Case Report

Giant thymolipoma of mediastinum and neck – initially misdiagnosed as liposarcoma by core needle biopsy

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Abstract

Thymolipomas are rare benign tumors, constituting one of the differential diagnoses of an anterior mediastinal mass. These tumors may have an indolent, asymptomatic course, often achieving massive dimensions before presentation. When it is symptomatic, respiratory symptoms predominate. We report a case of thymolipoma in a 30-year-old male complaining of heaviness and constricting type of chest pain and neck swelling of 1-year duration. Computed tomography scan finding revealed a space-occupying lesion in the anterior mediastinum and extend to the right side of the mediastinum, neck, and left hemithorax. A sono-guided core needle biopsy was carried out which identified an atypical cell and was suspicious to liposarcoma. The tumor was completely excised through "posterolateral thoracotomy." Postoperative histopathological examination confirmed the diagnosis of thymolipoma. This is the second case we have reported from our institution.

Keywords: Anterior mediastinum, liposarcoma, thymolipoma

Introduction

Thymolipomas (TLs) are rare anterior mediastinal tumors composed of mature adipose tissue and benign thymic tissue arising from the thymus gland. This tumor accounts for only a small percentage of mediastinal masses.[1,2] The majority of these tumors are clinically quiescent; however, symptomatic patients may present with dyspnea, tachypnea, chest pain, upper respiratory tract infections, and rarely myasthenia gravis.[3-5] Diagnosis should be confirmed radiologically during the preoperative work-up, with pathognomonic features demonstrated on both computed tomography (CT) scan and magnetic resonance imaging (MRI) and with fine-needle aspiration biopsy (FNAB).[4,6-9] TLs are benign neoplasms for which complete surgical excision is curative.[4] Here we report a case of TL in a 35-year-old male complaining of heaviness and constricting type of chest pain, dyspnea, and neck swelling of 2-year duration.

Case Report

The patient is a 35-year-old male presenting with progressive chest pain, cough, dyspnea, and right side neck swelling for the last 2 years. Symptoms have been increased from the last 2 month. On physical examination, on the right side of the neck a soft tissue mass was palpable. From the past medical history, he had a severe car accident 2 years ago and a chest tube was inserted in the right hemithorax because of hemothorax and laparotomy. Breath sound in the right hemithorax was

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absent. Chest X Ray showed complete opacification of the right hemithorax. Pulmonary function tests showed a decrease in forced vital capacity (47% predicted) and forced expiratory volume (42% predicted) with a total lung capacity of only 72%. These findings were interpreted as being consistent with mixed obstructive and restrictive lung disease. During his diagnostic evaluation, a CT scan was performed. CT scan revealed a huge mass on the right hemithorax which extended to the left hemithorax and the neck; the mass caused a complete right lung collapse and mediastinal shifting to the left side and compressed the heart. The radiologist's report revealed liposarcoma or teratoma [Figures 1-3]. Hematological and serological investigations including tumor markers (alpha-fetoprotein, lactate dehydrogenase, beta-human chorionic gonadotropin, and alkaline phosphatase) were normal.

A sono-guided core needle biopsy was carried out which identified an atypical cell and was suspicious to liposarcoma. A right extensive posterolateral thoracotomy was performed via the fifth intercostal space. A large, encapsulated, vaguely lobulated mass was found within the anterior mediastinum. The mass arose in the anterior mediastinal fat, increasing in size as it extended upward to the right side of the neck and extended to the left hemithorax, compressed the heart, reached its lowest level at the diaphragm, and shifted the mediastinum to the left. The mass occupied approximately 90% of the right and 30% of the left pleural cavity, which resulted in complete collapse of the right lung and partial collapse of the left upper lobe [Figures 1-4]. After tumor dissection and ligation of the blood vessels, first the right hemithorax and the mediastinal mass were resected completely. For prevention of re-expansion pulmonary edema, we did not re-expand the right lung rapidly. Neck portion of the mass was resected via the mediastinum. The left side mediastinal and pleural portion was resected completely. The weight of the mass was 5000 g [Figures 5 and 6]. In the cut section, it primarily consisted of mature-appearing adipose tissue with no area of hemorrhage or necrosis. There were no postoperative complications and the patient was discharged on day 5 after surgery. Pathology examination results showed a tumor measuring 31 × 21 × 8 cm, consisting of fatty tissue and thymic parenchyma [Figure 7]. There were also foci of collagenous fibrosis and accumulation of cholesterol crystals. No signs of malignant disease were observed. Final pathologist report revealed TL. The patient remains asymptomatic during the sixth month follow-up.

