

# Completely Wide Resection of Malignant Fibrous Histiocytoma of the Chest Wall; Expect for Long Survival

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**Malignant fibrous histiocytoma (MFH) rarely occurs in the chest wall. A case of MFH originating from the chest wall is herein reported. We performed radical en-block resection of the whole chest wall together with the tumor and reconstructed it with Marlex mesh. There was no recurrence 4 years after operation. We consider radical en-block resection for MFH and reconstruction with Marlex mesh a safe operation and may provide a long-term survival. (Ann Thorac Cardiovasc Surg 2006; 12: 141–4)**

**Key words:** malignant fibrous histiocytoma, chest wall, surgery

## Introduction

Malignant fibrous histiocytoma (MFH) is one of a diverse group of benign and malignant tumors having a common origin from the tissue histiocyte. MFH occurs most frequently in the deep fascia and skeletal muscle of the extremities and trunk, however, rarely in the chest wall.<sup>1)</sup> It is generally agreed that MFH is not effective for chemotherapy and radiation therapy, especially in deep and wide localization. Maze et al. reported that 5 of the 38 patients who did not undergo resection died quickly of the disease.<sup>2)</sup> Sawai et al. also reported that patients died with a mean survival of 11.7 months. The average survival for the patients who underwent a resection was 23.2 months.<sup>3)</sup> Therefore complete resection is necessary for successful treatment. We report a successful case of radical en-block resection of the whole chest wall.

## Case Report

A 54-year-old woman had noticed a painless mass in the

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left lateral chest wall before 4 years prior. Recently the mass was growing rapidly and was accompanied with the chest pain and tenderness. It was characterized by a sharp border, hardness and no fixation to the overlying skin and deeper structure. There were three tumorous lesions at the dorsal region in which the tumor size was approximately 3×3 cm and there was a diffuse proliferation region in the lateral chest wall. She was admitted to the Department of Surgery II, Kyushu University Hospital (Fukuoka, Japan) on February 28, 2001. Laboratory data and tumor marker reveal no marked abnormality. Chest and abdominal X-ray revealed no abnormality except for a swayback, but computed tomography (CT) revealed diffuse proliferation of tumors in subcutaneous tissue of the left chest wall (Fig. 1). The diagnosis of needle biopsy was MFH. Radiation therapy was performed (31.2 Gy), but the tumor did not decrease in size. We then performed radical en-block resection of whole chest wall and reconstruction.

## Surgical treatment and finding

Under general anesthesia, the patient was placed in the right lateral position and a left thoraco-abdominal oblique skin incision was made. At the dorsal region of the chest wall, three tumorous lesions measuring approximately 3 cm in length were recognized in the fascia of latissimus dorsi muscle (Fig. 2A). Following splitting of the trapezius muscle, the latissimus dorsi muscle was widely ex-

cised. The larger tumor was located at the flank, and had invaded neighboring tissue. In particular, the tumor had invaded from the 6<sup>th</sup> intercostal muscle to the abdominal wall including the left external and internal oblique muscles. Then those tissues including skin measuring 20×8 cm in width were resected en-block. The thorax was reconstructed with two sheets of Marlex mesh with a reinforcement using sutures of 5.0 metric ethibond. The diaphragm was sutured with the lower part of Marlex mesh. The abdominal wall was also reconstructed with two sheets of Marlex mesh (Fig. 2B). After hemostasis was achieved, an Argyle 28 Fr. drainage tube was inserted into the right pleural cavity through the 5<sup>th</sup> intercostal space, and suctioned with a negative pressure of 13 cm H<sub>2</sub>O. Drainage tubes were inserted to the abdominal and chest wall under skin, respectively, and suctioned in a closed manner. The wound was closed in layers. The operative time was 7 hours 35 minutes, and estimated blood loss was 2,640 g.

### Postoperative course

The patient was treated with postoperative radiation (61.22 Gy). The postoperative course was uneventful, and the patient was discharged from the hospital. She has subsequently been observed as an outpatient for 48 months, during which time there has been no evidence of recurrence. Postoperative appearance and the movable range of left arm were sufficient for her daily life (Fig. 2C).

