



A Rare Case of Intrathymic Epidermoid Cyst

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Received: 21 May 2020 ♦ **Accepted:** 11 Sep 2020 ♦ **Published:** 30 Apr 2021

Citation: Covantev S, Afanaseva V, Corlateanu A. A rare case of intrathymic epidermoid cyst. *Folia Med (Plovdiv)* 2021;63(2):277-81. doi: 10.3897/folmed.63.e54539.

Abstract

Thymic cysts are a rare abnormality accounting for 1%–3% of all mediastinal masses. In most cases, they are asymptomatic and localized in the anterior mediastinum. Despite their benign nature, the presence of a mass is an indication for surgery to obtain a histological conclusion and reliably exclude an oncological process. Epidermoid cysts are rare and only a few cases are described in the literature. In our case report, we present a rare case of examination and treatment of a patient with a large anterior mediastinum mass, which, according to the results of histology, was an epidermoid cyst of the thymus.

Keywords

thymus, epidermoid cyst

INTRODUCTION

Thymic cysts are a rare abnormality, which account for all mediastinal masses. In most cases, they are asymptomatic and localized in the anterior mediastinum.¹ Due to their localization, they should be differentiated from cysts of the bronchi, esophagus, pericardium, as well as teratomas and lymphangiomas.² Despite their benign nature, the presence of a mediastinal mass is often an indication for surgery to obtain a histological conclusion and reliably exclude an oncological process.

Thymic cysts can be divided into congenital and acquired. Congenital cysts are usually single chamber, thin-walled and contain a light serous fluid. They are asymptomatic and are most common in the second decade of life.³ Acquired cysts are usually multi-chamber and contain dark liquid or gelatinous substance due to the fact that they form as a result of trauma or infection.⁴ Other causes of their formation may be radiotherapy, thymus tumors, thymus hyperplasia, surgical interventions, HIV infection. Thus, although they are rare, thymic cysts are the most common benign pathology of the thymus.⁵

In our clinical observation, we present a rare case of examination and treatment of a patient with an anterior mediastinum mass, which, according to the results of histology, was an epidermoid cyst of the thymus.

CASE REPORT

A 28-year-old woman was diagnosed with an anterior mediastinal mass during a planned high resolution computer tomography (HRCT) of the chest. The mediastinal mass measured 10×5×4 cm (Figs 1, 2, 3). The examination did not reveal any other pathology. Due to suspicion of an oncological process, the patient underwent surgery. The patient was operated under combined endotracheal anesthesia. We performed median sternotomy and exploration of the mediastinum and revealed a large mass of the anteroposterior-mediastinum with dimensions of 10.4×5.1×4.2 cm. It had grown to the mediastinal pleura on the right, fused with the ascending aorta, and the venous brachiocephalic trunk (Fig. 4). The mass was carefully dissected, with resection of the mediastinal pleura on the right and opening of the right pleu-

ral cavity (Fig. 5). After hemostasis and aerostasis, the right pleural cavity and the anterior mediastinum were drained by two drains through contrapertures under the xiphoid process. The sternum was sutured with metal sutures with a layered

suturing of the wound. According to the results of histology, the formation was an epidermoid cyst of the thymus. The postoperative period was uneventful, and the patient was discharged 7 days after surgery.



Figure 1. HRCT in the frontal plane. The arrow points to the anterior mediastinal mass.



Figure 2. HRCT in the sagittal plane. The arrow points to the anterior mediastinal mass.

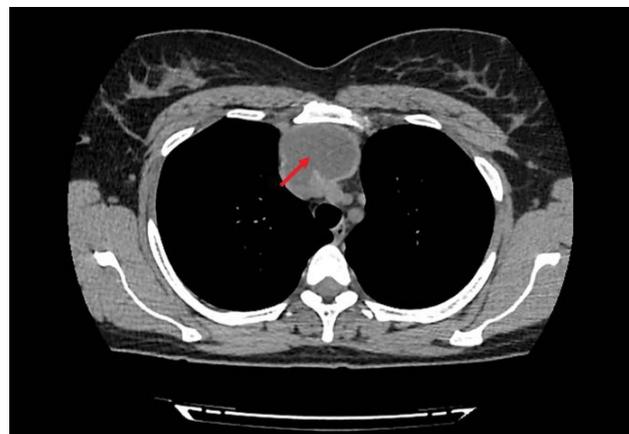


Figure 3. HRCT in the axial plane. The arrow points to the anterior mediastinal mass.



Figure 4. Intraoperative picture of the anterior mediastinal mass.



Figure 5. Macrospecimen of the mediastinal mass.

