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(CASE REPORT)

A rare case: 47-years-old male with mature Mediastinal Teratoma

Zaka Jauhar Firdaus * and Widiastuti Soewondo

Department of Radiology, Dr. Moewardi Hospital, Surakarta, Indonesia/Faculty of Medicine, Universitas Negeri Sebelas Maret, Surakarta, Indonesia.

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Abstract

Introduction: Mediastinal teratoma is a tumor originating from germ cells. The global incidence of teratoma is 1 per 4000 births. In the mediastinum, germ tumors account for 1% to 3% of all cases. The anterior mediastinum is where extragonadal germ cell tumors are most prevalent and are often benign. The symptoms are manifestations of pushing the tumor into the surrounding environment.

Case Presentation: Our hospital received a referral for a 47-year-old male bus driver for diagnostic purposes with complaints of shortness of breath 3 months before his admission to the hospital, which has been getting worse in the last 1 month. A chest X-ray was performed in previous hospital showed a mediastinal mass. Bronchoscopy showed no source of bleeding. A contrast chest CT scan showed a mass in the superior anterior mediastinum with a well-defined, lobulated that deviated the trachea to the right and compressed the heart. Open thoracotomy was performed followed by pathology examination which shows mature teratoma. The patient was given antibiotics and discharged three days later with pretty good outcome. No mass or infiltration was found.

Conclusion: Mature mediastinal teratoma is a rare case. These tumors might cause compression to the adjacent organs and structures and cause symtoms. Chest CT scan is considered good modality choice to evaluate compression of the surrounding organs and post-treatment comparation.

Keywords: Teratoma; Mediastinum; Chest Radiography; Chest CT scan; Thoracotomy

1. Introduction

The tumor mediastinal teratoma develops from germ cells. Teratomas occur in 1 out of every 4000 births worldwide[1]. The mediastinum is where 1%–3% of all germ cell cancers first appear[2]. The anterior mediastinum is where extragonadal germ cell tumors are most prevalent and are often benign. The tumor's invasion of the surroundings is manifested by symptoms[3].

Surgery is the main current treatment modality. In diagnosing mediastinal teratoma, Chest X-ray has a major role for screening and initial assessment while CT scan is commonly used for determining the location, origin, and correlation of the tumor to adjaacent structures[4].

* Corresponding author: Zaka Jauhar Firdaus
Department of Radiology, Dr. Moewardi Hospital, Surakarta, Indonesia/Faculty of Medicine, Universitas Negeri Sebelas Maret, Surakarta, Indonesia.

2. Case Report

A 47-year-old guy was admitted with shortness of breath as his main complaint. Shortness of breath was felt for 3 months in SMRS, getting worse for 1 month. The shortness of breath is felt to come and go, like being under a heavy load, but not spreading. Tightness is not affected by weather, dust. The shortness of breath gets worse with activity and lessens at rest. Woke up at night because of shortness of breath. A day the patient can sleep with 1 void. Shortness of breath is not accompanied by wheezing. The patient had no previous history of using spray drugs. The patient also complained of cough for 6 months. History of chest pain, fever, night sweats, and weight loss was denied.

The patient had no history of TB medication use, hypertension, diabetes mellitus, heart disease, asthma, allergies, or heart problems. The patient is a job as a bus driver and has a smoking history of more than 30 years. Patient was treated for 1 week at previous hospital and a chest X-ray was taken.

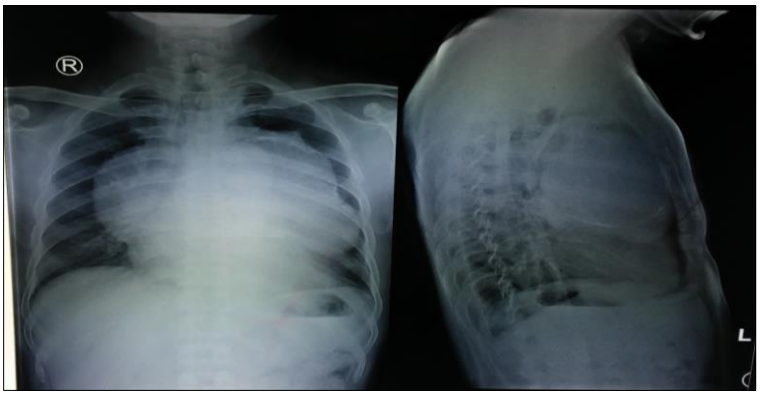

Figure 1 The chest radiograph shows a well-defined paratracheal opacity with a slightly blurred medial border, covering the left margin of the cast, and calcifications in the periphery of the lesion supporting the appearance of a mass in anterior mediastinum

