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Case report

Recurrent thymoma with a pleural dissemination invading the intervertebral foramen

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Abstract

We report a rare case of recurrent thymoma with pleural dissemination invading the intervertebral foramen. A woman with Masaoka's stage IVa thymoma with myasthenia gravis (MG) underwent macroscopically complete resection. After 45 months, she developed back pain. Computed tomography (CT) of the chest demonstrated a mass in the right thoracic cavity invading the intervertebral foramen between thoracic vertebrae 10 and 11. She underwent complete resection of the tumor and postoperative radiotherapy. The resected specimen was histologically diagnosed as a pleural dissemination from thymoma. There has been no local recurrence.

Keywords: Thymoma; Pleura; Reoperation

1. Introduction

Thymoma recurs in 5.8–20% of patients after complete resection. Most recurrences involve the local site and thoracic cavity [1–5]. We encountered a rare case of recurrent thymoma with pleural dissemination invading the intervertebral foramen.

In 2000, a 29-year-old woman was diagnosed as having Masaoka's stage IVa thymoma with type IIb myasthenia gravis (MG) according to the Myasthenia Gravis Foundation of America (MGFA) classification [6]. Preoperatively, she received one course of chemotherapy (cisplatin, doxorubicin hydrochloride, etoposide and vincristine) and underwent thymothymectomy with partial resection of the vena cava superior, right upper lobe of the lung and right diaphragm, and resection of pleural disseminations. The anterior tumor was histologically identified as a type B3 thymoma according to the World Health Organization (WHO) classification [7]. Postoperatively, she received chemotherapy (cisplatin, doxorubicin hydrochloride, etoposide, vincristine and prednisolone) and radiotherapy (mediastinum: 50 Gy, disseminated lesion: 30 Gy). MG was controlled by an anticholinesterase drug (ambenonium chloride) and immunosuppressant drug (tacrolimus). There was no sign of recurrence for 45 months. In November 2004, she developed back pain. Computed tomography (CT) and T2-weighted magnetic resonance imaging (MRI) of the chest demonstrated pleural dissemination at the right thoracic cavity invading the intervertebral foramen between the thoracic vertebra (Th) 10 and Th11, as well as 5 other disseminated lesions involving the supradiaphragm and visceral pleura (Fig. 1A/B and C). In January 2005, the resection of 6 disseminated lesions was performed via right posterolateral thoracotomy. Three tumors at the visceral pleura of the right lower lobe of the lung and two tumors of the right supradiaphragm could be resected easily. The other tumors strongly invaded the intervertebral foramen between Th10 and Th11. We resected the head of the 10th rib and half of the head of the 11th rib and spread the intervertebral foramen to remove the tumor and surrounding tissues en bloc, destroying the vertebral arch with an air tome. Because the tumor had invaded the 10th intercostal nerve and spinal dura mater (Fig. 2A), we resected these along with the tumor and repaired the dura mater defect using an absorbable surgical suture (6-0 prolin®), applied fibrin glue and lapped the wound using the 8th intercostal muscle. For all lesions, macroscopically complete resection was achieved. Postoperatively, leakage of cerebrospinal fluid and bacterial meningitis occurred and was treated conservatively. Thereafter, back pain disappeared. All tumors were histologically identified as pleural disseminations of type B3 thymoma (Fig. 2B). Postoperatively, she received radiotherapy (46 Gy) to the intervertebral foramen. There was no deterioration of myasthenia gravis during the periods between recognition of the recurrences to the completion of therapy. There has been no sign of further recurrence for 15 months.

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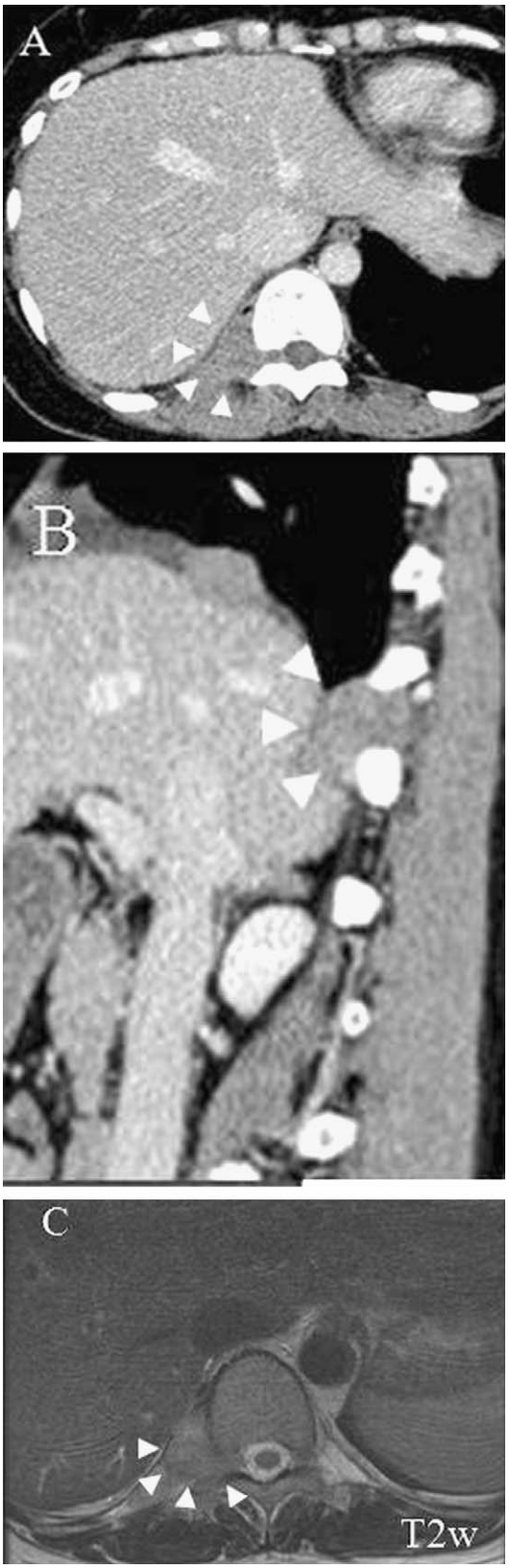

