

A Mature Cystic Teratoma that Arises in the Posterior Mediastinum and that is Associated with an Anterior Intrathoracic Meningocele

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The frequency of a mediastinal teratoma arising in the posterior mediastinum is approximately 3%. Mediastinal teratomas are generally accidentally discovered during routine chest radiography. A 44-year-old male presented with right chest pain after falling from a height of 2 m. In this study, a rare, mature cystic teratoma that was associated with an anterior intrathoracic meningocele and that developed in the posterior mediastinum is presented. To the best of our knowledge, in Turkey, there has been no case of a posterior mediastinal teratoma associated with an anterior intrathoracic meningocele in the medical literature.

Keywords: Teratoma, posterior mediastinum, meningocele

INTRODUCTION

Nearly all benign teratomas have been observed to develop in the anterior mediastinum. The rate of teratomas that have been observed to arise in the posterior mediastinum or the ones that extend to the posterior mediastinum is only 3%. Mature teratomas are benign and slow-growing neoplasms. They usually develop within or near the thymus gland and account for up to 75% of primary germ cell tumors of the mediastinum (1). An intrathoracic meningocele is a cystic sac that has a wall formed by spinal meninges and contains cerebrospinal fluid. It protrudes into the thoracic cavity within an enlarged intervertebral foramen (2).

In this study, a rare, mature cystic teratoma that was associated with an anterior intrathoracic meningocele and that developed in the posterior mediastinum is presented. To the best of our knowledge, in Turkey, there has been no case of a posterior mediastinal teratoma associated with an anterior intrathoracic meningocele in the medical literature.

CASE PRESENTATION

A 44-year-old male presented with right chest pain after falling from a height of 2 m. A physical examination revealed no pathological findings, and his breath sounds were normal. A unilocular cystic tumor with a sharply defined contour and located in the right posterior mediastinum (Figure 1) was observed in the radiographs, computed tomography (CT) scan images, and magnetic resonance images of the chest. Besides that, a homogenous cystic mass in the left hemithorax communicating with the spinal canal through the anterior aspect of the first thoracic vertebrae was observed as a result of performing magnetic resonance imaging. The intensity of this cystic mass was similar to the cerebro-spinal fluid on T2-weighted images (Figure 2). Laboratory data were unremarkable. In addition, alpha-feto-protein and beta-human chorionic gonadotropin levels were found to be normal, and pulmonary function test results revealed a forced expiratory volume in one second (FEV1) of 2.75 (87%), a forced vital capacity (FVC) of 3.20 (81%), and an FEV1/FVC of 89%.

A posterior mediastinal mass was diagnosed, and the patient was prepared for right posterolateral thoracotomy. During this operation, a cystic mass containing brownish liquid in the posterior mediastinum was observed. The mass was in intimate contact with the esophagus and right lower pulmonary lobe. Complete excision of the mass was performed. As a result of a histopathological examination, the diagnosis of a mature cystic teratoma was confirmed and there were no other mediastinal immature or malignant tissues.

The chest catheter was removed on the third day and the patient was discharged on the fifth day after the operation. Six months later, clinical and radiological examinations were satisfactory. Written informed consent was obtained from patient who participated in this study.

