CASE REPORT

Intrathoracic lipoma of the chest wall that appeared relatively rapidly and could be resected and diagnosed by minimally invasive thoracoscopic surgery: A case report

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Abstract
The occurrence of lipoma in the thoracic cavity is relatively rare, and it is clinically difficult to distinguish it from liposarcoma. We report a case of intrathoracic lipoma that was pathologically diagnosed and differentiated from liposarcoma after minimally invasive thoracoscopic tumour resection. A 35-year-old male patient without any symptoms was referred to our hospital due to an abnormal shadow on chest x-ray. Computed tomography showed a low-attenuated round-shaped mass of 3.6 cm × 2.3 cm in diameter in the left chest wall. On magnetic resonance imaging, the mass was displayed as a high, high and low signal mass on T1-weighted imaging (WI), T2WI and T2WI with fat suppression, respectively. We suspected a chest wall-type lipoma, but because it appeared in a relatively short period of time and we thought it could be liposarcoma, we performed minimally invasive thoracoscopic surgery for diagnosis and treatment. The tumour was a stalked tumour with a capsule, contiguous to the wall pleura with only a single cord-like structure. The majority of the tumour was found free in the pleural cavity. The tumour was diagnosed as a lipoma by histopathological examination.

KEYWORDS
intrathoracic lipoma of the chest wall, minimally invasive thoracoscopic surgery

INTRODUCTION

Lipomas are common benign tumours that occur primarily in the subcutaneous tissues.1,2 However, the occurrence of lipoma in the thoracic cavity is relatively rare, and it is clinically difficult to distinguish it from liposarcoma. In recent years, thoracoscopic surgery has become significantly less invasive. In this study, we report a case of intrathoracic lipoma that was pathologically diagnosed and differentiated from liposarcoma after minimally invasive thoracoscopic tumour resection.

CASE REPORT

A 35-year-old male patient without any symptoms was referred to our hospital due to an abnormal shadow detected by chest x-ray in his annual health examination. Chest radiography showed a well-defined, round mass of 3.5 cm in size in the left lower field (Figure 1A). Chest radiography taken 4 years previously was normal (Figure 1B). A computed tomography showed a low-attenuated round-shaped mass of 3.6 cm × 2.3 cm in diameter in the left chest wall (Figure 1C). On magnetic resonance imaging, this mass lesion was displayed as a high, high and low signal mass on T1-weighted imaging (WI), T2WI and T2WI with fat suppression, respectively. We suspected a chest wall-type lipoma, but because it appeared in a relatively short period of time and we thought it could be liposarcoma, we performed minimally invasive thoracoscopic surgery for diagnosis and treatment. The tumour was a stalked tumour with a capsule, contiguous to the wall pleura with only a single cord-like structure. The majority of the tumour was found free in the pleural cavity. The tumour was diagnosed as a lipoma by histopathological examination.
position, a 5-mm port was placed on the mid-axillary line of the eighth intercostal space and a 2-cm window was placed on the posterior axillary line of the sixth intercostal space. The tumour was a stalked tumour with a capsule, contiguous to the wall pleura with only a single cord-like structure. The majority of the tumour was found free in the pleural cavity (Figure 2A). The tumour was resected on the pleural side of the chest wall without breaching the capsule so as to secure the resection margin from the stalk. The total operation time was 46 min and the bleeding amount was 5 ml. The excised specimen was a yellowish-white, soft elastic tumour with smooth margins (Figure 2B). Histopathological examination revealed the presence of mature adipocytes intercalated in a thin fibrous septa (Figure 2C). There were no atypical stromal cells or lipoblasts, and the tumour was diagnosed as a lipoma. The patient experienced no postoperative complications and was discharged on postoperative day 2. After one postoperative year, the patient is alive without recurrence.

**DISCUSSION**

Lipomas are the most common soft-tissue tumour that demonstrate slow growth. These benign fatty tumours form soft, lobulated masses enclosed by a thin, fibrous capsule. Intra-thoracic lipoma is often asymptomatic even in relatively large tumours. Margiotta et al. reported an incidental finding of intrathoracic lipoma during pathological autopsy, and Marreez et al. reported a 79-year-old post-mortem case of asymptomatic intrathoracic lipoma.

Highly differentiated liposarcoma, in which lipoblasts are intermingled with mature adipocytes, may be difficult to differentiate from benign lipoma on imaging, and therefore malignancy cannot be completely ruled out even when lipoma is diagnosed on imaging. The prognosis of liposarcoma varies significantly depending on the histological type. The 5-year survival rate for both the differentiated and myxoid types exceeds 70%, but the prognosis for the round cell and pleomorphic types is extremely poor at 18% and 21%, respectively. Therefore, even if a lipoma is diagnosed

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**FIGURE 1** Radiological findings. (A) Well-defined, round mass of 3.5 cm in size in the left lower field by chest radiography. (B) A chest radiograph taken 4 years previously displayed a normal view. Chest computed tomography (CT) and magnetic resonance imaging (MRI) findings. Chest CT: a low-attenuated round-shaped mass of 3.6 cm × 2.3 cm in diameter in the left chest wall (C). Chest MRI: the mass lesion was displayed as a high signal on T1-weighted imaging (WI) (D), high signal on T2WI (E) and low signal on T2WI with fat suppression (F)
on imaging, the possibility of liposarcoma cannot be ruled out when it appears and grows relatively rapidly, and surgical excision is necessary for both diagnosis and treatment.

Thoracoscopic surgery has become less invasive in recent years, and less invasive procedures such as uniportal video-assisted thoracoscopic surgery and needlescopic surgery are now widely performed. In this case, the patient was operated on with only two wounds of 5 and 20 mm, and the postoperative pain was mild with no complications, and the patient was discharged without any problems 2 days after the operation. Surgery has become less invasive, allowing for earlier, safer and more reliable diagnosis and treatment.

In conclusion, a relatively rare intrathoracic lipoma, which is clinically important to differentiate from liposarcoma, was diagnosed by minimally invasive thoracoscopic surgery.

**CONFLICT OF INTEREST**
None declared.

**DATA AVAILABILITY STATEMENT**
The data that support the findings of this study are available from the corresponding author upon reasonable request.

**ETHICS STATEMENT**
The authors declare that appropriate written informed consent was obtained for the publication of this manuscript and accompanying images.

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