Urgent pneumonectomy for metastatic sarcoma

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Soft tissue sarcoma is a rare neoplasm that can arise from any anatomic site. In patients with extremity soft tissue sarcoma, pulmonary metastases tend to develop more frequently than in patients with sarcomas at other sites. Surgical resection of pulmonary metastases from soft tissue sarcoma is a widely accepted form of potentially curative therapy. Although pneumonectomy is infrequently performed for pulmonary metastases, we describe a case of right-sided urgent pneumonectomy for metastatic sarcoma in a young patient with hemodynamic as well as respiratory compromise.

Clinical Summary

A 24-year-old woman had, in April 2005, a resection of left thigh high-grade fibrosarcoma followed by radiation therapy. One year later, in April 2006, the patient had right-sided chest pain and shortness of breath. No air entry was noticed in the right hemichest. A chest radiogram and computed tomographic (CT) scan showed a well-demarcated round mass measuring 12 × 13 × 10 cm with central necrosis in the right lung (Figure 1). A full metastatic workup as well as magnetic resonance imaging of the left thigh did not reveal any local recurrence or other metastatic disease. The general condition of the patient deteriorated, and the hemoglobin level dropped from 10.5 to 8 mg/dL. Repeated chest and upper abdominal CT scans revealed mediastinal, cardiac, and hepatic shift to the left side (Figure 2), in addition to a massive right-sided hemothorax. Because of hemodynamic as well as respiratory compromise, she was taken to the operating room on an emergency basis for lung resection.

The chest was entered through a right posterolateral thoracotomy, and the whole lung was found to be replaced by a tumor that had ruptured into the pleural cavity and invaded the right dome of the diaphragm. A pleuropneumectomy was performed and the anterolateral diaphragm was resected in continuity with the tumor. The edges of the diaphragm were approximated primarily and the chest was closed. The postoperative course was uneventful. The histopathologic result was a metastatic fibrosarcoma. The patient was discharged home on post-

Figure 1. A 12 × 13 × 10-cm mass with central necrosis in the right lung.

operative day 9. On the second follow-up visit, 2 months after the operation, chest CT scan showed right hilum recurrence. The patient received 4 cycles of chemotherapy followed by radiation therapy. She had a good partial response. Fifteen months after the pneumonectomy, the patient is still alive and in stable condition.

Discussion

Patients with extremity sarcomas are likely to have distant metastatic disease as their initial site of recurrence. Twenty percent of them will have isolated pulmonary metastasis at some point in the course of their disease.¹ Although surgical resection is the treatment of choice for pulmonary metastases from soft tissue sarcoma, pneumonectomy is infrequently reported.² Despite resection, the majority of these patients eventually die as a result of an early recurrence. Three-year survivals after complete resection range from 30% to 40%. Chemotherapy has not been proven to increase survival after resection of pulmonary metastases. Despite complete resection and the frequent use of adjuvant therapy, the disease-free interval between subsequent pulmonary recurrences is short, with a median of 4 months. Several prognostic variables have been identified that are associated with favorable survival after pul-

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Figure 2. Mediastinal and cardiac shift to the left side.

monary metastasectomy, including an extended disease-free interval and a longer tumor doubling time. The most consistent favorable factor is metastatic disease that is amenable to resection.³

Long-term survival is possible after resection of pulmonary metastases from soft tissue sarcoma. Patients in whom metastatic disease develops after a disease-free interval of more than 1 year and can have complete resection are the most likely to be long-term survivors. Surgical excision, when at all possible, should remain the treatment of choice. Pneumonectomy, although not advocated for metastatic disease, may be required in patients with massive mediastinal shift and hemodynamic compromise.

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