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Giant thymic cyst with atypical location: case report

Cisto tímico gigante com localização atípica: relato de caso

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Abstract

A 47-year-old woman was admitted with a history of dyspnea on mild exertion as her only symptom. Clinical exam, laboratory tests, and electrocardiography were normal. Chest X-ray demonstrated right hemithorax base mass, and CT scan revealed a well-defined cystic mass measuring approximately 11.3 x 10.6 x 10.9 cm, suggesting the diagnosis of pericardial cyst. The patient underwent right thoracotomy for resection of the cyst. The patient's progress- was uneventful. The result of histopathological examination, contrary to expectations, revealed thymic cyst.

Descriptors: **Mediastinal cyst. Thymus gland. Thoracotomy.**

Resumo

Paciente do sexo feminino, 47 anos, admitida com queixa de dispneia aos pequenos esforços como único sintoma. Exames clínico, eletrocardiográfico e de laboratório normais. Radiografia de tórax demonstrou massa em base de hemitórax direito, que a tomografia computadorizada de tórax revelou tratar-se de massa cística bem delimitada, medindo cerca de 11,3 x 10,6 x 10,9 cm, sugerindo o diagnóstico de cisto pericárdico. A paciente foi submetida a toracotomia direita para ressecção do cisto. A paciente evoluiu sem intercorrências. O resultado do exame anatomopatológico, ao contrário do esperado, diagnosticou cisto tímico.

Descritores: **Cisto mediastínico. Timo. Toracotomia.**

INTRODUCTION

Thymic cysts are infrequent benign lesions, comprising 1% to 3% of the lesions located in the anterior mediastinum [1]. They are usually asymptomatic, however, chest pain and dyspnea may occur [2]. Diagnosis is typically incidental, occurring during routine examinations (radiography and tomography, with anatomopathological examination required to differentiate it from other anomalous tissue) [3]. Thymic cysts are more prevalent in young and middle-aged adults and their origin can be congenital or acquired [1]. Despite surgical indication being well-established in acquired thymic cysts due to the associated risk of malignancy (ATC), there is no consensus in the literature about whether to operate congenital thymic cyst (CTC) [2].

The following case describes a thymic cyst initially diagnosed as a pericardial cyst based on image exams.

CASE REPORT

A 47 year-old female patient was admitted with a history of dyspnea on mild exertion, progressing for three years. The patient had no history of cardiac or pulmonary disease, or any other pathology.

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Abbreviations, acronyms & symbols	
ATC	Acquired thymic cyst
CTC	Congenital thymic cyst

Chest radiography showed hypotransparent image, irregular in the right hemithorax, suggestive of pericardial cyst. There were no cardiac alterations in the echocardiography, but there was a well-defined hypo-echoic mass, 10 x 12 cm in size, with thin walls and soft tissue in its interior structure, closely connected to the right atrium in its inferior surface, suggestive of pericardial cyst. Computed tomography showed a well-defined mass with regular margins, measuring 11.3 x 10.6 x 10.9 cm at its largest points, located in the middle lobe, in the anterior mediastinum, with internal attenuation of soft tissue and surrounded by a thin wall, which was discretely enhanced after endovenous contrast, indicating compression over the heart as it was in close contact with the heart and the right anterolateral chest wall (Figure 1A). The patient underwent right thoracotomy, which revealed a giant mass adhered to the right side of the pericardium and the right lung, and enveloping the right phrenic nerve (Figure 1B). The cyst, filled with a lumpy liquid, was dissected from the lung. Next, the mass was dissected from the pericardium, where part of the cyst wall (approximately 1 cm) was left along the phrenic nerve in order to avoid injuring it. The transoperative period was uneventful.