DISCUSSION

Thymus cysts are a rarely encountered pathology. A study conducted by Hsieh and co-workers for 20 years showed that thymic masses are encountered in 0.3% of cases. The most common are thyroid-lingual cysts (54.68%), hydro-mas (25.08%), pharyngeal cysts (16.31%), and broncho-genic (0.91%).⁶ Another study showed that the incidence of cysts in adults is about 2 times greater than in children. Thymic cysts are found less frequently than cysts of the pericardium, pleura and esophagus. Nevertheless, thymic cysts are most commonly accompanied with symptoms (40%) compared with pericardial cysts (15.8%), pleura (15.8%), bronchogenic (39.2%) and esophageal (39.2%) cysts.¹ The symptoms are manifested due to compression of the surrounding tissues and are accompanied by dyspnea (7.6%), chest pain (14.3%), cough (6.7%), fever (5.7%), dysphagia (8.7%), paralysis of the vocal cords (4.8%), and also in rare cases, cardiac tamponade, diaphragm eventration.¹⁻⁷ It is important to note that in children, there may be abnormalities in the development of the thymus, such as accessory lobes, which may complicate the diagnosis.⁸

Most often, thymic cysts are detected during a routine CT scan of the chest (70%), less often on a CT scan of the neck (24%), and in exceptional cases during a chest X-ray (6%). Cysts usually have an oval shape (50%), smooth contour (67%), are localized in the middle (61%), without visible surrounding thymus tissue (67%), and have no calcifications (89%).⁵

Preoperative diagnosis of thymic cysts is often difficult. In 37% of cases, the patients have enlargement of the mediastinal space on a plain X-ray of the chest. A chest X-ray may be considered only as a screening method since in none of the cases a thymic cyst was considered as the primary diagnosis during the examination. HRCT of the chest is the most commonly used imaging method. Thymus cysts are characterized by an oval shape, smooth contour, cystic density, homogeneous dimming and thin walls. Nevertheless, bleeding inside the cavity or inflammation can lead to increased density, which, according to HRCT, looks like a solid mass. The sensitivity of the chest CT is 54.6%, and the factors that influence the sensitivity are dimensions less than 3 cm, density of more than 20 Hu, negative results of the chest X-ray, and also localization along the midline. The most important criteria for a wrong preoperative diagnosis were size and density.⁹ Thus, in this group of patients, in order to clarify the diagnosis, MRI of the mediastinum can be helpful. Compared to HRCT of the chest, MRI has a higher diagnostic accuracy (chest CT - 46% compared with chest MRI - 71%).¹⁰ For the purpose of differential diagnosis between thymic hyperplasia, thymus cysts, lymphomas, teratomas and thymomas, it is advisable to perform HRCT, PET/CT, and MRI with DWI. Thus, the epidermoid cyst is characterized by a heterogeneous structure on CT, lack of FDG accumulation, heterogeneous structure on MRI and diffusion restriction in DWI mode.¹¹ The differential diagnosis is initially based on the localization of the mass of a chest X-ray or CT (**Fig. 6**).



Figure 6. Differential diagnosis of the mass based on CT. **1.** Anterosuperior mediastinum: goiter, ascending aortic arch aneurysm, parathyroid tumours, esophageal tumours, teratomas, thymic tumours, thymic cysts, pericardial cysts, lymphoma, Morgagni hernia, lipomas; **2.** Middle mediastinum: lymphoma, lymph node enlargement, bronchogenic tumours, bronchogenic cysts; **3.** Posterior mediastinum: neurogenic tumours, aortic aneurysm, enteric cysts, hiatal hernia, esophageal tumours, bronchogenic tumours.

Despite this, epidermoid cysts of the thymus are an extremely rare histological variant and are described only in a few cases in the literature, which is why it is rarely included in the differential diagnosis.¹¹⁻¹⁴ Since it is often difficult to make a conclusion based on imagistic examination the patients are operated in order to obtain a histology result and reliably exclude an oncological process.

CONCLUSIONS

Epidermoid cysts can be located in any part of the body; however, intrathymic location is extremely rare and only a few cases have been reported in the literature. In order to clarify the diagnosis, the most sensitive diagnostic method is an MRI with an assessment in the DWI mode. The differential diagnosis is most often carried out with thymus hyperplasia, thymus cysts, lymphomas, teratomas and thymomas. The presence of a cyst is often an indication for surgery to obtain a histological conclusion and reliably exclude an oncological process.

Author's contribution

S.C., V.A.: study conception and design; S.C., V.A.: acquisition of data; S.C., A.V., A.C.: analysis and interpretation

of data; S.C., A.V., A.C.: drafting of manuscript; S.C., A.V., A.C.: critical revision.

Ethics

Written informed consent was obtained from the patient for publication of the present study.

Funding

The authors have no funding to report.

Competing interests

The authors have declared that no competing interests exist.

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Редкий случай интратимической эпидермоидной кисты

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Дата получения: 21 мая 2020 ♦ **Дата приемки:** 11 сентября 2020 ♦ **Дата публикации:** 30 апреля 2021

Образец цитирования: Covantev S, Afanaseva V, Corlateanu A. A rare case of intrathymic epidermoid cyst. Folia Med (Plovdiv) 2021;63(2):277-81. doi: 10.3897/folmed.63.e54539.

Резюме

Кисты тимуса – редкое заболевание, составляющее 1–3% всех новообразований средостения. В большинстве случаев они протекают бессимптомно и локализуются в переднем средостении. Несмотря на доброкачественный характер, наличие новообразования является показанием к операции для получения гистологического заключения и надёжного исключения онкологического процесса. Эпидермоидные кисты встречаются редко, и лишь несколько случаев описаны в литературе. В нашем описании случая мы представляем редкий случай обследования и лечения пациента с большой массой переднего средостения, которая по результатам гистологии представляла собой эпидермоидную кисту тимуса.

Ключевые слова

тимус, эпидермоидная киста
