

# MULTILOCULATED THYMIC CYST IN AN ADULT PATIENT: CASE REPORT AND LITERATURE REVIEW

Quiste tímico multiloculado en un paciente adulto: Presentación de caso y revisión de la literatura

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## Key words (MeSH)

Thymus neoplasms  
 Mediastinal cyst  
 Thymus gland  
 Tomography, X-ray  
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## Palabras clave (DeCS)

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 Timo  
 Tomografía computarizada  
 por rayos X

## Summary

Multiloculated thymic cysts are acquired lesions, diagnosed incidentally in most patients and associated with other conditions such as inflammation, infection, trauma and radiothera. We present the case of a 55-year-old woman with a multilocular thymic cyst, with no relevant history or particular clinical condition at the time of diagnosis.

## Resumen

Los quistes tímicos multiloculados son lesiones generalmente adquiridas, que se diagnostican de manera incidental en la mayoría de pacientes y se asocian con condiciones de naturaleza diversa, como: inflamación, infección, trauma y radioterapia. Se presenta el caso de una mujer de 55 años con un quiste tímico multiloculado, sin antecedentes de importancia o condición clínica particular al momento del diagnóstico.

## Case report

A 55-year-old woman with no significant history, with a two-month history of cough, dyspnea, chest pain and involuntary weight loss. The physical examination did not reveal any significant findings. No antibodies against human immunodeficiency virus (HIV) were documented.

The radiography and computed tomography (CT) of the chest (figure 1) showed mass with well-defined borders, located in the anterior mediastinum. Magnetic resonance imaging (MRI) of the chest with contrast medium (Figure 2) showed a triangular mass with smooth contours and hetero-

geneous signal intensity, predominantly cystic, with diameters greater than 190 × 153 mm. In the lesion, fibrous bands and low wall signal components were evidenced in the sequences with T2 information (Figures 2a and b). No infiltration of mediastinal fat or mediastinal vascular structures was documented. The mass was not enhanced by contrast medium administration.

In surgery, the finding of a thymus-dependent, cystic, lobed, anterior mediastinal mass was confirmed, encompassing (without invading) the superior vena cava, the pericardium, the innominate vein and the left phrenic nerve (Figure 3).

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In the histopathological analysis of the surgical piece, a cystic lesion was found, multiloculated, covered by plane and cubic epithelium, without cytological atypia, with thymic remnant in the wall and cellular proliferation index of 0-1 % in the epithelial lining of the cyst. No alterations of the adipose tissue adjacent to the lesion were documented. The diagnosis of multi-loculated thymic cyst was confirmed.

## Discussion

Thymic cysts represent the second most common cystic lesion of the mediastinum (28,6 %) and correspond to 3-5 % of all mediastinal masses. Most are located in the anterior mediastinum. However, cases located from the base of the neck to the diaphragm have been described (1-3).

Thymic cysts may be congenital or acquired. Congenital cysts are unilateral and originate in the remnant of the thymopharyngeal duct; they are characterized by a thin wall and clear liquid content. The acquired ones, generally, are multiloculated and it is considered that they can be secondary to cystic dilatation of the corpuscles of Hassall. Acquired thymic cysts are associated with conditions of a diverse nature including: infection, HIV, syphilis; autoimmune disease: myasthenia gravis, systemic lupus erythematosus, and Sjögren syndrome; neoplasia: thymoma, thymic carcinoma, lymphoma, germ cell tumor, or lymphoid hyperplasia, trauma, and radiation therapy. Thymic cysts acquired in most patients are multi-loculated, with thick, fibrous walls (2-6).

The diagnosis of thymic cyst is generally incidental: a significant percentage of patients are asymptomatic. However, large lesions can compress adjacent structures with symptoms such as chest pain, dyspnea, superior vena cava syndrome and fever in cases of underlying inflammatory process (5, 6). In conventional radiography, TCs are indistinguishable from other mediastinal masses. Ultrasound is useful in the evaluation of the thymus in the paediatric population and in cases of cervical thymic cyst (3, 7-9). However, the usefulness of ultrasound is limited in the assessment of mediastinum in adult patients (3, 10).

CT and MRI are the diagnostic imaging methods of choice for the study of patients with suspected mediastinal mass (3, 9).

Congenital thymic cysts are manifested in CT scans as fluid-dense masses with thin, sometimes imperceptible walls. In MRI the cyst content is low signal in sequences with T1 information and high signal in sequences weighted in T2. In patients with complications such as infection or bleeding, unilateral thymic cysts may show a higher density and simulate a solid lesion. In MRI, complicated cysts appear with variable signal strength at T1.

Acquired thymic cysts have thick walls and multiple high signal septa in sequences with T2 information, which can be enhanced in sequences with T1 information with contrast medium (3, 10-12). In some cases, areas with soft tissue density suggesting associated inflammatory changes or concomitant neoplasms, such as thymoma (10.9%) or thymic carcinoma (18.2%) (12, 13) may be evident. Additionally, thymic cysts may have calcifications on the wall (11).

