

Case Report

Mediastinal Tumour as an Emergency presentation – A Case Report

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Abstract:

Primary mediastinal germ cell tumor is a rare subgroup of germ cell tumors reported to account for less than 5% of germ cell malignancies. We report a 30 year old female who presented with sudden onset severe breathlessness and left sided chest pain . Contrast enhanced computed tomography (CECT) thorax done on emergency basis revealed large cystic mass occupying entire left hemithorax with complete collapse of left lung, provisional diagnosis being a large mediastinal tumour. The patient underwent emergency surgical resection with piece meal total excision of the tumour. Biopsy showed benign mature teratoma

Key words: Mediastinal tumour, Respiratory distress, Rare presentation, Timely diagnosis, Emergency surgery

Introduction:

Teratomas are encapsulated tumors derived from the three primary germ layers: Mesoderm, Endoderm and Ectoderm ¹. Mature teratomas are the most common histological type of germ cell tumors. Germ cell tumors are predominantly found in gonads, while the anterior mediastinum is the most common extragonadal site ². A posterior mediastinum location has been described quite rarely ^{1,2}. Though in itself , Primary mediastinal germ cell tumor is a rare subgroup of germ cell tumors which is known to account for less than 5% of germ cell malignancies ^{3,4}.

Case report:

A 30 year old female was referred to our department in emergency with sudden onset severe breathlessness and left sided chest pain. On examination there were absent breath sounds in all

zones of left lung. Routine blood investigations were normal. CECT thorax revealed large cystic mass occupying the entire left hemithorax with complete collapse of left lung with some foci of calcification seen along septae, provisional diagnosis mediastinal tumour. (Fig 1)The serum alpha fetoprotein (AFP), β-HCG and LDH (samples taken preoperatively) were normal. Due to severe breathlessness, patient taken up for emergency surgery. A left thoracotomy was done from 5th ICS. Intraoperatively there was a large tumour occupying almost the entire anterior mediastinum on the left side with complete collapse of left lung. As soon as chest was opened the upper lobe got some place to expand but the lower lobe stayed collapsed(Fig 2). Adhesiolysis of tumour was done. It was aspirated to ascertain contents and rule out active bleed (Fig 3). It was

then opened and found to contain pultaceous material, hair fragments and calcifications suggestive of dermoid tumour (Fig 4) Entire tumour was removed piece meal. The left lung showed adequate expansion intraoperatively.

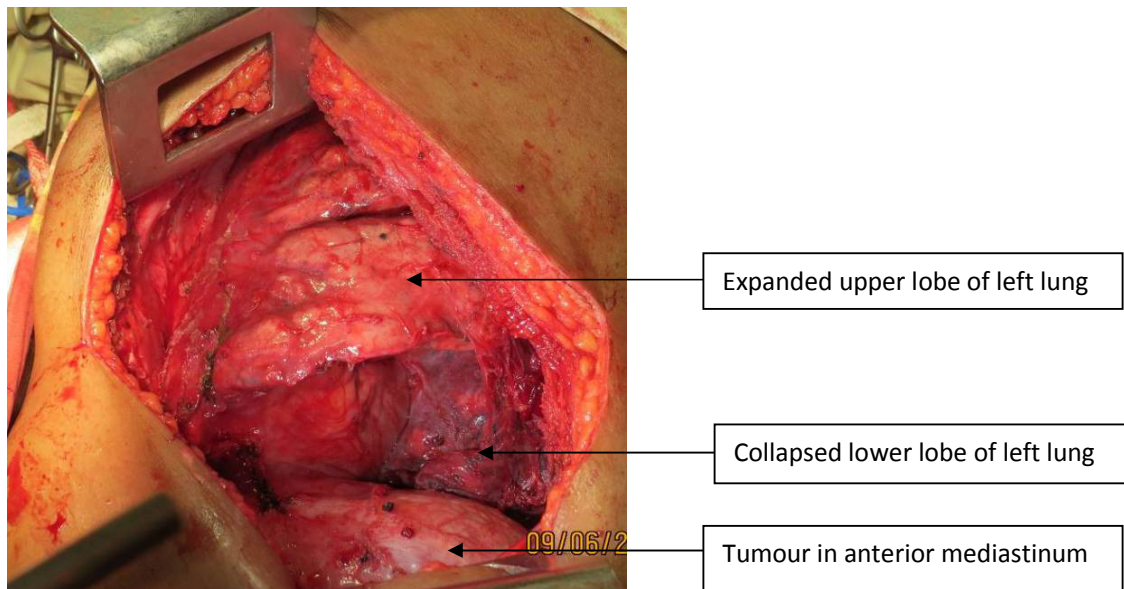
Patient had uneventful recovery in postoperative period. Post op Chest Radiograph showed adequate expansion of left lung. Biopsy proved it to be mature cystic teratoma.