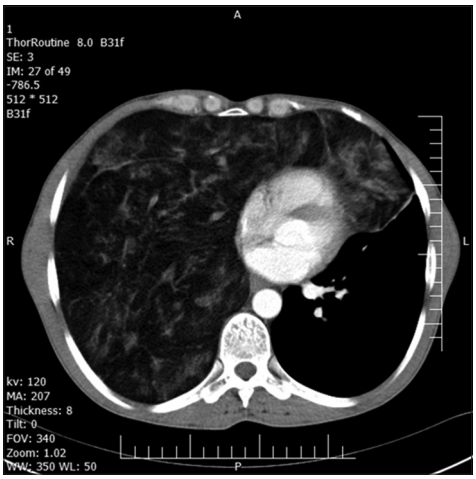

Figure 1: Computed tomography scan of the chest

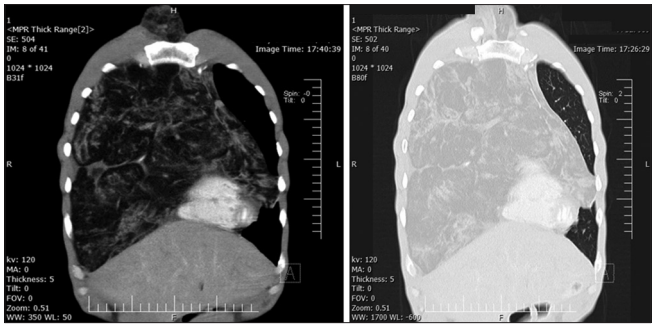

Figure 3: Sagittal CT scan of chest showing a mass to occupying total right hemithorax and extend to left hemithorax with strands and islands of soft fatty tissue

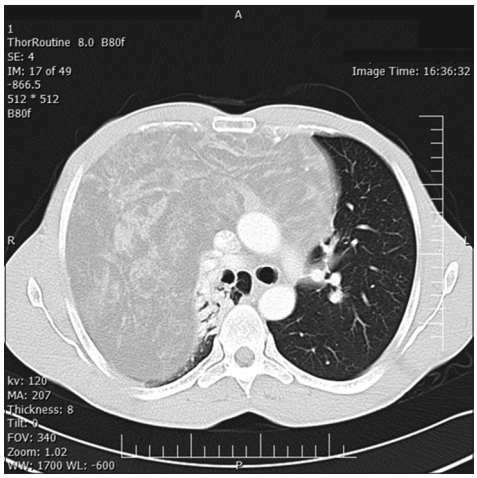

Figure 2: Anterior mediastinal fatty tissue mass with strands and islands of soft tissue with extension to occupying total right hemithorax and to left hemithorax

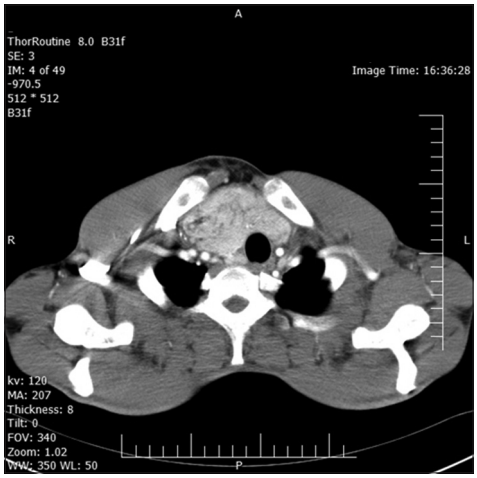

Figure 4: Axial CT scan of chest showing mass extension to neck

Discussion

TLs are very rare, slow-growing mediastinal tumors, accounting for only 2–9% of all thymus tumors.[9] TLs are characterized by mesodermic (fatty) and endodermic (thymic epithelium) elements.[5] TL is a very rare mediastinal tumor composing mature adipose and thymic tissue arising from the thymus gland. It is a rare and benign mesenchymal tumor of the mediastinum that is often asymptomatic.[4] This tumor accounts for only a small

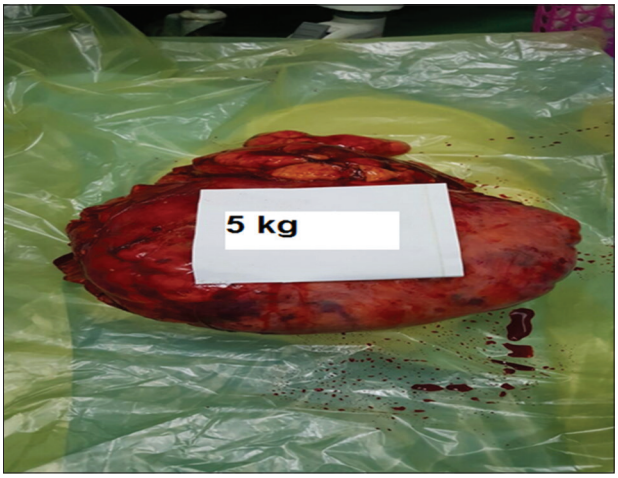

Figure 5: Weight of Resected specimen (Macroscopic)

