CASE REPORT

Posterior mediastinal liposarcoma simulating a lung mass: an unusual case report

Radha Raghavan, P. Raghuram, Preeti V. Parekh and Joe Mathew Kurien

Kidwai Memorial Institute of Oncology, Regional Centre for Cancer Research & Treatment, Dr M.H. Marigowda Road, Bangalore-560 029, India

Corresponding address: Dr Radha Raghavan, #307, Kristal Amber, 8th Main, 14th Cross, BTM 2nd Stage, Bangalore-560 076, India.
Email: drradharaghavan@yahoo.co.in

Data accepted for publication 5 August 2007

Abstract

Liposarcomas constitute approximately 15% of all sarcomas among the mesenchymal neoplasms. They usually arise in the lower extremities or in the retroperitoneum but have been reported in sites such as abdomen, vulva and buttocks. Primary mediastinal liposarcomas (LPS) are rare with less than 100 cases reported worldwide so far. We present an interesting case of primary myxoid LPS of the posterior mediastinum with presenting complaints, imaging diagnosis and management with a review of the current literature.

Keywords: Liposarcoma; myxoid; mediastinal.

Introduction

Liposarcomas constitute approximately 15% of all sarcomas among the mesenchymal neoplasms. They usually arise in the lower extremities or in the retroperitoneum but have been reported in sites such as abdomen, vulva and buttocks. Primary mediastinal liposarcomas (LPS) are rare with less than 100 cases reported worldwide so far. We present an interesting case of primary myxoid LPS of the posterior mediastinum with presenting complaints, imaging diagnosis and management with a review of the current literature.

Case report

A 38-year-old man who was a non-smoker presented to us with a history of breathlessness for 2 months unassociated with cough, chest pain or hemoptysis. There was no loss of weight. Physical examination of the chest revealed diminished air entry in the left lung. Plain chest frontal radiograph revealed a large, lobulated, homogenous mass occupying almost the entire left hemithorax sparing the left base. The mass was found to silhouette the aortic knuckle, left cardiac border and...

Figure 1 Plain chest posteroanterior radiograph shows a mass of homogenous opacity occupying the entire left hemithorax.
the left hilum. There was no shift of mediastinum. The left base, costophrenic angle and hemidiaphragm were normal.

Right lung field and costophrenic angle were normal. Rib cage was also normal (Fig. 1). CT scan of the thorax (plain followed by contrast by administering 100 ml of IV non-ionic contrast) was done (Somatom Art, Siemens, Germany; parameters: 120 kV, 100 mA, slice thickness 8 mm). Non-enhanced computed tomography (NECT) showed a large mixed density mass occupying almost the entire left hemithorax. This mass consisted of predominantly soft tissue densities (+30 to +40 HU) embedded within peripheral circumferential fatty tissue (−70 HU average) (Fig. 2). A speck of calcification was noted in this mass. No evidence of cavitation was noted in this mass. Mild shift of the mediastinum was noted to the right. On contrast-enhanced CT (CECT) there was no contrast enhancement of the mass lesion. The mass was found to abut the chest wall anteriorly and posteriorly. The mass was found to abut the arch of the aorta and the main pulmonary artery, however no infiltration of the same was seen. There was no mediastinal/hilar lymphadenopathy and pleural/pericardial effusion. There was no chest wall invasion. Ultrasound of the abdomen and pelvis was normal. CT guided fine needle biopsy was performed which yielded only fibroadipose tissue. The patient then underwent thoracotomy.

Figure 2 Axial CECT thorax shows a mixed density mass lesion occupying the entire left hemithorax.
At thoracotomy, a posterior mediastinal mass of soft tissue consistency was found to push the entire left lung anteriorly. The mass was found to have minimal adhesions with the left atrium, aorta and the main pulmonary artery which were released. There was no involvement of the left lung or chest wall. No pleural effusion was detected. There was no evidence of mediastinal or hilar lymphadenopathy. The mass was excised and delivered in toto. Postoperatively the left lung showed complete expansion (Fig. 3).

