

## Pleural Liposarcoma: Case Report<sup>1</sup>

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Primary liposarcomas of the pleura are extremely rare soft tissue sarcomas, for which radiographic findings have been reported in only a few cases.

Although liposarcomas occur most commonly in the lower extremities and retroperitoneum, we encountered a case of pleural liposarcoma arising in the right hemithorax, invading the medial basal segment of the right lower lobe.

Thus, herein we report a case of primary pleural liposarcoma, along with a review of the literature.

**Index words :** Pleura, neoplasms  
Liposarcoma

Liposarcomas are the second most common soft tissue sarcomas, following malignant fibrous histiocytoma. Approximately 42% of these tumors occur in the trunk, 41% in the lower extremities, 11% in the upper extremities, and 6% in the head and neck region (1). The chest wall, mediastinum, lung and pleura are far more rare primary sites. Primary pleural liposarcomas are particularly rare and only 17 cases have been reported to date, including one domestic case (2 - 5). Herein, we present a case of pleural liposarcoma invading the lung.

### Case Report

A 33-year-old woman was admitted to our institution for the evaluation of pleural effusion in the right hemithorax.

On admission, she complained of chest pain with a

duration of several months. With regard to her past medical history, she had been involved in a car accident 8 months previously. Physical examination revealed decreased right lung sound. The result of the routine blood tests revealed an increased WBC count (20,000/mm<sup>3</sup>). Examination of the sputum for tubercle bacilli was negative. The ADA level of the pleural fluid was 23 IU/L, suggesting the presence of malignant pleural effusion.

The chest radiograph revealed haziness in the right lower lung zone and pleural effusion in the right hemithorax. CT scanning of the chest showed a lobulated, marginated large inhomogeneous low density mass with a small amount of pleural effusion in the right hemithorax. Most of the mass was composed of low density areas, containing curvilinear enhancing fibrous strands. A small portion of mildly enhancing ill-defined soft tissue density (38 - 64 HU) was found in the upper lateral portion of the mass. A compressive atelectasis was also noted in the right lower lobe. No fatty tissue was delineated on the CT images.

At surgery, the posterolateral and inferior surface of the well encapsulated tumor containing parietal and visceral pleura was divided and resected from the endothoracic fascia and diaphragm. It was observed that the medial side of the tumor invaded the medial basal segment

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of the right lower lobe.

On gross pathological examination, the size of the tumor was measured to be about 11 × 13 cm and weighed approximately 500 gm. The medial half of the tumor was of a dark brown color, with the lateral portion of this half being lipid and fragile. Microscopic examination revealed that the tumor was composed of solid round cells and showed an arborizing delicate vasculature at low power magnification (× 40). A high power view (× 400) showed round to oval cells with atypical round nuclei and some cells which had vacuolated cytoplasm with eccentric placement or scalloping of the nuclei. The vacuolated cells were found to contain fat upon Oil red-O staining and were positive for S-100 immunos-

taining.

## Discussion

Primary liposarcomas are relatively uncommon neoplasms, and are most commonly found in the lower extremities and retroperitoneum, with the peak incidence occurring between the ages of 40 and 60 years.

In previous reports, primary pleural liposarcomas developed predominantly in males, and the mean age was 50 years (4).

Liposarcomas are classified histologically into four main types; (1) well differentiated, (2) myxoid, (3) round cell and (4) pleomorphic(1). Myxoid liposarcoma is said

