On physical examination, the patient was hydrated, acyanotic, anicteric, eupneic, afebrile, with healthy coloring, in regular general condition, and had neither jugular venous distension nor peripheral edema. His blood pressure was 140/100 mmHg and his heart rate was 120 bpm. His pulses were palpable, symmetric, rhythmic, with no changes in peripheral perfusion. The ictus cordis was located on the fifth left intercostal space, at the level of the left midclavicular line, and had approximately 2 digital pulps. The cardiac sounds had normal intensity and no cardiac murmur was heard. On pulmonary auscultation, the respiratory sounds were present bilaterally, and no rales were heard. The abdomen was flat, flaccid with hydro-aerial noises, not tender on palpation, and no visceromegaly was observed.

The biochemical tests and electrocardiogram showed no changes. On chest radiography, a mild enlargement of the cardiac area was observed with an expanding lesion in the anteroinferior mediastinum, in continuity with the cardiac image (fig. 1). The esophagogram showed no signs of extrinsic compression of the esophagus. Upper digestive endoscopy showed only a mild enanthematic antral gastritis.

Transthoracic echodopplercardiography showed a mild extrinsic compression of the anterolateral region of the right atrium. The transesophageal echocardiogram confirmed this compression with no significant hemodynamic repercussions, and the presence of a mild systolic reflux (escape) in the tricuspid valve (fig. 2).

To complement the investigation, the patient underwent chest computed tomography performed with 5- and 10-mm-thick axial sections after intravenous infusion of contrast medium. The tomography revealed the presence of an expanding lesion with a fat attenuation coefficient, regular and precise contours, located in the anterior mediastinum to the right, slightly deviating from the right atrium posteriorly. The lesion measured 12.0 x 7.4 x 9.6 cm and was suggestive of thymolipoma or pericardial lipoma (fig. 3).

With these hypotheses, the patient was referred for surgical treatment. Thoracotomy provided complete excision of the tumoral mass, which weighed approximately 580 g. No regional macroscopic metastases were evident, and later anatomicopathological examination confirmed the diagnosis of thymolipoma (fig. 4).
Chest Pain due to Right Atrial Compression Caused by a Thymolipoma

Increase in the amount of thymic tissue itself. These tumors were also thought to be a combination of lipoma and thymoma, and the predominance of fatty tissue could represent a normal involution of the organ. However, the normal appearance of the thymic tissue refutes this affirmation. Finally, another hypothesis postulates that these tumors begin as a true thymic hyperplasia (ie, an increase in the amount of normal thymic tissue), which, later, degenerates to fatty tissue.

Grossly, thymolipomas are yellow, have a soft consistency and a bilobular configuration, which makes them very similar to the normal thymic gland. They are usually large and may become huge masses. In 68% of the cases published, these tumors weighed more than 500 g, and, in 23% of the cases, they exceeded 2,000 g. The largest tumor described weighed more than 12,000 g.

Microscopically, they are formed by adult fatty tissue intermingled with normal thymic tissue. In typical cases, germinal centers are not observed, as in the cases detected with thymic hyperplasia.

Small thymomas have no radiological particularities that allow their differentiation from other anterior mediastinal masses. However, as already mentioned, those tumors are usually large, and, due to their consistency, they tend to descend to the diaphragm. The tumors adapt to the diaphragmatic contour, being situated in an inferior position, and leaving the superior mediastinum relatively free. Sometimes the content of the tumors may help in differentiating them from other mediastinal masses due to their relative radiolucency, a characteristic that, on some occasions, may be observed on chest radiography, but is more clearly identified on tomography.

Typically, thymomas cause few symptoms, unless they reach large dimensions. Thus, these lesions may be occasionally discovered during imaging examinations in completely asymptomatic patients.

In our patient, the symptoms of chest pain and dyspnea occurred typically because of the compressive characteristic of the tumor, which, due to its significant volume, compressed the right atrium, causing hemodynamic alterations. These hemodynamic alterations not only changed the venous flows at the entrance of the right atrium and tricuspid valve, but also caused changes in the coronary reserve flow, which may certainly have contributed to the symptoms of chest pain and dyspnea of the patient. These symptoms may also have been aggravated by the degree of heart
Chest Pain due to Right Atrial Compression Caused by a Thymolipoma

compression of the tumor, because they used to worsen with
certain positions adopted by the patient.

Rare cases have been reported on the association with myas-
thenia gravis 8,9, aplastic anemia 10, Graves’ disease, erythrocytic
hypoplasia, and hypogammaglobulinemia 8. The behavior of these
tumors is usually benign, and no recurrences have been reported
after resection.

Early diagnosis should be the major objective of the clinician.
This will only be possible if a high degree of clinical suspicion and
a pathophysiological perspective exist, because the patients are
usually young, oligosymptomatic, and, many times, have no known
risk factors for cardiovascular disease. Therefore, we emphasize
the importance of considering mediastinal tumors as a differential
diagnosis of patients with chest pain.

References

1. Haynes BF. Human thymic epithelium and T cell development: Current issues and
2. Hall GFM. A case of thymolipoma with observations on a possible relationship to
875.
5. Rosai J, Levine GD. Atlas of Tumor Pathology: Tumors of the Thymus. Second
6. Marchevsky AM, Kaneko M. Surgical Pathology of the Mediastinum. 2nd ed. New
York: Raven, 1992; 151-54.
7. Yeh HC, Gordon a, Kirschner PA, et al. Computed tomography and sonography of
10. Barnes RDS, O’Gorman P. Two cases of aplastic anaemia associated with