Gross examination of the operative specimen showed a well-encapsulated gray white tumour with intact external capsule. Cut section showed lobulated yellow appearance with myxoid areas. On microscopic examination lipoblasts in varying stages of proliferation with a branching capillary network and myxoid cells were noted. No cellular atypia, mitosis or necrosis was found. These features were consistent with myxoid LPS (Fig. 4).

No chemotherapy or radiotherapy was given postoperatively as no role for either treatment has been definitively established in the current literature for the treatment of LPS. Patient has remained disease free for a follow-up period of 6 months.

**Discussion**

Primary LPS are uncommon neoplasms of the mediastinum with a reported age incidence in patients between 20 and 70 years and a mean peak of 50 years (our patient was 38 years old) and with no particular sex predilection. One of the typical characteristic features of a mediastinal LPS is its ability to attain a very large size and yet remain undetected. Clinical symptoms are due to compression of the lung and mediastinal structures causing respiratory distress (as was seen in our case), chest pain and cough. Grossly LPS are well circumscribed, lobulated masses which infiltrate adjacent viscera and soft tissues. Histologically, five subtypes are recognized.

1) Well differentiated
2) Myxoid LPS (as in our case)
3) Round cell
4) Pleomorphic
5) Mixed cell types.
Accurate histological examination is essential for prognosis as shown by the 5-year survival rates documented in the study by Enterline et al.[3] The purely myxoid form, resulted in a survival rate of about 60% as compared with 10% for the pleomorphic variety. On CT examinations, LPS usually show a homogenous appearance although areas of calcification and ossification can be seen, especially in the myxoid cell type (our case showed a mixed density mass). Normal fat shows a low attenuation level of (−70 to −130 HU), whereas the attenuation of LPS is higher because of its tissue composition (fat + soft tissue as in our case). The CT appearance of LPS correlates closely with the gross and microscopic anatomic findings. Well-differentiated tumours have a CT attenuation more than that of fat (as was in our case), whereas poorly differentiated LPS which are more cellular with less fat per cell have CT attenuation similar to other solid tumours. Another important role of CT in LPS is to determine the complete extent of the mass lesion, which influences surgical planning. In patients where surgical resection is incomplete, a CT scan frequently defines the size and location of residual tumour. Since CT scan alone is not sufficient in most cases to establish a definite pre-operative diagnosis, a histopathological examination is also required.[4]

The management of LPS is mainly surgery with complete excision of the tumour to alleviate complications secondary to displacement and invasion of adjacent vital structures.[4]

Patient survival following surgery is closely related to histopathological type. In cases of well-differentiated LPS, surgery can be curative in nearly all patients with adjuvant radiotherapy reserved for poorly differentiated varieties, unresectable tumours and recurrent tumours. The role of chemotherapy still remains to be determined.[5]

In conclusion primary mediastinal LPS are very rare tumours. A presumptive diagnosis of this tumour can be obtained by chest CT and confirmed by histopathology. Surgery remains the treatment of choice to relieve symptoms and to establish a histological diagnosis (as in our case).[6]

References

[1] Enzinger FM, Weiss SW. Liposarcomas in soft tissue tumours. 3rd. ed. St Louis: CV Mosby, 1995: 431–66.
[2] Dogan R, Ayrancioglu K, Aksu O. Primary mediastinal liposarcoma. A report of a case and review of the literature. Eur J Cardiothorac Surg 1989; 3: 357–70.
[3] Enterline HT, Culberson JD. Liposarcoma: a clinical and pathological study of 53 cases. Cancer 1960; 13: 932–50.
[4] Santamaria G, Serres X, Prune X. Primary mediastinal liposarcomas with moderately high CT attenuation. AJR 1996; 167: 1064–5.
[5] Wong CK, Edwards AT, Res BL. Liposarcoma: a review of current diagnosis and management. Br J Hosp Med 1997; 58: 589–91.
[6] Di Giammarco G, Di Meuro M, Pano M et al. Giant metastatic myxoid liposarcoma of the mediastinum: a case report. J Thorac Cardiovasc Surg 2005; 129: 1440–1.