Spindle cell lipoma: a rare tumor of the mediastinum

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ABSTRACT Spindle cell lipoma (SCL) is a rare mediastinal tumor hard to be differentiated from myxoid liposarcoma. We report a patient with an expanding fat density in the aorto-pulmonary window and with a previous history of invasive melanoma of the left pectoralis and subsequent pulmonary metastases successfully treated with chemotherapy. Preoperative diagnosis of the mediastinal lesion was difficult but crucial to determine further therapeutic plan.

KEY WORDS Mediastinum; liposarcoma; lipoma; melanoma; thoracoscopy; thoracotomy

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A 52-year old man was found to have an enlarging lesion in the fat tissue of the anterior mediastinum (Figure 1). Chest magnetic resonance demonstrated mixed density, mainly fat with fibrous septa and confirmed the suspect of infiltration of the aortic adventitia. However, no metabolic activity was proved by total body PET-CT. Eight years earlier this patient had been diagnosed with melanoma of the left pectoral region with positive sentinel lymph node in the ipsilateral axilla. At one year follow-up chest CT scan, three secondary lung lesions were detected which underwent complete regression following six cycles of chemotherapy. In order to obtain cytological diagnosis, a trans-thoracic fine needle biopsy was performed before admission yielding cytologic features of liposarcoma. However, given the previous history of melanoma, confirmatory biopsy of the mediastinal mass through uniportal video-assisted thoracoscopy was requested and indeed revealed only mature lipomatous tissue with no malignant features. It was felt that the diagnostic conundrum could not be solved on limited specimens. Accordingly, a left thoracotomy in the auscultatory triangle became necessary to remove en-bloc the mediastinal lesion. Macroscopically, the 13 cm × 9 cm × 6 cm mass resembled a mature lipoma except for the presence of gray-white gelatinous foci (Figure 2A). Histopathological examination showed a proliferation of small bland spindle cells, in part hypercellular, mixed with mature adipose tissue embedded in a number of birefringent collagen fibers and heterogeneous vascular pattern. The cells were haphazardly distributed but tended to be arranged in short parallel bundles (Figure 2B,C). Immunohistochemically, the cells were strongly and diffusely positive for CD34, but they were negative at immunoreactivity for panCK (Figure 2D). In addition, these were absence of gene amplification at assessment of MDM2 status (band 12q15) by Fluorescence In Situ Hybridization (FISH). Accordingly, the lesion was diagnosed as a spindle cell lipoma (SCL). The patient has been followed clinically for 12 months and remains symptom and disease free to this day.

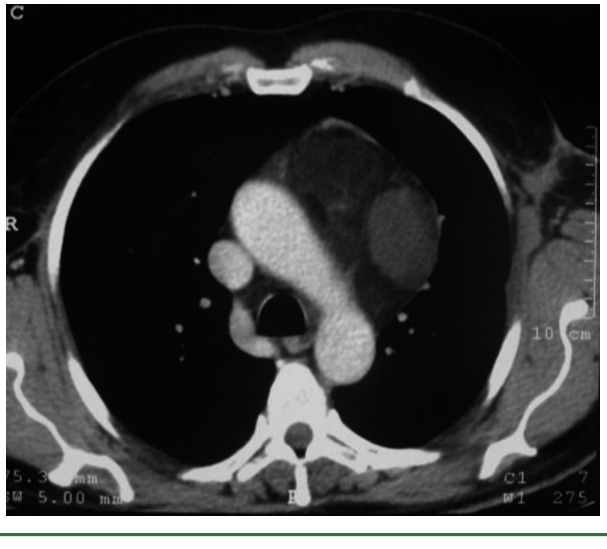

Figure 1. Chest CT showing an enlarging lesion in the mediastinal fat.