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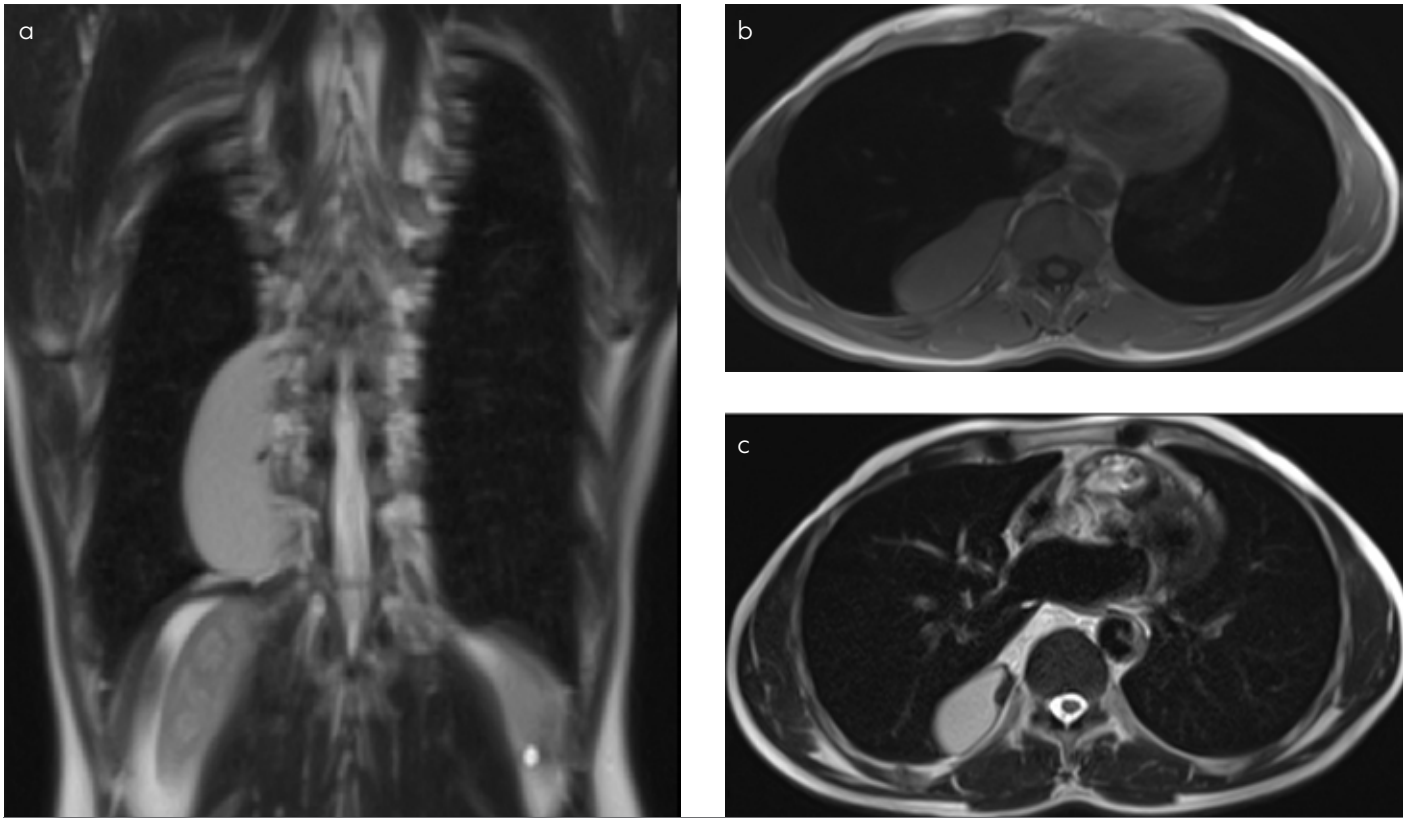


FIGURE 1. a-c. Coronal (a) and axial (b, c) magnetic resonance images of the chest demonstrated a unilocular cystic tumour with a sharply defined contour located in the right posterior mediastinum