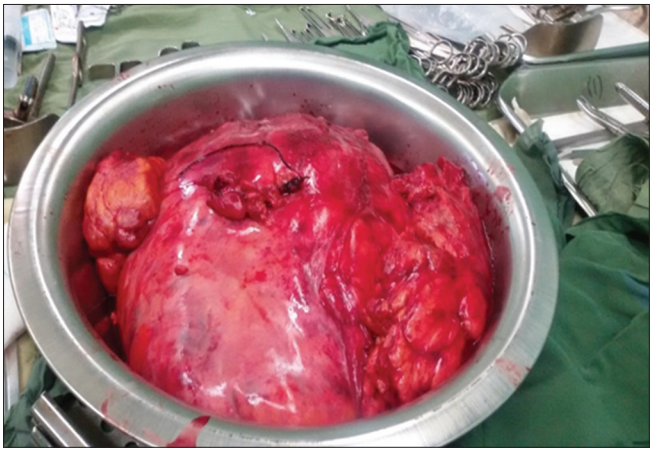

Figure 6: Resected specimen: Thymolipoma

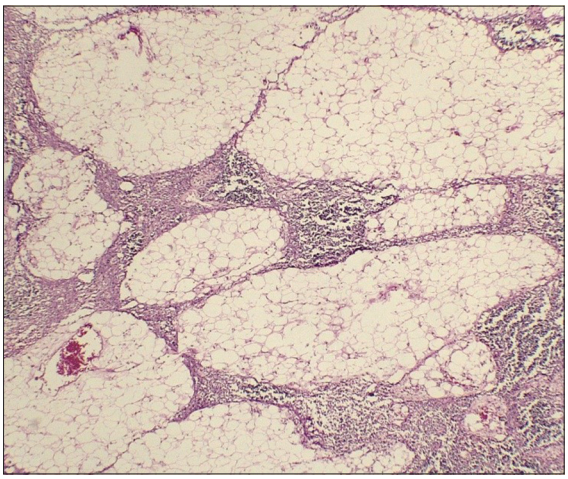

Figure 7: Resected specimen: Thymolipoma (Microscopic)

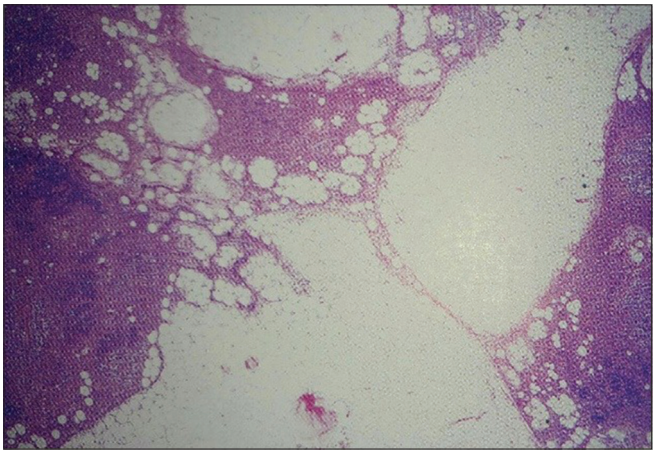

Figure 8: Pathology of mass

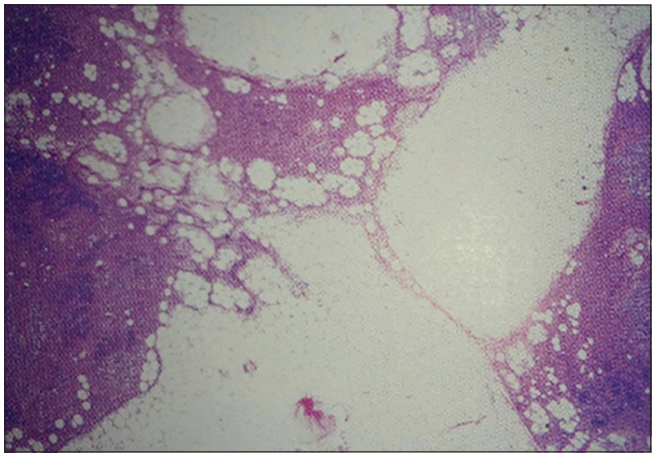

Figure 9: The lesion is composed of an admixture of mature adipose tissue and microscopically normal thymus admixture of mature adipose tissue and unremarkable thymic tissue

