Thymolipoma of the Anterior Mediastinum: Videothoracoscopic Removal Using a Bilateral Approach

G. Ferrari, M. Paci, G. Sgarbi
Division of Thoracic Surgery, Arcispedale Santa Maria Nuova, Reggio Emilia, Italy

Abstract

Thymolipoma, a rare benign neoplasm of the anterior mediastinum, is often asymptomatic and as a result it can become quite large before it is diagnosed. CT is the most accurate diagnostic technique to identify the adipose tissue, but it often cannot make a differential diagnosis differentiating it from other anterior mediastinal masses; transthoracic biopsy also reveals the presence of fatty tissue, but a definitive diagnosis can only be achieved by means of surgical excision, which is also curative. We describe the case of a young woman who presented with a fatty neoplasm of the anterior mediastinum. The mass was removed using single-stage bilateral sequential videothoracoscopy. The histopathological diagnosis was thymolipoma.

Key words
Thymolipoma · mediastinum neoplasms · thymus neoplasms · videothoracoscopy · mediastinal tumor

Introduction

Thymolipoma is a rare benign tumor of the thymus consisting of mature adipose cells and thymus tissue. Its incidence is similar in males and females, and it is most frequently found in young adults [1]. It is occasionally associated with other pathologies such as aplastic anemia, Graves’ disease, myasthenia gravis, lymphangiomata, chronic lymphatic leukemia, Hodgkin’s disease, erythematous systemic lupus, hypogammaglobulinemia, and erythroblastopenia [2].

It is a slow growing tumor and as most patients are asymptomatic, with the exception of some local, non-specific symptoms, thymolipoma can be quite large by the time it is finally diagnosed. Standard radiological tests are rarely able to distinguish it from other anterior mediastinal tumors, which explains the necessity of a histological diagnosis [3].

We describe the case of a symptomatic anterior mediastinal thymolipoma, with involvement of both hemithorax, removed by means of bilateral sequential videothoracoscopy.

Case Report

A 23-year-old Dominican woman, hospitalized in the department of emergency medicine because of anterior chest pain, was sent to our department due to the finding on standard chest radiographs of a large mass on the anterior mediastinum, initially diagnosed as cardiomegaly (Fig. 1). Electrocardiogram showed sinus tachycardia. The cardiac enzymogram was negative, and the echocardiogram revealed a right para-atrial and left para-ventricular voluminous mass with minimal insufficiency of the mitral valve and the aortic valve. Computed tomography (CT) scan demonstrated a voluminous mass with a maximum transverse diameter of 15 cm of predominantly fat density with strands of soft tissue attenuation located in the anterior mediastinum and extending to the anterior cardiophrenic angle (Fig. 2). Magnetic resonance imaging studies (MRI) showed areas of high signal intensity on T1-weighted images intermixed with areas of intermediate intensity (Fig. 3). A transthoracic biopsy revealed the presence of fatty tissue. The patient reported previous episodes of anterior chest pain of minor intensity and abdominoplasty and bilateral reduction mammoplasty two years earlier in South America, which made it impossible to make a comparison with previous radiographs. Pulmonary function tests showed a

Bibliography

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slight decrease in forced expiratory volume (FEV1) 2.69 l (86% of predicted volume).

The surgical procedure was performed under general double-lumen endotracheal anesthesia. The patient was placed in a lateral decubitus position and deflation of the lung was obtained by single-lumen ventilation. The thoracoscope was inserted through a 1.2-cm intercostal incision in the sixth intercostal space in the midaxillary line using a 10-mm diameter trocar. Two additional incisions were made after inspection of the pleural cavity was completed. Standard videothoracoscopy techniques were employed. The procedure was performed as a single-stage bilateral procedure. On the left side, strong adhesions to the pericardium were present and had to be lysated with electrocautery. Intraoperative biopsies were performed to confirm the benign nature of the neoplasm. Once the phrenic nerve was identified, the mediastinal pleura was opened and the neoplasm was isolated and resected along the midline with electrocautery, splitting the left side from the right one. The left portion of the mass was subsequently removed into an endobag through one of the enlarged incisions for the trocar. On the right, after opening the mediastinal pleura, the mass was easily and completely removed into an endobag once the thymic veins were sectioned with clips. The single portions were partially subdivided inside the endobag before being extracted from the chest. Bilateral pleural chest tubes were placed and removed one day after the procedure. No postsurgical complication occurred and the patient was discharged on postoperative day 4.