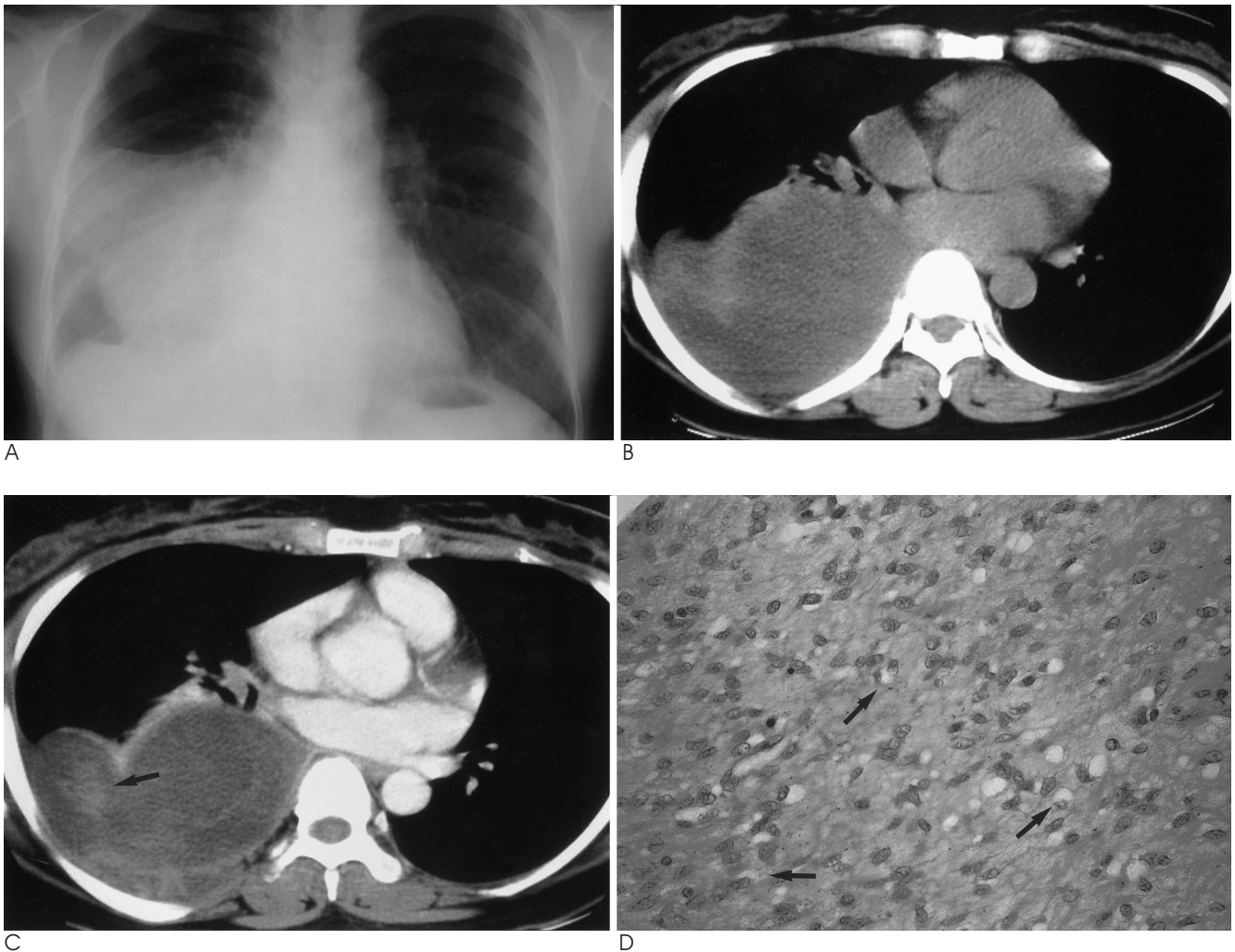


Fig. 1. Pleural liposarcoma in a 33-year-old woman.

A. Chest radiograph revealed haziness in the right lower lung zone and pleural effusion in the right hemithorax.

B, C. Non-enhanced (B) and contrast-enhanced (C) CT scans of the chest showed a large lobulated inhomogeneous low density mass in the right hemithorax. The upper lateral small portion of the mass showed ill defined mildly enhancing soft tissue density (arrow).

D. A high power view (H/E, × 400) showed round to oval shaped cells with atypical round nuclei(round cell) and some cells having vacuolated cytoplasm along with eccentric placement or scalloping of the nuclei(lipoblast)(arrows).

to account for 40-50% of all liposarcomas (6).

On CT scans, the appearance of liposarcomas varies from a predominantly fat-containing mass to a solid mass (1, 6, 7). The computed tomographic appearance correlates closely with the gross and microscopic pathological findings (6, 7). Poorly differentiated tumors of this type, which tend to be quite cellular, have mean attenuation values approaching that of other solid tumors (7). Round-cell liposarcoma is considered to be a more cellular and aggressive form of myxoid liposarcoma. On CT and MR imaging, they typically have a moderate to very inhomogeneous appearance, often containing areas of necrosis, and their enhancement tends to be irregular (1, 8). Pleomorphic and round cell sarcomas are high-grade tumors and, in most cases, contain little or no fat, so it is often difficult to differentiate them from other soft tissue sarcomas (1). Their prognosis, risk of recurrence and metastasis are closely linked to their histology (4, 9).

Our case involved a myxoid and round cell liposarcoma invading the medial segment of the right lower lobe. On the CT scans, the upper lateral portion of the tumor showed increased soft tissue density (approximately 38-64 HU), with the main medial portion of the tumor revealing a cystic appearance (approximately 17-24 HU). The differentiation of the pleural mass invading the lung and the parenchymal mass invading the pleura was difficult on the CT images.

In previous reports of liposarcomas of the chest wall and mediastinum, their differentiation from pleural liposarcoma with chest wall or mediastinal invasion was said to require either careful radiographic evaluation, surgical evaluation or both. In some cases, it may be impossible to define the origin of the tumor. In our case,

the tumor appeared to be growing primarily within the pleural cavity, while chest wall or mediastinal involvement was minimal or absent. Although the diagnosis of pleural liposarcoma can be confirmed histopathologically, one must exclude the possibility of metastases or spread from either the chest wall or mediastinum (4).

In conclusion, we report a new case of pleural liposarcoma and suggest that liposarcomas should be considered in the differential diagnosis of the pleural cystic mass. Although these tumors are very rare and difficult to differentiate from other tumors on radiologic evaluation, careful investigation of the radiologic findings is nevertheless warranted.

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