



Case report

## Primary mediastinal liposarcoma - computed tomography and pathological findings: a case report

Fabiana Barroso Thomaz<sup>1</sup>, Edson Marchiori<sup>2\*</sup>, Anderson Nassar Guimarães<sup>1</sup>,  
Isabela Fernandes de Magalhães<sup>1</sup>, Fabio Vargas Magalhães<sup>1</sup>,  
Letícia Pereira Gonçalves<sup>1</sup> and Romeu Cortes Domingues<sup>1</sup>

Addresses: <sup>1</sup>CDPI- Clínica de Diagnóstico por Imagem, Centro Médico Barrashopping, Avenida das Américas, 4666, grupos 302A, 303, 307, 325, 326. CEP 22631-004. Barra da Tijuca. Rio de Janeiro, Brazil

<sup>2</sup>Department of Radiology, Faculty of Medicine, Federal University of Rio de Janeiro. Rua Professor Rodolpho Paulo Rocco, 255. Cidade Universitária. CEP 21941-913. Rio de Janeiro, Brazil

Email: FBT - fabianabt@terra.com.br; EM\* - edmarchiori@gmail.com; ANG - andersonnassar@uol.com.br; IFdM - isamagalhaes13@hotmail.com; FVM - magalhaesfv@gmail.com; LPG - lpgoncalves@hotmail.com; RCD - romeu@cdpi.com.br

\* Corresponding author

Received: 24 January 2009 Accepted: 1 July 2009 Published: 7 August 2009

Cases Journal 2009, 2:8703 doi: 10.4076/1757-1626-2-8703

This article is available from: <http://casesjournal.com/casesjournal/article/view/8703>

© 2009 Thomaz et al.; licensee Cases Network Ltd.

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/3.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

### Abstract

Liposarcomas are the most common soft tissue sarcoma of adults, and primary mediastinal liposarcomas are rare. We present a case of a 50-year-old man with primary mediastinal liposarcoma without any invasion into the surrounding structures, such as the esophagus, trachea, or left atrium of the heart. Following surgical removal of the liposarcoma, the patient has had no recurrence after one year. Surgical removal is the treatment of choice for a mediastinal liposarcoma; however, careful long-term follow-up is necessary because the recurrence rate is very high.

### Introduction

Liposarcomas are the most common soft tissue sarcoma of adults, usually arising in the extremities or the retro-peritoneum. Primary mediastinal liposarcomas are rare, representing less than 1% of all mediastinal tumors [1]; because of this rarity, documentation in the literature is limited. Here we present a case of primary mediastinal liposarcoma in a 50-year-old man that was successfully managed by complete surgical excision.

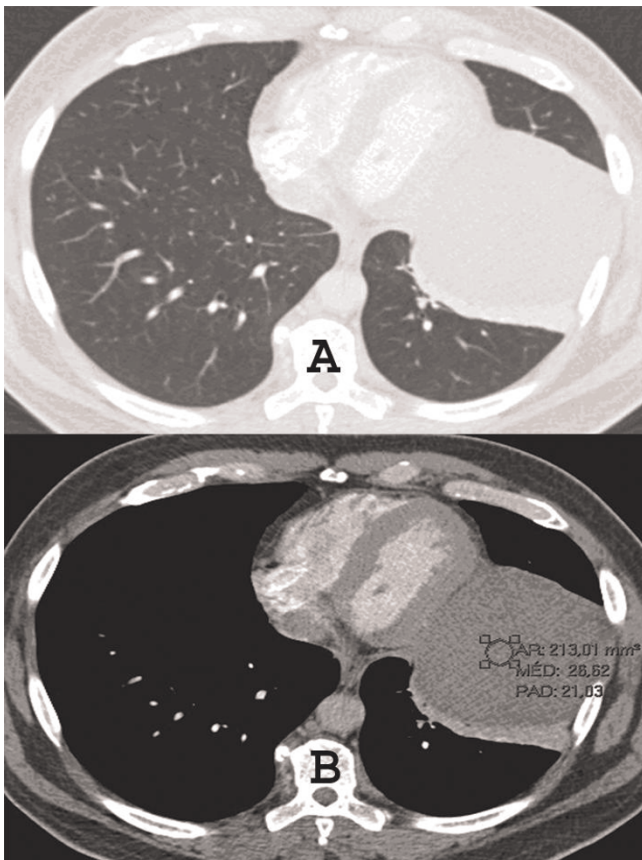
### Case presentation

A 50-year-old Caucasian Brazilian man with left-side chest pain was found to have a mass in the left lower hemithorax in a chest x-ray, and he was referred to our clinic. Physical