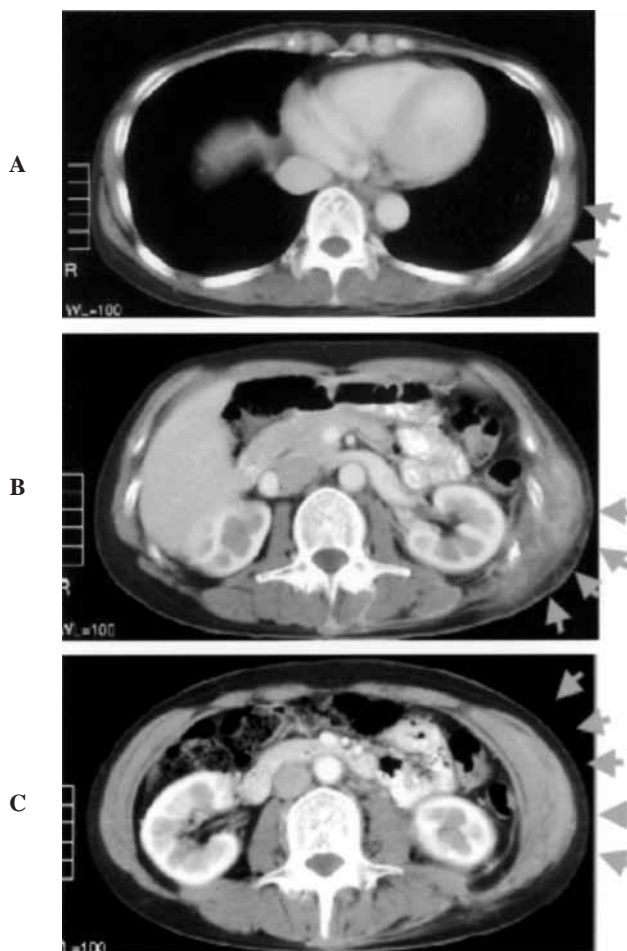
### Pathological findings

Polygonal or short spindle cells with hyperchromatic and pleomorphic nuclei proliferate in haphazard fashion in myxoid stroma (Fig. 2D). Immunohistochemically, the tumor cells are negative for myogenic markers (MHF 35, desmin and alpha smooth muscle actin), cytokeratins (AE1/AE3 and CAM 5.2), CD 34 and S-100 protein. These findings are compatible of malignant fibrous histiocytoma, myxoid type.

### Discussion

MFH is a soft tissue sarcoma occurring principally in middle-aged individuals and situated in the deep tissue of the extremities and trunk. In a retrospective series of 167 cases reported by Kearney et al.,<sup>4)</sup> 51% arose in the lower limbs, 24% in the upper limbs, 16% in the trunk and 9% retroperitoneum. The chest wall is a rare site of origin.