In histopathological analysis, congenital thymic cysts are characterized by a thin wall lined with squamous cells and atrophic thymic tissue on the periphery, with no associated inflammatory changes. Acquired thymic cysts have a thick wall secondary to inflammatory infiltrate, contain cloudy or gelatinous fluid, and are surrounded by squamous, cubic, or columnar epithelium which, in some cases, may be hairy. Septa may contain Hassall corpuscles and hyperplastic lymphoid follicles with well-formed germ centers (12, 14, 15).

Histopathological analysis is essential to rule out differential diagnoses including: cystic teratoma, lymphangioma, hemangioma, thymoma and seminoma (3, 5) (Table 1).

The treatment of cystic neoplasms of the mediastinum depends on the symptomatology, size of the lesion and associated pathologies. Symptomatic lesions must be resected and the technique will depend on the size of the lesion. In cases of thymic cysts and concomitant malignant lesion, treatment should focus on malignant neoplasia (1, 16, 17).

The case presented is of interest because it is a large, multi-loculated, presumably acquired, thymic cyst with no significant history or associated condition evident at the time of diagnosis.

In conclusion, in the differential diagnosis of anterior mediastinal cystic lesions in adults, the thymic cyst should be considered.



Figure 1. Chest CT with contrast medium in window for mediastinum. Cystic mass in the anterior mediastinum, which does not invade adjacent structures.

**Table 1. Differential diagnosis of cystic masses in the anterior mediastinum**

Differential diagnosis	Generalidades	Symptoms	Radiological findings
Teratoma	Adolescents and young adults.	Generally asymptomatic. Symptoms are secondary to compression of adjacent structures.	Mass of well-defined edges and heterogeneous density by tissue originating in the three embryonic layers (soft tissue, adipose tissue, calcium and cystic component).
Thymoma	40% of thymomas have cystic degeneration. Fifth-sixth decade of life. It is associated with immune alterations (opportunistic infections, myasthenia gravis, hemolytic anemia).	Variable symptoms depending on tumor invasion and concomitant immune alteration.	Mass originated in a lobe, with solid component (nodular) and areas of low signal related to necrosis, hemorrhage and cystic degeneration, with thick wall and fibrotic septa. In MRI, the cystic component signal is low or intermediate in sequences with T1 information and high in sequences with T2 information. In some cases it may present pleural dissemination (invasive thymoma).
Lymphangioma	90% appear before the age of 2 years. Those located only in the mediastinum are less than 1%.	Generally asymptomatic. They can be complicated with infection, bleeding and rupture, with secondary chylothorax.	Mass usually of cervical origin, well-defined edges, lobed, multi-cystic, infiltrative, water-like density, with septa that enhance minimally after administration of contrast medium. In MRI they present intermediate signal in sequences with T1 information and are high signal in sequences with T2 information.

Source: Vargas and collaborators (3); Choi and collaborators (18); Ong and Teo (19); Raad and collaborators (20); Engels (21).

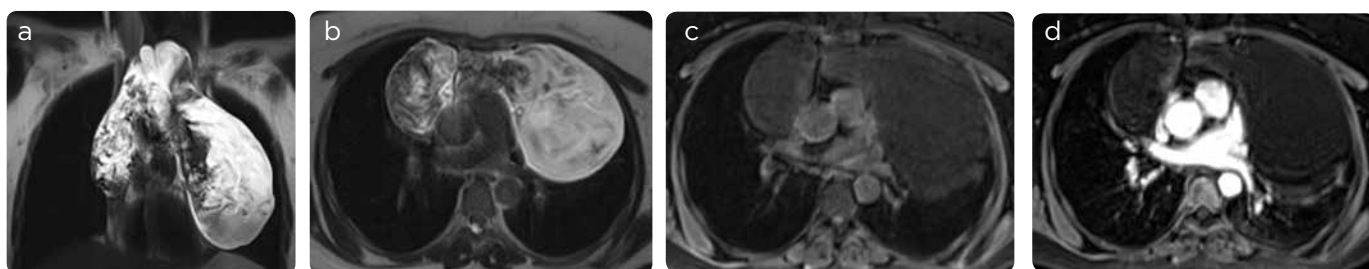


Figure 2. Chest MRI with contrast medium. Sequences with information T2 a) coronal and b) axial; sequences with information T1 c) axial with fat saturation pre and d) after administration of contrast medium. Cystic lesion, located in the anterior mediastinum, heterogeneous, with regions of low signal in sequences with T2 information suggestive of fibrous bands and detritus: triangular and lobed, suggestive of thymic origin, without enhancement with contrast medium, restriction of diffusion or signs of invasion to adjacent mediastinal structures.



Figure 3. Surgical piece. Cystic lesion dependent on the thymus, lobed, encompassing (without invading) the superior vena cava, pericardium, innominate vein and left phrenic nerve.

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