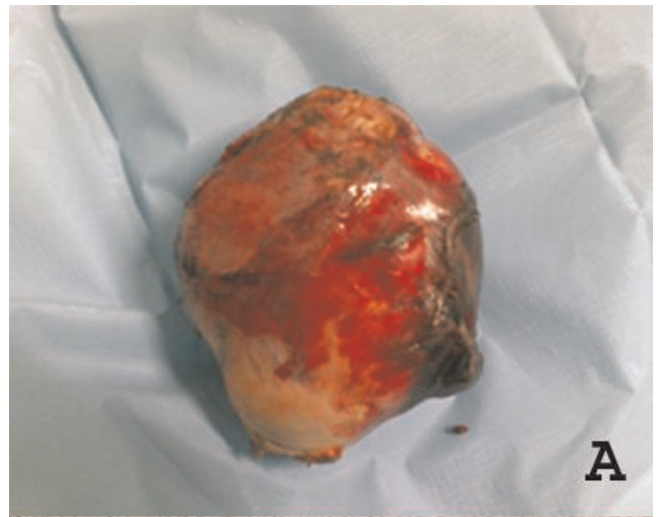
examination showed dullness on percussion and bilateral decreased breath sounds. Laboratory data, respiratory function tests, and arterial blood gas analyses were within normal limits. The chest x-ray demonstrated a well defined mass in the left lower hemithorax (Figure 1). Chest computed tomography (CT) demonstrated a large, smooth, well-defined mass with soft tissue density (+27 UH) in the basal region of the left hemithorax (Figure 2). Cranial and abdominal CT to detect distant metastasis showed no abnormal findings. Complete surgical excision was attempted. The tumor was found to contain multiple individually encapsulated locules without any invasion into surrounding structures such as the esophagus, trachea, or left atrium of the heart. The tumor measured



**Figure 1.** Posteroanterior chest radiograph demonstrates a large, smooth, well-defined mass in the left lower hemithorax.



**Figure 2.** CT with (A) mediastinal and (B) lung windows shows predominantly a low attenuation mass (+27 UH) without enhancement in the left lower hemithorax.



**Figure 3.** (A) Gross appearance of a pleomorphic liposarcoma arising in the mediastinum. (B) A histologic section of the resected tumor shows the appearance of pleomorphic liposarcoma (HE ×100).

12.5 × 11.5 × 7.0 cm. Histological findings showed pleomorphic liposarcoma (Figure 3). The patient has had no recurrence for one year following this operation.

### Discussion

Liposarcomas most often present in either the deep soft tissue of the limbs or the retroperitoneum, although the overall anatomic distribution is widespread. Although liposarcoma is among the most common soft tissue sarcoma overall, intrathoracic liposarcoma is very rare, representing less than 3% of all liposarcomas [2]. Nine percent of the primary sarcomas in the mediastinum are liposarcomas [3].

In the study of mediastinal liposarcoma by Hahn [4], the average age of patients at the time of diagnosis was

51 years. This is essentially identical to the mean age of patients with liposarcomas of the retroperitoneum or extremities [5]. Although liposarcoma is primarily a disease of adults, previous studies have reported that a significant percentage of mediastinal liposarcomas occur in children and young adults. Klimstra et al [6] found that the average age of patients with anterior mediastinal liposarcomas was 43 years, with 30% between 20 and 35 years of age.

The presenting signs and symptoms are related to tumor size and the direct invasion of contiguous structures. Dyspnea, tachypnea, and wheezing are the most common symptoms, followed by chest pain [7]. Asymptomatic cases discovered by radiological imaging also have been reported [8]. Pathologically, liposarcomas are categorized into five groups: well-differentiated, myxoid, round cell, dedifferentiated, and pleomorphic. The clinical behavior of a given liposarcoma correlates with its histological pattern. The well-differentiated forms are of low-grade malignancy and rarely metastasize. The poorly differentiated ones are often highly aggressive in behavior and they tend to recur and produce metastases in a higher percentage of reported cases. The survival in patients with dedifferentiated or pleomorphic liposarcomas was significantly shorter than in patients with myxoid or well-differentiated liposarcomas [9].

