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CASE REPORT

Giant primary liposarcoma of the chest

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Abstract Liposarcomas are the most common soft tissue sarcomas in adults, although liposarcomas of the chest are uncommon. We report two cases of giant liposarcoma in the mediastinum and chest wall, respectively. An 82-year-old man presented with a mass in the right upper mediastinum, as seen by computed tomography (CT). He had a past history of subcutaneous lipoma resection on his back (19 years previously). The patient underwent tumor resection with a right thoracotomy. A 58-year-old woman presented with an enlarging mass of the right lateral chest, involving the diaphragm and ribs, as seen by CT. She had a past history of subcutaneous lipoma resection of the right chest (18 years previously). The patient underwent an en bloc resection that included the tumor and a part of the right diaphragm and ribs. Histological examination of both patients' tumors revealed a well-differentiated liposarcoma, with no pathological relation to the previous lipoma resected in either case.

Key words Giant liposarcoma · Chest · Lipoma · Mediastinum · Chest wall

Introduction

Liposarcomas are the most common soft tissue sarcoma in adults, although mediastinal liposarcomas are rarely reported. Also, liposarcomas of the chest wall are uncommon. We report successful resection of two cases of giant liposarcoma of the mediastinum and chest wall, respectively.

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Case report

Case 1

An 82-year-old man presented to us with right chest discomfort. A computed tomography (CT) scan revealed a large, well-defined mass with low density in the right upper mediastinum (Fig. 1). He had undergone surgical resection of a subcutaneous lipoma on his back 19 years ago, but the surgical specimen was not available for pathological reevaluation. The skin incision scar due to the previous subcutaneous lipoma resection was on the patient's right back with no continuity between the previous skin incision and the present liposarcoma in the mediastinum. We preoperatively diagnosed lipoma or liposarcoma based on radiological evaluation. No preoperative biopsy was performed.

The patient underwent tumor resection with a posterolateral skin incision and right thoracotomy through the fourth intercostal space. The mass was carefully dissected and separated from the superior vena cava, brachiocephalic artery, esophagus, trachea, and right main bronchus. The resected tumor size was 16.3 × 14.4 × 5.1 cm (Fig. 2), and histological examination revealed a well-differentiated liposarcoma.

The postoperative course was uneventful, and there has been no evidence of recurrence for 10 months.

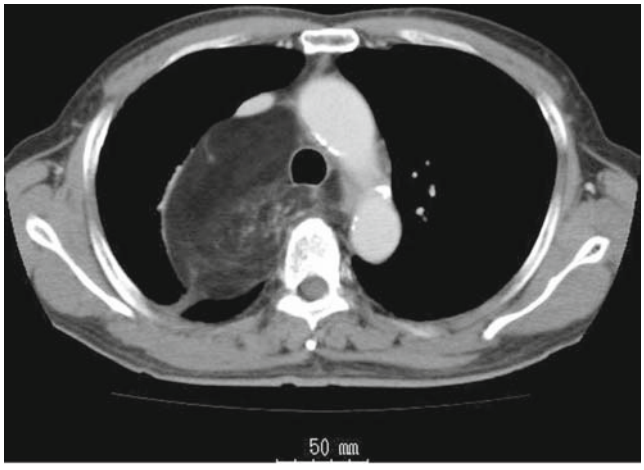

Fig. 1 Case 1. Computed tomography (CT) scan shows a large, well-defined mass with low density in the right upper mediastinum

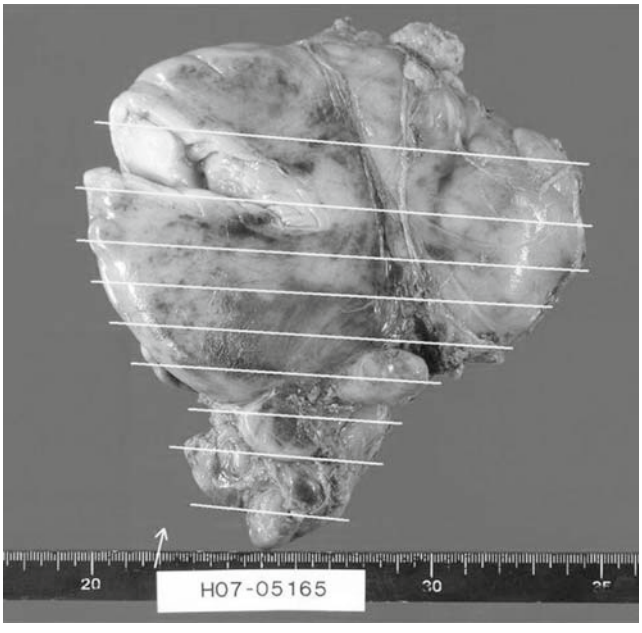

Fig. 2 Case 1. Resected mediastinal liposarcoma. The cut surface is yellow, bulging, and lobulated

Case 2

A 58-year-old woman presented with an enlarging, painless, huge mass in her right lateral chest. She had undergone surgical resection of a subcutaneous lipoma of the right chest 18 years ago, and histopathological findings showed no evidence of sarcomatous change. At the present admission, CT revealed a large, well-defined mass with low density in the right lateral chest, involving the diaphragm and ribs (Fig. 3). We preoperatively diagnosed lipoma or liposarcoma based on the radiological evaluation. No preoperative biopsy was performed.