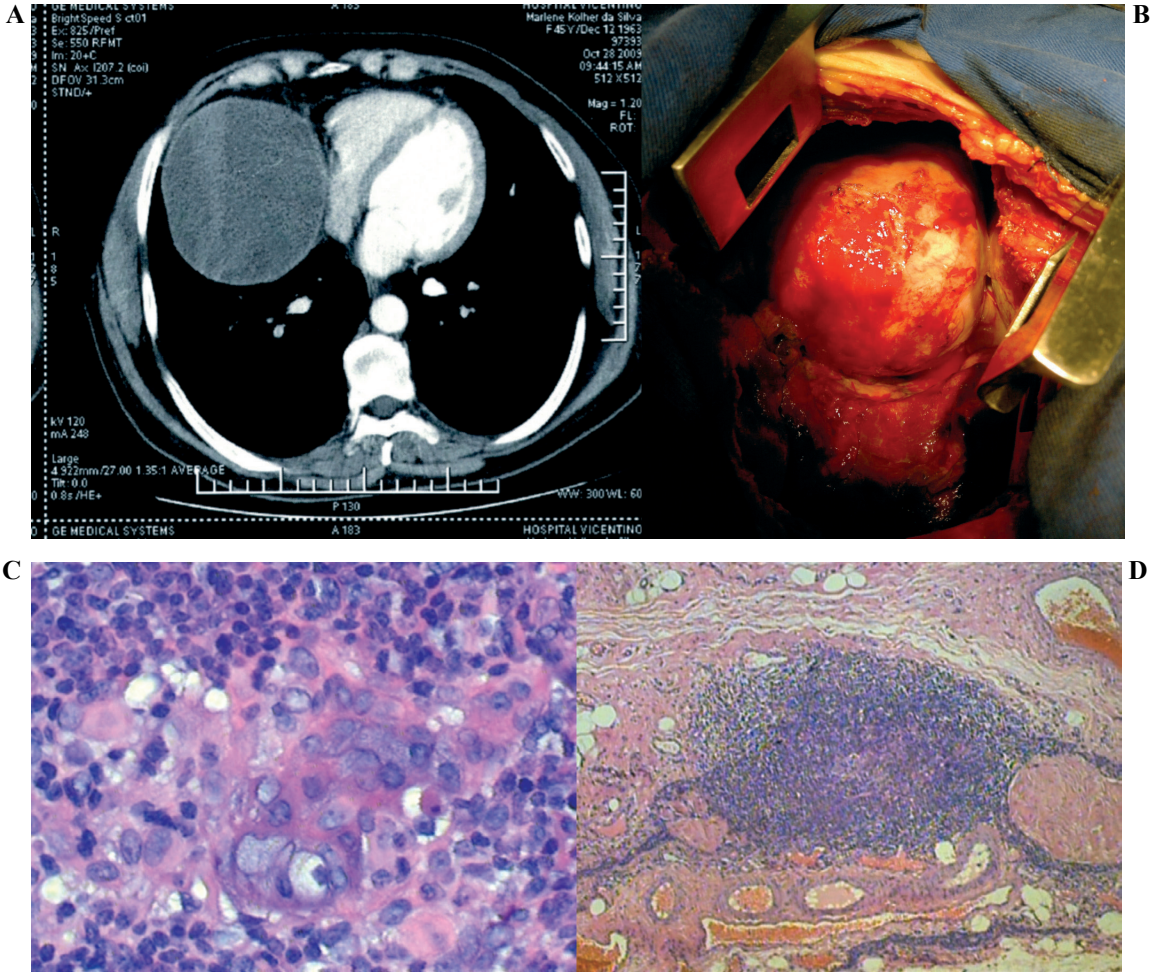

Fig. 1 - A: Computed tomography indicating well-defined mass with regular margins, in close contact with the heart and the right anterolateral chest wall. B: Right thoracotomy showing giant mass adhered to the right pericardial surface and the right lung. C: Hassall's corpuscle (multiple layers of epithelial reticular cells arranged concentrically, in the shape of an "onion"). In general, reticular cells are in the center of the Hassall's corpuscle, lined by a layer of medullary epithelial cells. D: Hassall's corpuscle in the lesion (smaller increase)

Patient was discharged on the fifth postoperative day. After the procedure, there was complete remission of the symptom. The anatomopathological exam identified cystic lesion wall with fibrosis and areas of dystrophic calcification associated with residual areas of hyperplastic thymic tissue and Hassall's corpuscles (Figures 1C and D), indicating a diagnosis of congenital thymic cyst.