The patient was then referred to the hospital, treated for 1 week at the hospital, then bronchoscopy was performed. In the results of bronchoscopy no source of bleeding was found. No mass or infiltration was found. Performed rinsing and examination of FNAB and cytology. Where bronchial lavage cytology did not show malignant cells.

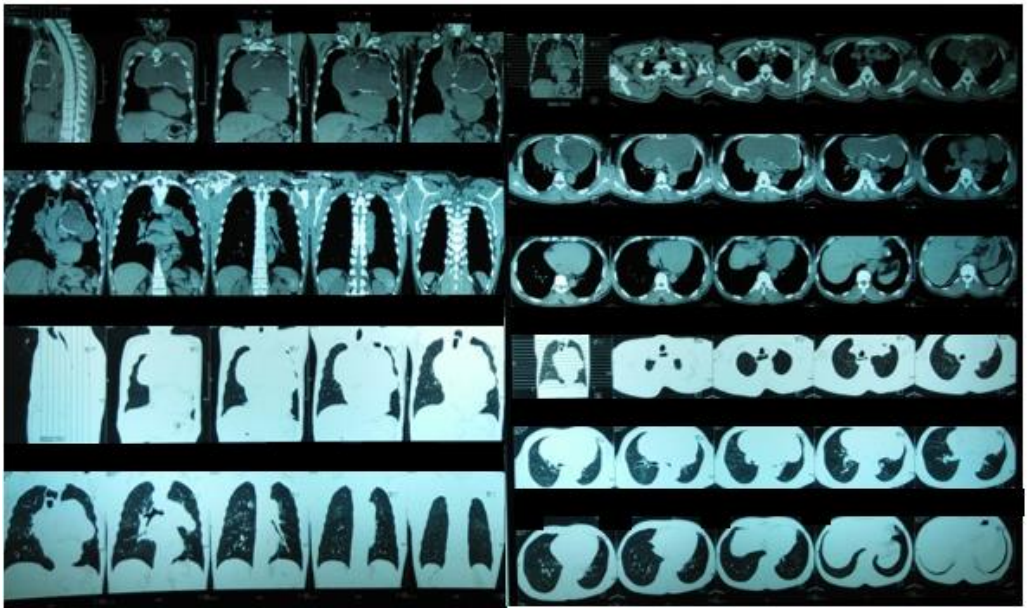

Figure 2 Thoracic MSCT results show a well-defined, lobulated anterior superior mediastinal mass 17.7x10x9 cm that deviates the trachea to the right and compresses the heart downward

Chest CT with contrast shows an inhomogeneous anterior inferior mediastinal mass, most likely a mature teratoma. The border in the aorta is firm. No pleural effusion or metastases were seen. Then the TTNA results showed a mediastinal mass, a teratoma. Then the patient is planned for Open Thoracotomy.

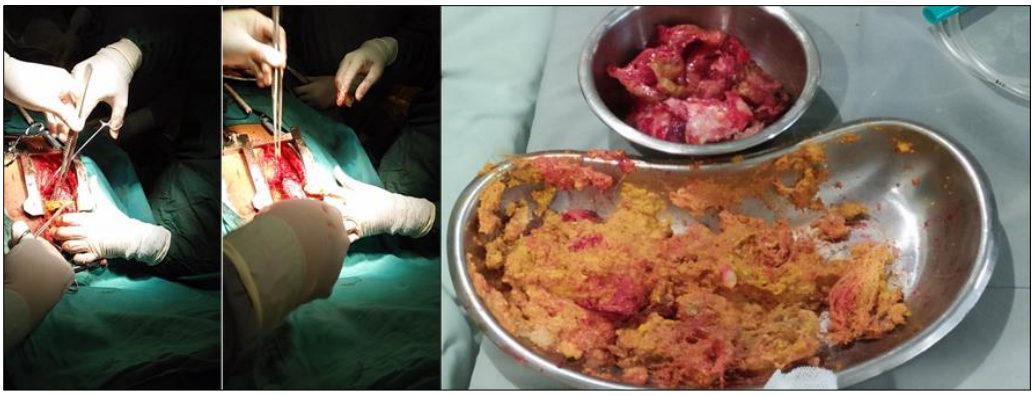

Figure 3 Open Thoracotomy, with tumor resection followed by histopathological examination which showed a cyst with squamous epithelial components, connective tissue, fat, adnexa, cartilage, hair, and ganglion cells, leading to a Mature Teratoma