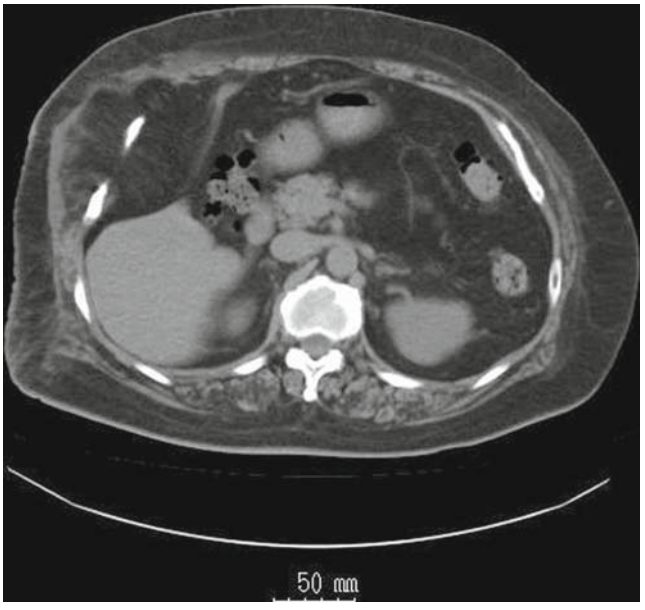

Fig. 3 Case 2. CT scan shows a large, well-defined mass with low density in the right lateral chest involving the diaphragm and ribs

The patient underwent tumor resection with right thoracotomy through the fifth intercostal space and laparotomy with an extended lateral skin incision. Because the tumor involved subcutaneous tissue below the previous skin incision for lipoma, a wedge skin resection was made to include the previous skin incision scar in the present resection. The tumor capsule was not intact and the tumor had invaded the right diaphragm and ribs, which required en bloc resection including part of the right diaphragm and seventh, eighth, ninth, and tenth ribs. The defect of the chest and abdominal wall after resection was reconstructed using Bard Composix mesh (C.R. Bard, Murray Hill, NJ, USA). The resected tumor size was 19.0 × 15.0 × 8.5 cm; and histological examination revealed a well-differentiated liposarcoma. Two months after the initial resection, she developed a subcutaneous abscess caused by *Mycobacterium peregrinum* and underwent reoperation, which required removal of the mesh as well as chest and abdominal wall reconstruction with a latissimus dorsi flap.

There has been no evidence of recurrence for 14 months since the initial operation.

Discussion

Liposarcomas most commonly originate in the extremities and on the retroperitoneum but rarely in the chest. Schweitzer et al.[1] reported that 85% of liposarcoma

patients are symptomatic, and that asymptomatic cases (15%) are diagnosed incidentally on a routine chest radiograph. Liposarcomas are usually slow-growing and discovered as large tumors. Enzinger and Weiss[2] divided liposarcomas into the following five major morphological subtypes: well differentiated, myxoid, round cell, dedifferentiated, and pleomorphic. Myxoid liposarcomas account for 40%–50% of these tumors. Well-differentiated liposarcomas are the least aggressive neoplasm among the five subtypes.

On CT scans, the appearance of liposarcomas varies from a predominantly fat-containing lesion to a solid mass.[3] Soft tissue or solid densities are related to the necrosis, heterogeneity, and soft tissue component of liposarcomas.[4] However, a preoperative diagnosis to distinguish lipoma using only radiological findings is difficult. Recently, Binh et al. reported that MDM2 and CDK4 immunohistochemical staining, which correlates with gene amplification, is a helpful adjunct for differentiating well-differentiated liposarcomas from benign adipose tumors.[5] In our cases, the resected specimen from case 1 showed strongly positive CDK4 staining in the nuclei of most tumor cells, although the cells were mostly negative for CDK4 in the resected specimen from case 2.

For treatment, complete surgical excision using the standard open technique is the preferred therapeutic choice. Aubert et al. reported intrapleural metastasis and implantation of mediastinal liposarcoma after initial removal by the video-assisted thoracic surgery (VATS) technique, and pointed out that VATS is probably not indicated for the removal of possible malignant tumors of the mediastinum.[6] Subtotal resection is often used but is of only short-term palliative benefit due to early recurrence despite postoperative adjuvant therapy.

Our two patients underwent complete resection for well-differentiated liposarcomas, and both had a past history of lipoma resection nearly two decades before, with no pathological evidence of liposarcoma from their prior resection. Inaba et al. reported a similar case of liposarcoma in the neck and mediastinum after removal of a mediastinal lipoma.[7] Although there was no pathological relation with the previous lipoma resection in our two cases, it is difficult to clarify the relation between the primary lipoma and secondary liposarcoma resections. In any case, complete surgical resection, when possible, should be considered for lipoma-like tumors in the chest for an accurate diagnosis and improved prognosis.

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