The present case was reported with the express permission of the patient and the hospital.

DISCUSSION

Thymic cysts can be classified as CTC or ATC [1,3] (Table 1). In general, thymic cysts are asymptomatic and diagnosis is done incidentally through image exams of the chest area. In addition, patient's age can range from 30 to 60 years-old [2]. When symptomatic, the most reported symptoms are chest pain, cough, hoarseness, dyspnea, and dysphagia [1,3,4]. The patient described in this report was diagnosed at 47 years-old with dyspnea as her only symptom.

Radiologically, thymic cysts are shown as well-defined anterosuperior mediastinal masses, with occasional visualization of septa and linear calcification of the wall [5]. Computed tomography is considered the method of choice for diagnosing mediastinal masses, as it allows for the differentiation of different types of cysts as well as from other diseases. It is important to differentiate between acquired and congenital lesions because, in ATC, histopathological analysis is needed to eliminate the possibility of neoplastic association [1]. The criteria to confirm the thymic cyst diagnosis is the presence of Hassall's corpuscles and remnant thymic tissue, observed during microscopic analysis [6].

In terms of size, there was only one case of a thymic cyst measuring 11.5 x 6.8 x 9.0 cm in the literature [2]. In the present report, the patient's cyst measured 11.3 x 10.6 x 10.9 cm, the largest ever recorded in the literature, at an unusual location in the anterior mediastinum.

Differential diagnoses include malignant lesions, such as thymomas, teratoma, lymphomas, hemangiomas, fibrosarcoma, neuroblastoma [4], among others, and benign lesions, such as pericardial, bronchogenic, and branchial cysts [4,6-8], as well as other lesions in that region.

The ideal approach to thymic cysts has not been well established yet. Most authors recommend resection of ATC,

Table 1. Morphological differences between acquired and congenital thymic cysts

Characteristic	Acquired thymic cyst	Congenital thymic cyst
Origin [1,3]	Inflammatory/Infectious (HIV, LES) or neoplastic (non-Hodgkin lymphoma, thymoma, thymic carcinoma, and mediastinal seminoma) processes	Thymopharyngeal duct or branchial cleft remnants and ectopic thymic tissue
Morphology [1,3]	Multilocular, fibrovascular proliferation, necrosis, hemorrhage, and formation of cholesterol granuloma and reactive lymphoid hyperplasia with multiple germination centers	Unilocular (usually), thin and translucent walls
Fluid [1]	Can become thick and bloody, light brown in color	Clear and acellular
Histopathology [2,6]	Cystic cavities are partially lined by squamous or columnar epithelium and can have capillary excrescences; scattered nests of non-neoplastic thymic tissue inside cyst walls. The surrounding stroma contains lymphoplasmacytic inflammatory infiltrate. Due to the chronic nature of the process, the cyst can degenerate and develop either a thick and calcified capsule or fibrous tissue	There is no evidence of inflammation; Epithelial surface of the cystic cavity is lined by squamous cells and there are no hemorrhages nor granulomas
Hassall's corpuscles [6]	Hard to find since the inflammation destroys the cyst wall, replacing it with fibrosis; thus, causing degeneration of the corpuscle	Easily found
Location [2,6]	Usually in the anterior mediastinum	Usually in the neck

due to the risk of malignancy. The resection can be performed through videothoracoscopy, longitudinal sternotomy, or thoracotomy [2]. In case of CTC, the approach can be more conservative; however, some authors are in favor of resection, since histological differentiation between ATC and CTC is needed for a definite diagnosis. The patient described here underwent right thoracotomy, procedure recommended based on the size and compression effect of the mass in addition to histological analysis being needed. The initial pericardial cyst diagnosis, which anatomopathological studies revealed it to be congenital thymic cyst, was significant.

Authors' roles & responsibilities	
MACC	Preparation of work, final review
MRMN	Anatomopathology review, text review
JC	Writing and literature review
GCC	Medical records review and literature review

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