Mediastinal Teratoma Mimicking Massive Pleural Effusion

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Abstract

Immature mediastinal teratoma is very rare, found in only 1% of all mediastinal teratomas. Raised serum alpha feto-protein acts as important surrogate marker for both diagnosis and follow up in such cases. Surgery and adjuvant chemotherapy are keys in the management, especially in patients older than 15 years of age. We present a 14 year boy presenting clinico-radiologically as left sided massive pleural effusion. Raised serum marker as well as excision biopsy of the mediastinal mass following thoracotomy were indicative of a diagnosis of immature teratoma.

Introduction

Mediastinal teratoma is the most common mediastinal germ cell tumor. Histologically they are broadly classified as mature, when there is well differentiated tissue and as immature, when there is so called immature epithelial and mesenchymal elements as well as mature tissue (especially tissue of neuroepithelia). Immature mediastinal variety is rare, found only in 1% of all mediastinal teratomas. In this article we present a case of immature mediastinal teratoma in a 14 year boy, who presented with clinical and radiological features of rapidly developing massive left sided pleural effusion.

Case Report

A 14 year boy presented with heaviness of the left side of the chest and shortness of breath for three months without any history of fever, cough or hemoptysis. He denied any history of contact with tuberculosis.

On examination, the general survey was normal. Examination of chest revealed fullness over left side of the chest, rightward shifting of mediastinum with apex beat felt on right 5th intercostal space 2.5 cm medial to midclavicular line. Percussion note was dull along with absent breath sound from left 2nd inter costal

Fig. 1: Chest x-ray (PA view) showing homogenous opacity in left hemithorax with mediastinal shifting to right side

Fig. 2: CECT thorax section showing large anterior mediastinal mass with mixed attenuation extending to left hemithorax with compression of underlying left lung and shifting of mediastinum to the right side

Fig. 4: Photomicrograph showing low power view of lobules of immature mesenchymal tissue and glandular elements
space downwards. Examination of abdomen including testes was normal.

Complete haemogram and blood biochemistry were normal. Chest x-ray (PA view) showed homogenous opacity involving whole of left hemithorax, with contralateral mediastinal shifting (Fig. 1). 1.5 liters of haemorrhagic pleural fluid was aspirated during two sessions of pleurocentesis. Pleural fluid analysis showed cell count of 3050/ml, with predominance of polymorphs (80%), sugar 83mg%, protein 4.88gm% and ADA 19.2u/L, without any malignant cell.

Post aspiration, percussion note became resonant posteriorly, but apex beat remained grossly shifted to right. Repeat chest x-ray showed opacity of almost same extent. This prompted us to advice CECT thorax which revealed a huge anterior mediastinal mass (113mm×76mm×126mm) having mixed attenuation and areas of calcification causing contralateral shifting of mediastinum. The left lower lobe bronchus was compressed by the mass leading to partial collapse of left lower lobe and minimal pleural effusion (Fig. 2). CT guided FNAC (Dyscohesive clusters of small cells and spindle cells, with small cells showing hyperchromasia, coarse nuclear chromatin and scanty vacuolated cytoplasm. Spindle cells showed plump nuclei with homogenous nuclear chromatin) suggested germ cell tumor while tru-kut biopsy(Mature cartilage, glands and clusters of malignant small round cells in a fibrocollagenous background) verified the diagnosis of Immature Teratoma. Serum β-HCG (31.5 mIU/ml, reference: 0.1-5.7 mIU/ml) and α Feto protein (124mg/ml, reference <8.5 mg/ml) were grossly elevated.

Left thoracotomy was performed and a large anterior mediastinal tumor (112mm×76mm×122mm) growing into the left pleural space was dissected out (Fig. 3) after clearing adhesions from diaphragm, pericardium and large vessels. Histopathology of the tumor mass showed glandular tissue, cartilage, lobules of immature mesenchymal tissue and foci of primitive neuroepithelium representing derivatives of all three germ layers. Features were consistent with immature teratoma (Figs. 4, 5).

Discussion

Immature teratomas are rare tumors that differ from their benign mature counterpart in that they contain undifferentiated epithelial and / or mesenchymal tissue. They grow rapidly and frequently penetrate the capsule with spread or metastasis. Measuring serum level of tumor markers like alpha-fetoprotein (AFP) and human beta-chorionic gonadotrophin (β-HCG) is important in the diagnosis and follow up of mediastinal germ cell tumors. In patients older than 15 years of age with immature teratoma, complete surgical resection combined with chemotherapy results in long time survival. Unless both treatments are carried out, long term outcome is very poor. Our patient, a 14 year boy from a poor rural family, presented with a huge immature mediastinal teratoma extending into left pleural space producing hemorrhagic pleural effusion causing dyspnea of three months duration, similar to a case, reported by Vallely MP et al from Australia. In view of raised serum alpha fetoprotein and histopathological report of immature mediastinal teratoma, adjuvant chemotherapy was planned for our patient, in spite of the fact that he was under 15 years of age. Unfortunately our patient hailing from the “Sundarbans”, a remote tropical forest area, never returned to follow up.

References