The appearance of mediastinal liposarcomas in CT varies from a predominantly fat-containing mass to a solid mass [10]. Density is related to tumor heterogeneity and the extent of necrosis and the soft tissue component in the liposarcoma [11]. T1-weighted magnetic resonance images show the fat tissue with high signal intensity, whereas the signal intensity diminishes in T2-weighted images. Pleomorphic types showed a markedly heterogeneous internal structure.

Total resection of mediastinal liposarcomas is desirable; however, most tumors arise in surgically inaccessible locations. Thus radiotherapy and chemotherapy may be added as adjuncts to surgical excision, although liposarcomas seem to have low sensitivity to these treatments [11]. Recurrence is common in deep-seated liposarcomas; in most cases, it becomes apparent within the first 6 months, but it may be delayed for 5 to 10 years following the initial excision. In conclusion, although liposarcoma is one of the most common soft-tissue sarcomas in adults, mediastinal liposarcoma is rare. Because the recurrence rate after treatment of mediastinal liposarcoma is very high, careful long-term follow-up is necessary.

## Abbreviation

CT, computed tomography.

## Competing interests

The authors declare that they have no competing interests.

## Consent

Written informed consent was obtained from the patient for publication of this case report and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

## Authors' contributions

FBT conceived the study. ANG, IFM, FVM and LPG performed the literature review. FBT, RCD and EM edit and coordinated the manuscript. All authors read and approved the final manuscript.

## References

1. Macchiarini P, Ostertag H: **Uncommon primary mediastinal tumours.** *Lancet Oncol* 2004, **5**:107-118.
2. Kara M, Ozkan M, Dizbay Sak S, Kavukcu ST: **Successful removal of a giant recurrent mediastinal liposarcoma involving both hemithoraces.** *Eur J Cardiothorac Surg* 2001, **20**:647-649.
3. Burt M, Ihde JK, Hajdu SI, Smith JW, Bains MS, Downey R, Martini N, Rusch VW, Ginsberg RJ: **Primary sarcomas of the mediastinum: results of therapy.** *J Thorac Cardiovasc Surg* 1998, **115**:671-680.
4. Hahn HP, Fletcher CD: **Primary mediastinal liposarcoma: clinicopathologic analysis of 24 cases.** *Am J Surg Pathol* 2007, **31**:1868-1874.
5. Evans HL: **Liposarcoma: a study of 55 cases with a reassessment of its classification.** *Am J Surg Pathol* 1979, **3**:507-523.
6. Klimstra DS, Moran CA, Perino G, Koss MN, Rosai J: **Liposarcoma of the anterior mediastinum and thymus. A clinicopathologic study of 28 cases.** *Am J Surg Pathol* 1995, **19**:782-791.
7. Schweitzer DL, Aguam AS: **Primary liposarcoma of the mediastinum. Report of a case and review of the literature.** *J Thorac Cardiovasc Surg* 1977, **74**:83-97.
8. Shibata K, Koga Y, Onitsuka T, Wake N, Ishii K, Sekiya R, Sumiyoshi A: **Primary liposarcoma of the mediastinum—a case report and review of the literature.** *Jpn J Surg* 1986, **16**:277-283.
9. Barbetakis N, Samanidis G, Samanidou E, Kirodimos E, Kiziridou A, Bischiniotis T, Tsilikas C: **Primary mediastinal liposarcoma: a case report.** *J Med Case Reports* 2007, **1**:161.
10. Eisenstat R, Bruce D, Williams LE, Katz DS: **Primary liposarcoma of the mediastinum with coexistent mediastinal lipomatosis.** *AJR Am J Roentgenol* 2000, **174**:572-573.
11. McLean TR, Almassi GH, Hackbarth DA, Janjan NA, Potish RA: **Mediastinal involvement by myxoid liposarcoma.** *Ann Thorac Surg* 1989, **47**:920-921.