patient consent The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

CONCLUSION

Primary pleural liposarcomas are extremely rare. These tumors do not cause symptoms until they are large, and the initial symptoms are nonspecific. On the basis of the available information, surgical excision and adjuvant irradiation seem to provide the best treatment outcome for this disease. They metastasize rarely

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Nil.

Conflicts Of Interest

There are no conflicts of interest

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