Then the patient was given oxygen therapy of 4 liters per minute, NaCl infusion of 0.9%, a high-calorie high-protein diet, Ciprofloxacin, Kalium tablets, and Vitamin B complex tablets. The patient underwent postoperative recovery and was then discharged home with good results.

3. Discussion

The most frequent location for extragonadal germ cell tumors is the anterior mediastinum.[7,8] Mediastinal germ cell tumors make up about 15% of adult and 24% of pediatric anterior mediastinal tumors. Both male and female patients can develop benign germ cell cancers. Malignant germ cell tumors, however, are more common in male individuals.[6] Mature teratoma and seminoma are the two histological types of mediastinal germ cell tumors that are most prevalent.[6] Mature teratomas are benign, slow-growing tumors of the anterior superior mediastinum that typically develop close to or inside the thymus parenchyma.[8] Young adults are typically the patients with mature teratomas, though kids can also be afflicted. Both male and female patients are susceptible to the condition.[8] the tissue in mature teratomas is well-differentiated and comes from multiple sources (one of the three embryonic germ cell layers).

A mature teratoma has a distinctive radiographic appearance that is characterized by a rounded, occasionally lobed anterior mediastinal mass with well-defined mass boundaries in relation to the neighboring lung. About 20–43% of instances have been documented to have calcification, which can be central, arching, or peripheral.[9,11] Teeth can be seen on radiographs to diagnose teratoma.[12] Although it is infrequently visible on radiographs, the presence of fat-fluid levels is thought to be distinctive for the diagnosis of teratoma.[14]

Because it can show the location, size, and intrinsic components of the tumor, such as soft tissue, fat, fluid, and calcifications, computed tomography (CT) is the preferred modality for the diagnostic evaluation of this tumor.[14] An anterior mediastinal mass that is sharply defined, spherical, or lobulated heterogeneous and contains soft tissue, fluid, fat, calcium depletion, or a combination of the four is how mature mediastinal teratomas typically appear on a CT scan. Despite being uncommon, the level of fat-fluid is thought to be particularly specific for the diagnosis of mature mediastinal teratoma.[13]

CT is helpful for assessing nearby structures as well. It is possible to assess complications like rupture into the pleural cavity or pericardium with an accompanying effusion.[11] If the lesion wall is obviously disrupted and consolidation is noticeable in the nearby lung areas, ruptured teratoma may also be suspected.[15] It has been suggested that the tumor's ability to burst due to the presence of pancreatic enzymes.[16] If the contrast-enhanced CT scan reveals an inhomogeneous cystic mass with a fatty or oily component and a thick wall with calcification with pericardial invasion, malignant transformation should be ruled out. [7]

Mature teratomas appear on magnetic resonance imaging (MRI) as diverse signal intensities with levels of fat-fluid, soft tissue, and calcifications.[18] On T1-weighted imaging, fat can be seen as a region of elevated signal intensity, which helps

with diagnosis.[19] As an extra investigation, MR was conducted since it is sensitive to portraying infiltration of nearby structures by a fat field.[14]

The patient had an excision procedure. Adult teratomas are treated by completely removing the tumour surgically. In contrast to the prognosis for immature teratomas, which may display aggressive behavior in adult patients and may have a bad prognosis, the prognosis is favorable and the 5-year survival rate is close to 100%.[9]

4. Conclusion

Mature mediastinal teratoma is a rare case. These tumors might cause compression to the adjacent organs and structures and cause symtoms. Chest CT scan is considered good modality choice to evaluate compression of the surrounding organs and post-treatment comparation.

Compliance with ethical standards

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Disclosure of conflict of interest

There is no conflict of interest among the authors.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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