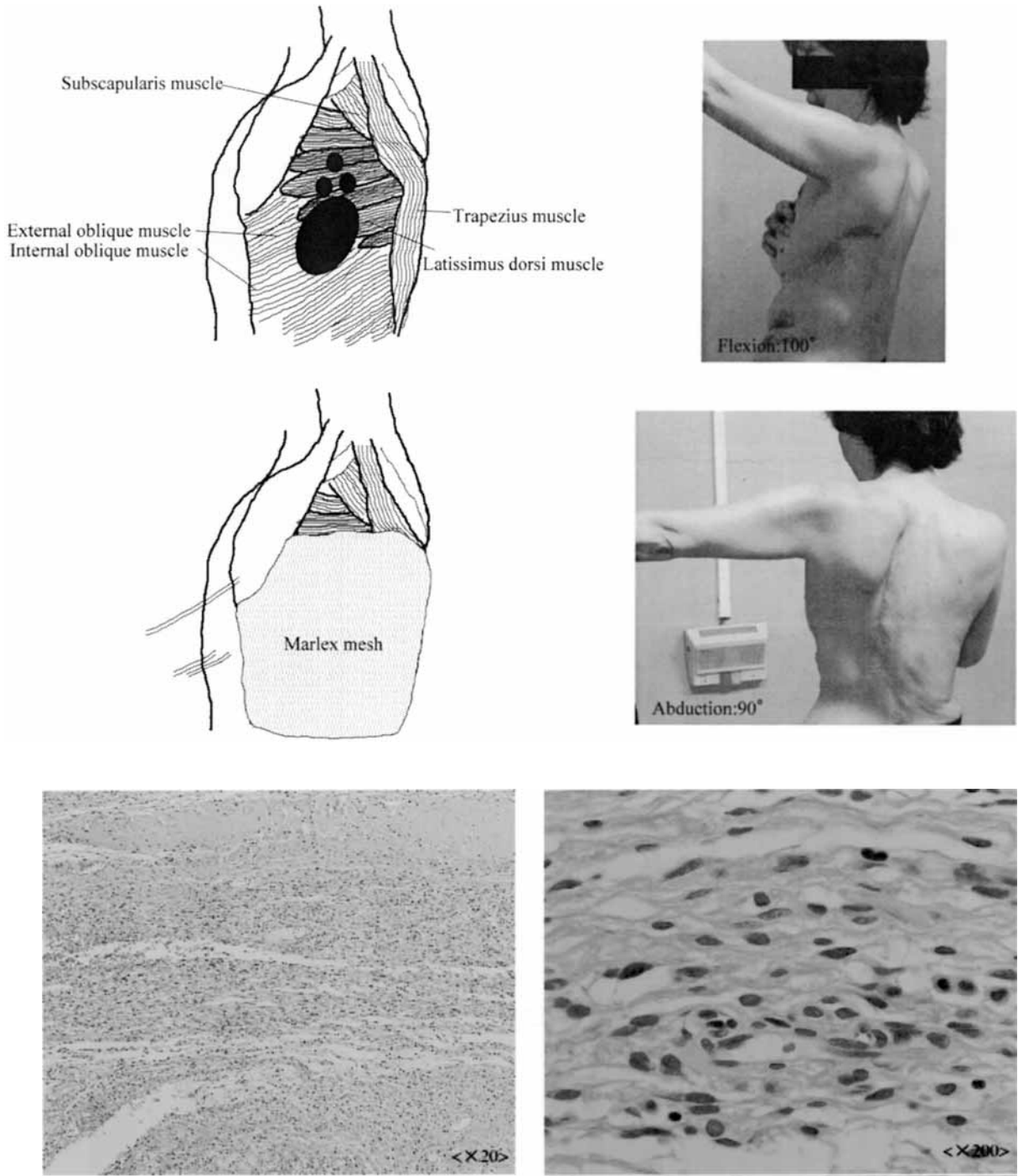
MFH has a high propensity for local recurrence and



**Fig. 1.** Computed tomography (CT) demonstrated that diffuse proliferation of tumor in subcutaneous tissue of the left thoraco-abdominal chest wall.

distant metastasis. Weiss and Enzinger,<sup>5)</sup> in reporting a series of 200 cases, noted local recurrence in 44% and metastasis in 42%. The effect of either chemotherapy or radiotherapy is presently unclear. Many patients in a variety of series have received radiotherapy or chemotherapy with a variety of agent at some stage in their treatment, but little controlled data are available. The mean survival of patients without operation is 11.7 months, those of patients whom underwent operation is 23.2 months.<sup>2,4,6,7)</sup> Favorable factors of MFH was UICC/AJCC stage I and II, superficial location, myxoid type and under 50 years, supporting the rationale for radical en-block resection of tumor tissues.<sup>5)</sup>

The method of reconstructing the chest wall after radical en-block resection is pertinent. Classically, various flap such as major pectoral muscle, major pectoral myocutaneous flap, latissimus dorsi myocutaneous flap



**Fig. 2.** Surgical findings.

**A:** Preoperative findings; three tumorous and diffuse proliferative lesions are noted.

**B:** Postoperative findings; reconstruction with Marlex mesh sheet.

**C:** Postoperative appearance and movable range of left arm.

**D:** Pathological features. (H&E staining, ×20 and ×200)

A	C
B	
D	

and pedicled omentum were utilized for reconstruction. In this case, the broad chest wall defect was too difficult to reconstruct with a flap. This method is more time consuming and the extra tension can induce adhesion due to wound ischemia.

Recently reconstruction with Marlex mesh is widely used. It has been reported that chest wall resection and reconstruction with Marlex mesh is successful and inexpensive.<sup>8-10)</sup> Lampl et al. reported that reconstruction of the chest wall with marlex mesh method for extended defects is safe, simple and quick.<sup>11)</sup> In this case, we performed the reconstruction with marlex mesh which is draped by pedicled omentum. Postoperative complications such as infection, skin necrosis and skin dehiscence did not occur. We consider that radical en-block resection for MFH is a safe operation and may increase long-term survival.

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