SAS Journal of Medicine
Abbreviated Key Title: SAS J Med
ISSN 2454-5112
Journal homepage: https://saspublishers.com

OPEN ACCESS

Rare Case of Mediastinal Compressive Teratoma in a Child

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DOI: 10.36347/sasjm.2021.v07i10.005 | **Received:** 09.07.2021 | **Accepted:** 13.08.2021 | **Published:** 05.10.2021

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Abstract **Case Report**

Benign teratomas of the mediastinum are rare tumors that represent 5 to 10% of mediastinal tumors. They remain asymptomatic for a long time and their discovery often reveals their bulky size. They occur most often in young subjects. We report the observation of a 6-year-old patient with a large mediastinal teratoma revealed by rest dyspnea and chest pain in a context of asthenia who was referred to our pediatric imaging department for a thoracic CT scan. Although benign mediastinal teratomas are slow growing, they can rarely become complicated and cause symptoms. Imaging is essential to make the diagnosis and to look for possible complications. The gold standard treatment is complete surgical resection.

Keywords: Benign teratomas, mediastinal tumors, CT scan, diagnosis, treatment.

INTRODUCTION

Mature teratomas account for 8% of mediastinal tumors and 44% of germline tumors without gender predominance. Malignant transformation of a mediastinal teratoma is very rare [1].

CASE PRESENTATION

This is a 6 year old patient, with no particular medical or surgical history, who was sent to the radiology department for a thoracic CT scan, indicated by dyspnea and chest pain with asthenia.

The CT scan, performed without and with injection of iodinated contrast, showed a large anterior mediastinal mass lateralized to the right, well circumscribed, cystic, with heterogeneous content, with fatty areas and intra-tumoral calcifications, measuring 91x84mm. It displaces the elements of the mediastinum towards the contralateral side without infiltrating them and the homolateral lung. It is associated with the presence of encysted pleurisy. The absence of mediastinal adenopathies, pulmonary nodules or suspicious bone lesions in the thorax is noted. The diagnosis was evoked by the anterior mediastinal localization and the semiological character: triple component (fluid, fat, and calcifications).the tumor markers AFP and BHCG were negative. The patient underwent a total surgical removal of the tumor by thoracotomy. The histological analysis concluded that it was a benign mature teratoma with healthy borders.

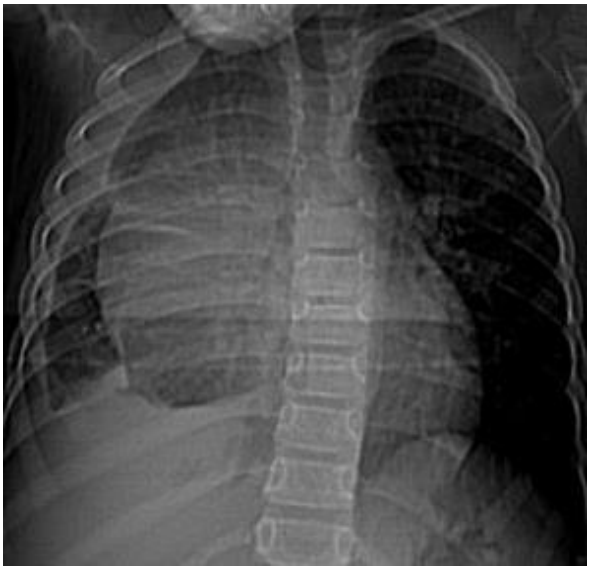

Figure 1: Topogram image (or "scout view") showing a large mass occupying the mediastinum and part of the right lung