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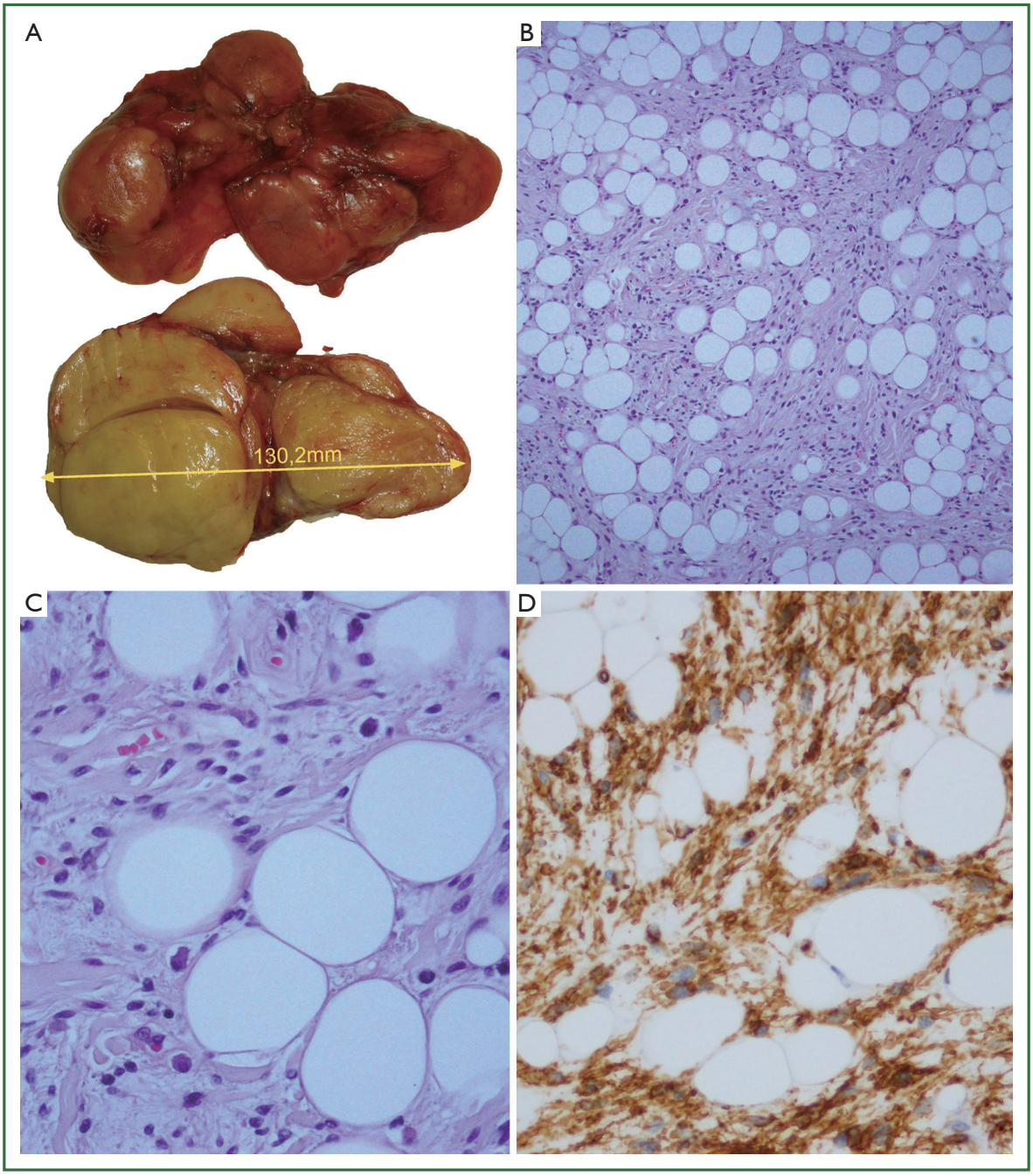

Figure 2. A. Macroscopic view of the surgical specimen; B,C. Proliferation of mesenchymal neoplastic spindle cells at different magnification arranged in short bundles and separated by dense collagen (H&E 10× e 40×); D. Immunostaining positivity for CD34 (IHC 40×).

Originally described by Enzinger and Harvey in 1975 (1), SCL is a benign lesion characterized by the replacement of mature fat by collagen-forming spindle cells. As a rule, this lesion is usually found in men aged 45 to 60 years and are located in the subcutaneous tissue of the back, shoulder and posterior neck (2). Conversely, SCLs are rarely seen in the thoracic cavity (3). According to the classification of mediastinal lipomas by Williams and Parsons (4), the current case would be classifed as pure "intrathoracic" type as it was completely situated within the chest.

Sakurai *et al.* reported only one symptomatic case among a total of 10 cases of intrathoracic lipomas observed over a 16-year period (5). In addition, the only one cervico-mediastinal lesion could not be completely resected despite adequate exposure (5). Indeed, irrespective of the benign histology, intrathoracic lipomas may tend to grow and infiltrate surrounding structures (5), a biological aggressiveness also seen in our patient. The differential diagnosis of SCL includes a variety of benign and malignant entities such as dermatofibrosarcoma protuberans, angiomyofibroblastoma,

nodular fascitis, and, myxoid liposarcoma (2). By contrast, spindle cell liposarcomas are characterized by bland spindle cells, mature fat, scattered lipoblasts and only rare cells that may stain for CD34. Traditionally, the identification of lipoblasts, fat necrosis, and, fat with atrophic changes, has been crucial to the diagnosis of liposarcoma. In this setting, tumors that consist predominantly of mature fat with a variable number of atypical spindled cells and lipoblasts are diagnosted as well-differentiated liposarcoma. Local excision is the treatment of choice for SCL, and the correct preoperative diagnosis is difficult (5) but important to avoid an unnecessary extensive surgery.

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