Fig 1:



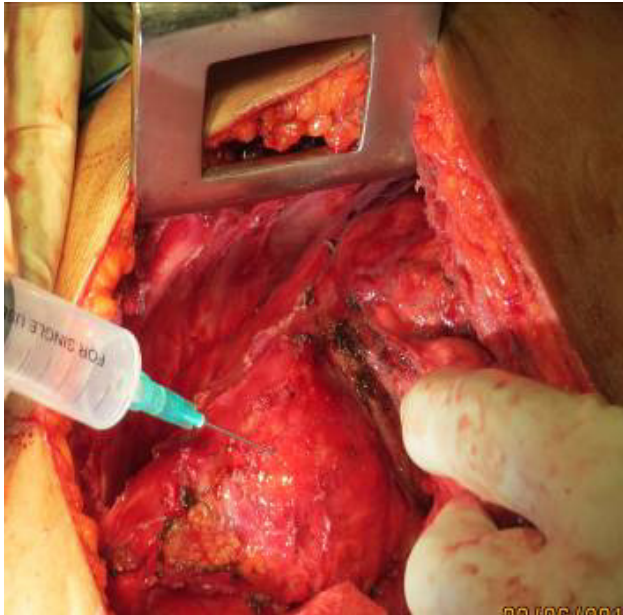
Anterior mediastinal mass occupying the entire Left hemithorax

Fig2:

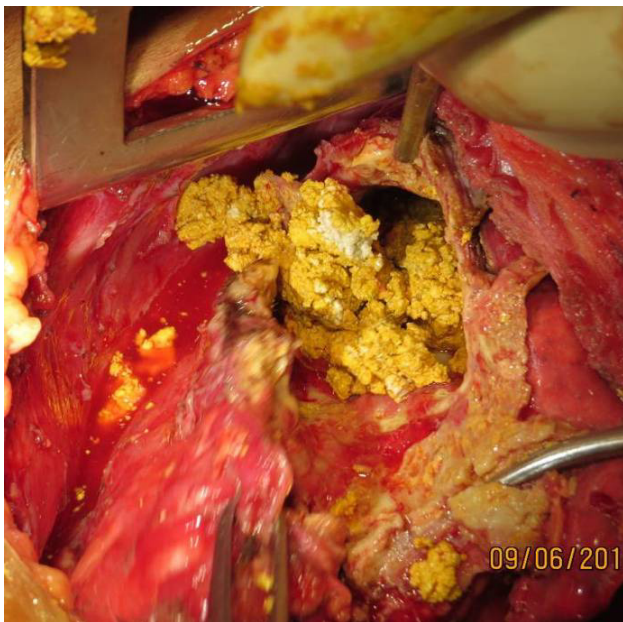


Upper lobe of left lung expanded with lower lobe collapsed on doing a thoracotomy.

Fig 3:



Aspiration of tumour to check content of mediastinal tumour



Pultaceous material, calcification suggestive of dermoid tumour

Discussion:

Teratomas are congenital tumors arise from pluripotent embryonal cells and contain derivatives of all three germ layers. They are commonly found in ovaries, testes, retroperitoneum and the sacro-coccygeal region⁴. The anterior mediastinum is the most common location of extragonadal germ cell

tumors^{2,4}. Benign germ cell tumors are found equally in male and female patients . Malignant germ cell tumors however are seen more commonly in male patients. Mature teratoma is the most common histologic type of mediastinal germ cell tumor⁵. They are slow-growing, benign neoplasms of the anterior superior mediastinum⁵.

Males and females have equal preponderance in patients suffering from mature teratomas and most common age group is young adults⁵. They are composed of well-differentiated tissues derived from more than one of the three embryonic germ cell layers⁵.

The patients are often asymptomatic (up to 53% of cases), and the tumor is discovered incidentally on chest radiographs⁵. Compression of mediastinal structures may produce pressure symptoms in large tumours. Patients may present with cough, dyspnea, chest pain, or pulmonary infection^{4,5}. Rare symptoms may arise due to tumour rupturing into tracheo-bronchial tree, pericardium, the lung, or result in SVC syndrome^{4,5}. Our patient presented with severe breathlessness with complete collapse of left lung probably due to sudden enlargement of long standing tumour. Computed tomography (CT) is the diagnostic tool of choice for evaluation of these tumors^{1,5}. It clearly identifies the location and extent of the tumors. They are routinely spherical or lobulated anterior mediastinal masses with sharp margins. It also identifies the intrinsic elements including soft tissue, fat, fluid, and calcification^{1,5}.

CT is also useful in the evaluation of adjacent structures^{4,5} as well as complications such as rupture into the pleural space or pericardium⁵. In

our patient contrast enhanced CT thorax revealed large cystic mass occupying the entire left hemithorax with complete collapse of left lung with some foci of calcification seen along septae, provisional diagnosis mediastinal tumour.

Complete surgical excision of mass is the treatment of choice of mature teratoma^{4,5}. The prognosis is very good and 5-year survival rates approach 100%⁵. In large tumours even a subtotal resection conserving adherent vital structures provides excellent results as most mediastinal teratomas are benign⁴. It helps in establishing the diagnosis and prevents life threatening complications⁴. In our patient we had to operate in emergency due to severe breathlessness without attempt for a tissue diagnosis. However we managed to remove the entire tumour, though piecemeal.

Histopathologically mature benign cystic teratomas are cystic tumors composed of varying proportions of different tissues having attained a high degree of differentiation. They can also be composed of skin, cartilage, calcifications, smooth muscle, and bronchial epithelium¹. Biopsy report of our patient showed a similar picture compatible with mature cystic teratoma. This case report is to highlight the unusual presentation of a large mediastinal tumour and the need of emergency thoracotomy.

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