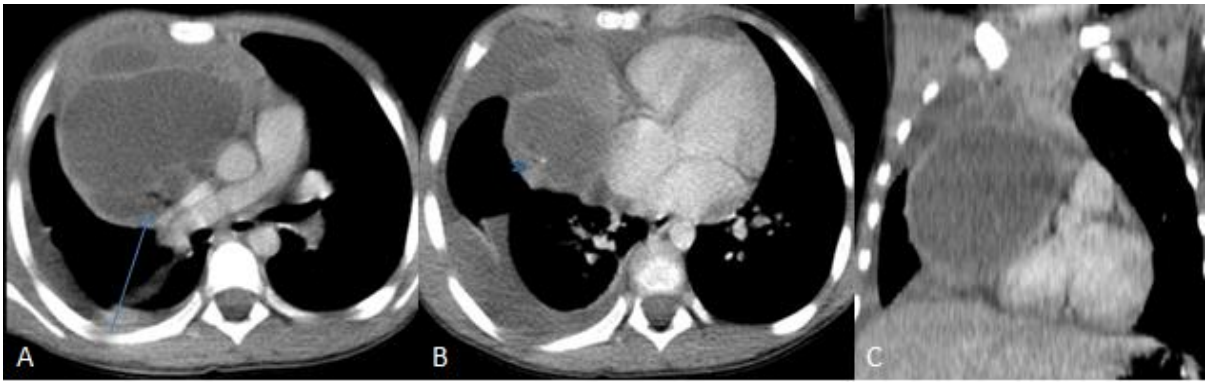

Figure 2: Thoracic CT scan with injection of iodinated contrast (A and B axial, C: coronal) shows a large anterior mediastinal tumor lateralized to the right, well circumscribed, cystic, septate with heterogeneous content, with fatty areas (arrow), and intra-tumoral calcifications in places (arrowhead). It pushes back the mediastinal elements towards the contralateral side without any detectable invasion, and is associated with the presence of a reactive homolateral encysted pleurisy

DISCUSSION

These are germ cell tumours, known as "non-seminomatous", which constitute 16% of mediastinal tumours in adults and 25% in children.

The mediastinal location is third after gonadal and sacro-coccygeal locations, with a predominance of the anterior mediastinal level [2].

Mature teratoma is the most common germ cell tumor of the mediastinum. This tumor, usually benign, rarely degenerates spontaneously into a malignant teratoma.

Mature teratomas are the benign form of teratomas, usually discovered at a young age and clinically asymptomatic.

When they are symptomatic, the most frequently encountered sign is chest pain, as in the reported case.

Rupture of the cystic component may cause hemoptysis, sputum, pleural empyema, respiratory failure, and tamponade through the action of enzymes secreted by the intestinal mucosa and pancreatic tissue of the teratoma [1-3].

The thoracic radiography allows to localize the mass in the different compartments of the mediastinum, and to analyze the characteristics of the mass, which is generally large, with well defined contours and heterogeneous structure. It also allows the identification of possible complications.

Thoracic CT also provides information about the relationship of the mass with the mediastinal structures, and allows the pathognomonic sign of teratoma to be highlighted: presence of organoid elements (teeth, hair, bone, etc.).

The alpha-fetoprotein and BHCG have normal values in case of benign teratomas, if their levels exceed the normal range this should lead to a search for a malignant contingent which heavily changes the prognosis.

Histology is the only diagnostic method of certainty. Macroscopically, teratomas can have a cystic, fatty, solid, calcified or mixed structure. Microscopically, they may contain several types of histological tissue as in the case we report. When they contain only one histological type they are said to be 'simplified'.

The evolution of patients with mature teratomas after surgery is often favorable, with postoperative complications of the order of 2%, dominated by pleural effusions and phrenic paralysis [1-4].

Teratoma can also degenerate into different types of sarcoma such as osteosarcoma, rhabdomyosarcoma, neurosarcoma, myxoid sarcoma and undifferentiated sarcoma [5].

The radiologic signs of teratoma degeneration have been rarely discussed in the literature. Rapid volume increase, the presence of adenopathy, and metastasis are the only definitive evidence of malignancy.

Extensive contact with the pleura and pericardium cannot be considered as signs of malignancy, because even benign teratomas generate an intense inflammatory reaction in the surrounding tissues [6].

CONCLUSION

Teratomas remain relatively rare tumors, being slowly progressive tumors, the clinical symptoms of mediastinal teratomas depend on their size and the degree of infiltration of surrounding structures.

When they are mature, the prognosis depends on a diagnosis made at an early stage, complete surgical removal and careful histological analysis to eliminate the presence of malignant contingent.

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