Case Report: 
Liposarcoma in the Bone Marrow: A Terminal Event

Farbod Darvishian, Judith P. Brody, and Steven I. Hajdu
Department of Pathology, North Shore University Hospital, Manhasset, New York

Abstract. We report a case of metastatic liposarcoma in the bone marrow with a rapidly fatal course. In view of the poor prognosis and paucity of clinical and imaging findings in patients with high-grade liposarcoma that is metastatic to bone marrow, we propose that bone marrow examination should be performed during the patient’s initial evaluation as well as follow-up examinations. (received 3 June 2001; accepted 18 August 2001)

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A 55-yr-old man presented with a left anterior chest wall mass. The mass was subsequently resected with clear margins and on histologic examination was diagnosed as a high-grade pleomorphic and lipoblastic (round cell) liposarcoma with focal areas of low-grade myxoid and well-differentiated liposarcoma. The patient underwent adjuvant regional radiotherapy.

Approximately one year later, he developed gradual worsening midthoracic back pain radiating to the chest and he complained of progressive weakness of his legs. Magnetic resonance imaging (MRI) of the spine revealed an epidural lesion involving T7-8. He subsequently had laminectomy of T6-9 with resection of what appeared to be a fatty-looking epidural tumor without bone invasion, compressing, but not invading, the thoracic and lumbar nerve roots. The operation was uneventful with resolution of the symptoms. Microscopic study of the resected tumor confirmed the clinical suspicion of metastatic liposarcoma. The morphology of the metastatic liposarcoma was similar to that of the anterior chest wall mass.

Three months later, due to unexplained anemia, thrombocytopenia, and a left shift, he had a routine bone marrow biopsy of the right posterior iliac crest. The biopsy revealed total replacement of the marrow by metastatic pleomorphic liposarcoma with areas of low-grade myxoid morphology associated with extensive necrosis [Figs. 1 & 2].

The disease course was further complicated by intraventricular brain hemorrhage, which was evacuated by ventriculostomy. The patient eventually succumbed to respiratory failure and died three weeks after metastatic liposarcoma was diagnosed in the bone marrow. Post-mortem examination was not performed.

Liposarcoma is considered to be the most common malignant neoplasm of soft tissue; over 2,000 cases are diagnosed per year in the United States. Like most soft tissue neoplasms, liposarcomas spread hematogenously. In a series of 242 patients examined by one of the authors (S.I.H.), the most common metastatic sites were lungs, liver, peritoneal surfaces, and brain [1].

Metastatic liposarcoma to bone marrow, albeit rare, has been reported [2-4]. In a study by Bramwell et al [3], 74 patients with soft tissue sarcomas underwent bone marrow biopsy to ascertain possible occult metastases. Only four biopsies revealed secondary involvement of the bone marrow, one of which was low-grade myxoid liposarcoma.

A case reported by Hosenpuda et al [4], similar to our case, involved presentation of a metastatic liposarcoma to the bone marrow with myelophthisic anemia. In neither their case nor ours was metastatic
Fig. 1. Hematoxylin- and eosin-stained bone marrow biopsy showing total replacement of the marrow by pleomorphic and lipoblastic (round cell) liposarcoma. Note that the size of lipoblasts is just about the size of lymphocytes. A myxoid morphology is also present on the left (200x magnification).

Fig. 2. Hematoxylin- and eosin-stained bone marrow biopsy showing dispersed lipoblasts, some of them vacuolated, throughout the biopsy (400x magnification).
liposarcoma suspected, clinically or radiographically. However, the peripheral blood abnormalities in both cases prompted a bone marrow biopsy and led to the detection of occult metastases. In both cases, the short interval, metachronous presentation, and morphologic similarity of the neoplasms argued against a multicentric liposarcoma. Both patients died within a few weeks after the diagnosis of bone marrow metastasis.

Kirollos and colleagues [5] illustrated a case of spinal cord compression due to metastatic liposarcoma of the thoracic spine, which had negative radiologic studies, including radionuclide scan and computerized tomography.

In view of the rarity of metastatic soft tissue neoplasms to the bone marrow, we present this case describing the manifestations of liposarcoma with clinically occult metastasis to the bone marrow, heralding a rapid downhill course and death. In view of the grave prognosis of metastatic liposarcoma in the bone marrow, the lack of clinical symptoms, and the paucity of imaging findings, patients with high-grade liposarcoma might benefit from the inclusion of a routine bone marrow examination in the initial clinical evaluation, as well as part of follow-up studies while the patient is undergoing treatment.

References