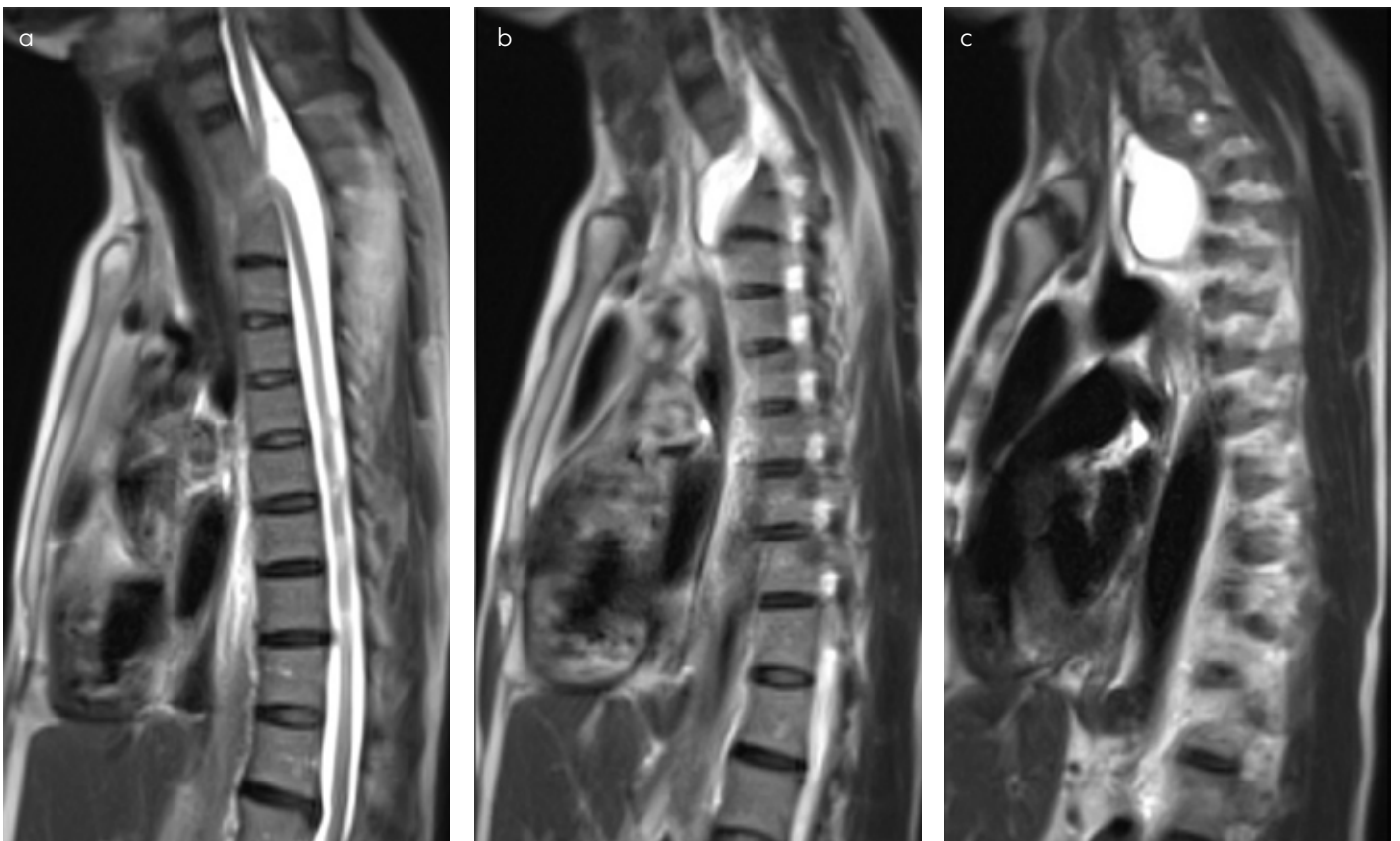


FIGURE 2. a-c. Sagittal (a-c) MRI scan showed a homogenous cystic mass in left hemithorax, communicating with the spinal canal through the anterior aspect of the 11th thoracic vertebrae

DISCUSSION

In total, 80%-90% of neurogenic tumors, paraesophageal cysts, mesenchymal tumors, and liposarcomas generally develop in the posterior mediastinum. The rate of mediastinal teratomas arising in the posterior mediastinum is only 3% (3). Mediastinal teratomas are generally accidentally diagnosed in adults during routine chest radiography. It is well circumscribed and lobulated with a large mass and with calcified areas in 20% of patients (4). In our case, the patient had fallen from a height of 2 m; he presented with right chest pain, and chest radiography revealed the posterior mediastinal lesion.

Thoracic CT is another important tool for examining teratomas because it provides the ability to clearly view the borders of the tumor along with realistic information about the structures included in the teratoma, such as soft tissues, fluids, fats, calcifications, and teeth (4, 5). There are some areas of calcification intermixed within areas of fat density of this cystic mass and it has a thick wall that can usually be diagnosed on performing a CT scan. This cystic mass should be differentiated from complicated hydatid cysts, extralobar sequestration, neurogenic tumors with necrosis, and calcified congenital cysts (1). During the CT scan of the chest in our patient, it was diagnosed in the right posterior mediastinum a unilocular cystic tumor with a sharply defined contour. During the preoperative differential diagnosis, we also included neurogenic tumors as they account for 19%-39% of mediastinal tumors and they generally develop in the posterior mediastinum (4).

The main treatment approach is total surgical excision. Posterior or lateral thoracotomy is the most ideal method for this. Mature Cystic Teratomas may present difficulties if they are too close to vital neighboring structures. Takeda et al. (6) reported that after they performed complete resection, lobectomy combined with tumor extirpation was also required for three patients, additional partial resection of the lung was required for five patients, and pericardiectomy was required for seven patients. In our case, neither lung resection nor pericardial resection was required during complete resection. The recurrence rate of a teratoma is nearly zero when complete resection is performed or when it contains no immature or malignant structures (7).

An anterior spinal meningocele is rare and is generally observed in the thoracic or sacral region. Type I neurofibromatosis or Marfan syndrome and sometimes, an isolated defect frequently occur as a manifestation of generalized mesenchymal dysplasia (8). There were no neurological findings present in our patient. Presently, we have initiated conservative management and follow-up for the patient. Surgery must also be taken into consideration if any gradual increase in the size of the meningocele sac is observed during careful follow-up examinations

of the patient and any neurological and/or cardiopulmonary complications are diagnosed or when an operative correction is required for a patient's kyphoscoliosis (9).

To conclude, teratomas must be considered in the differential diagnosis of posterior mediastinal tumors. An ideal method for making such a diagnosis is the operation that may also confirm the presence of a teratoma, prevent any complications, and provide the chance of eliminating malignant components that may require adjuvant therapy.

Informed Consent: Written informed consent was obtained from patient who participated in this study.

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