Grossly, the lesion was composed of yellow tissue with some whitish solid areas. Microscopically, it consisted of mature fat mixed with unremarkable thymic tissue (Fig. 4). A diagnosis of thymolipoma was given. The patient is alive and well and has had no evidence of recurrence in the 2 years since surgery.

Discussion

The term thymolipoma was introduced in 1949 by Hall. The pathogenesis is unclear. It is a rare, benign, slow growing tumor, accounting for 2 – 9% of all thymic neoplasms, and is made up of elements of varying embryonic origin, both mesodermal (fat) and endodermal (thymus epithelium) [3]. Generally, it is well encapsulated, lobulated, and does not infiltrate adjacent structures. Although many authors have reported that it is not a very symptomatic neoplasm, there have been studies where more than 50% of patients presented with symptoms [5], the most frequently reported being shortness of breath, chest pain, upper respiratory infections and chest heaviness. It is associated with myasthenia gravis in 10% of cases, as well as with aplastic anemia, Graves’ disease, lymphangioma, chronic lymphatic leukemia, Hodgkin’s disease, erythematous systemic lupus, hypogammaglobulinemia.
and erythroblastopenia [2]. The tumors can be mistaken for cardiomegaly, as in the case described here. A chest CT permits better morphologic definition, while an MRI is not essential in most cases [6]. However, diagnosis cannot be made based only on radiological tests; a surgical biopsy is necessary. As thorascopic biopsy with a fine needle or with tru-cut cannot provide a differential diagnosis differentiating it from other benign tumors of the anterior mediastinum such as lipoma or a mature teratoma or low-grade malignant tumors like the well-differentiated (lipoma-like) liposarcoma [7]. Surgery is required and represents the treatment of choice. The cases thus far reported were treated using traditional surgery with a sternotomy or thoracotomy, with the exception of one case where a robot was used [8]. In the case we describe here, the tumor was removed by means of a minimally-invasive, single-stage, bilateral videothoracoscopy. Since thymolipomas are benign neoplasms and no recurrence after resection has been reported, videothoracoscopy allows the neoplasm to be completely removed with optimal control of the extent of surgical radicality while avoiding disproportionately large thoracotomies or sternotomies thanks to the possibility of carefully exploring the entire mediastinal cavity. This procedure, however, is not recommended for malignant or low grade tumors such as lipoma-like liposarcoma, in which the risk of recurrence due to tumor cell spread into pleural cavities is relevant. This method is easy and accurate, provided one has experience with videothoracoscopy.

In conclusion, thymolipoma is a rare, well encapsulated neoplasm of the thymus which should be treated by surgical intervention. The outcome after removal is excellent and no cases of malignant transformation or local recurrence have been reported in the literature. Videothoracoscopic removal is a safe and reliable procedure which makes it possible to remove this voluminous mass without any esthetic or functional disadvantages and which does not expose the patient to an increased risk of recurrence. In addition, when dealing with voluminous neoplasms that involve both the hemithoraces, bilateral access guarantees more accurate radicalization.

References


Correspondence: Dr. Massimiliano Paci · Chirurgia Toracica · Ospedale S. Maria Nuova · Viale Risorgimento 80 · 42100 Reggio Emilia · Italy · Phone: +39 522 29 69 29 · Fax: +39 522 29 62 66 · E-mail: paci.massimiliano@asmn.re.it

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