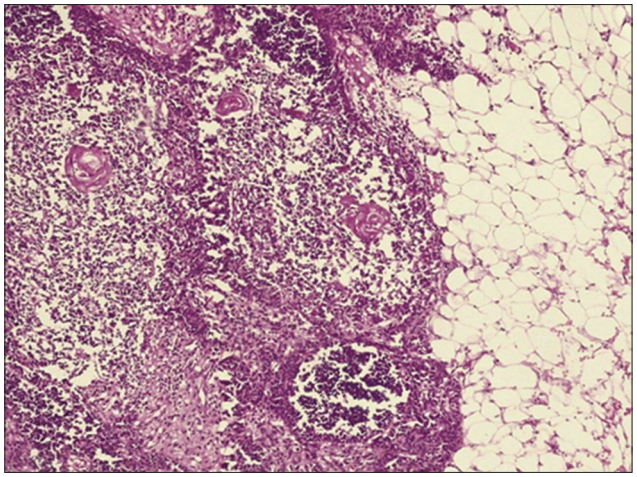

Figure 10: Mature adipose tissue admixed by normal thymus containing epithelial cells, thymic lymphocytes, and Hassall's corpuscles

percentage of mediastinal tumors.[5,7] They are lobulated and well encapsulated, with septal divisions.[7] They consist of large lobules of mature adipose tissue interspersed with small areas of thymic tissue [Figures 8-10].[5] TL usually presents as asymptomatic tumors.[5] When the patient does have symptoms, these are usually due to compression of adjacent structures.[5] In our case, dyspnea and chest wall pain may have been due to pulmonary and mediastinal compression. Occasionally, this benign tumor may be associated with certain autoimmune disorders, such as myasthenia gravis, hypogammaglobulinemia, or red cell aplasia.[5] None of these were observed in our patient. Although the finding of soft fatty tissue within the tumor with no invasion of adjacent structures on imaging studies clearly suggests a diagnosis of TL, it is impossible to make a definitive diagnosis or to even distinguish benign disease from malignancy.[5] Differential diagnosis includes other adipose tumors, such as prominent epicardial fat pad, lipomas, liposarcomas, or thymoliposarcomas.[2] Nevertheless, although radiological signs may be nonspecific, CT and MRI can still offer useful data.[2] The characteristic signs of TL on CT consist of a fatty tissue with strands of white tissue, probably corresponding to the islets of normal thymic components.[5] In T1-weighted MRI, fatty tumor tissue is isointense, and in T2-weighted sequences it is suppressed, while the thymic tissue remains are enhanced.[5] Differential diagnosis includes other adipose tumors such as prominent epicardial fat pad, lipomas, liposarcomas, or thymoliposarcomas.[5] Definitive diagnosis is based on histopathological findings. We must consider whether a preoperative FNAB is really necessary in all patients with radiological suspicion of TL.[6-8] Heimann *et al.*[6] published the first description of a TL diagnosed using this technique in 1987. However, the role of FNAB in these cases is controversial.[5,6] It is not always easy to differentiate between a TL and other fatty mediastinal lesions, such as well-differentiated liposarcoma.[5] Romero-Guadarrama *et al.*[7] reported a false-positive result on FNAB in a patient with an erroneous diagnosis of well-differentiated liposarcoma.[6-8] On the other hand, Gupta *et al.*[8] recently published the case of a child diagnosed from a cytology specimen obtained by endoscopic ultrasound-guided FNA. We decided to perform core needle biopsy in our patient, but would not have ruled out the need for surgery, and after complete surgery of the neck and mediastinal mass, the pathologist report revealed TL.

The only curative treatment of TL is surgical excision. This treatment is helpful in reducing symptoms caused by the compression of adjacent structures and autoimmune diseases.[5,7] Various surgical approaches have been described, including thoracotomy,[2,4] sternotomy,[5,6,10] or video-assisted thoracoscopy.[11] The decision must be tailored to tumor size and site. We used posterolateral thoracotomy and removed all of right side and left side of mediastinum and cervical portion parts of mass.

Conclusion

TL is a very rare benign mediastinal tumor, consisting of thymic and fatty tissues. Preoperative diagnosis is frequently based on CT and MRI findings. The use of FNAB remains controversial but should be kept in mind.[2,4] Surgical intervention is the only cure and also provides the definitive diagnosis.

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Conflicts of interest

There are no conflicts of interest.

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