Fig. 1. (A/B) CT of the chest demonstrated the disseminated mass invading the intervertebral foramen between Th10 and Th11. (C) T2-weighted MRI of the chest demonstrated the mass, which invaded and occupied the intervertebral foramen.

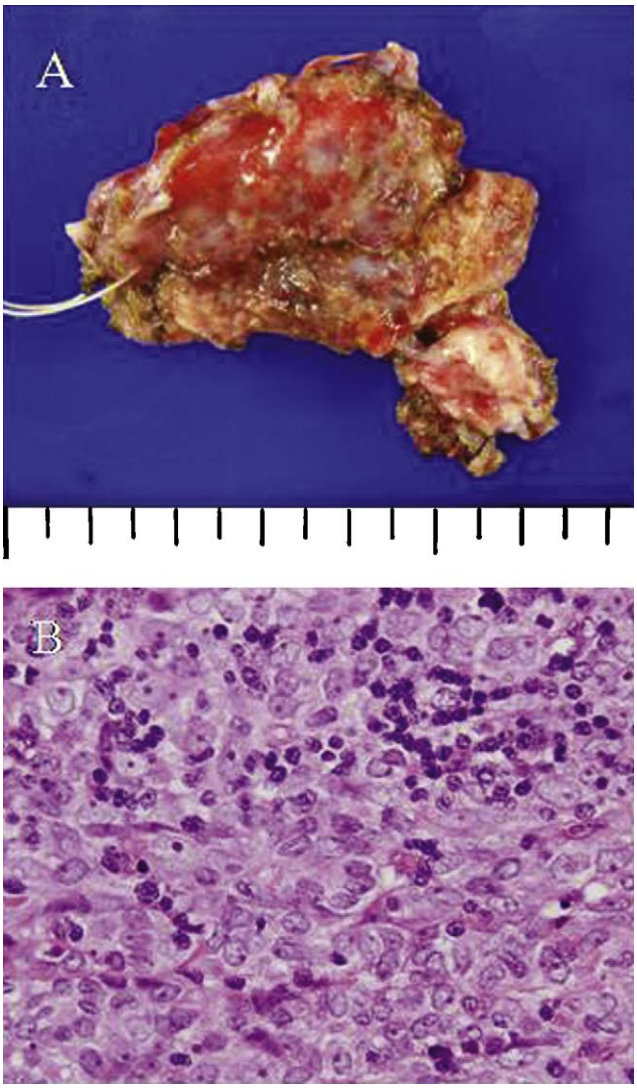

Fig. 2. (A) Macroscopic appearance of resected specimen. Projection of the disseminated tumor (arrow) invaded the intervertebral foramen. (B) Microscopic appearance of the tumor (hematoxylin and eosin staining, original magnification ×400). The lesion was composed of mixed lymphocytic and epithelial cells and diagnosed as type B3 thymoma according to WHO classification.

2. Comment

Maggi et al. [8] emphasized that reoperation was more effective than radiation and chemotherapy for improving the 5-year survival rate of recurrent thymoma. Some reports [1—4] demonstrated that reoperation is aggressively recommended if it is possible to resect the lesion completely. Overall 5- and 10-year survival rates of the recurrence cases without reoperation were 48% and 24% [1], 36% and 17% [2] and 51% and 43% [3], respectively, whereas the 5- and 10-year survival rates of the recurrence cases with reoperation were 47% and 35% [2] and 64% and 53% [3], respectively. The patients undergoing reoperation showed a slightly better post-recurrence survival. Therefore, reoperation for recurrent thymoma is recommended if it is possible to resect the lesion completely, but if complete resection is impossible,

postoperative chemotherapy or radiotherapy is recommended.

In our case, there were six masses in the right thoracic cavity. However, preoperative CT and MRI of the chest demonstrated that the mass invading the intervertebral foramen was clearly demarcated from the surrounding tissue and had not invaded the spinal cord, and the other masses were localized, we considered that we would be able to resect all masses completely and chose to perform reoperation. As a result, we could achieve complete resection.

Neurogenic tumors often grow in a dumbbell shape in the intervertebral foramen. But there has been no reported case in which disseminated lesion of thymoma had invaded the intervertebral foramen. So our case was a very rare form of tumor growth. We considered that the reason the tumor developed a dumbbell form was related to its location and invasiveness. The tumor was located in the para-vertebral body and was bounded by the liver, which is a solid organ. Moreover, the mobility of the right diaphragm was poor because the right phrenic nerve was resected during the initial surgery. Furthermore, histological examination showed that the tumor invasiveness had also increased compared with that of the initial lesion. Therefore, we considered that the tumor invaded the intervertebral foramen.

We concluded that reoperation was highly successful, although careful long-term surveillance of the patient remains necessary.

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