Spinal Epidural Metastatic "Mesenchymal" Chondrosarcoma

Case Report

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"Mesenchymal" chondrosarcoma is a rare but distinct variant of chondrosarcoma. Since its initial description by Lichtenstein and Bernstein in 1959, only 18 cases have been reported.1-8 Dahlin and Henderson could find only nine instances of this tumor in a series of 3000 histologically verified primary neoplasms of bone collected over 55 years. The following case is presented to emphasize the possibility of involvement of the central nervous system by this type of tumor.

Case Report

A 22-year-old Negro man developed a hard painless swelling of the right lower jaw in July, 1966. This was biopsied in another hospital and diagnosed as a mesenchymal chondrosarcoma. The patient refused hemimandibulectomy but returned to the same hospital 8 months later with progressive increase of the swelling. Radiologic examination at this time revealed a destructive lesion involving the entire right ramus of the mandible. A right hemimandibulectomy was performed, the lines of resection being free of tumor. The patient was asymptomatic for about 10 months. Three weeks before admission to the Kansas University Medical Center, he noticed the onset of dull back pain and sharp radiating pain in the left anterior thigh region. He denied motor, sensory, or sphincteric symptoms.

Examination. In the right submandibular area there was a firm, non-tender mass fixed to the underlying tissues, measuring 2 × 2 cm. Marked paraspinal muscle spasm was present with tenderness over the upper lumbar spine. There was painful limitation of flexion of the spine. The left knee jerk was depressed. There was no detectable motor or sensory deficit.

A skeletal survey by x-ray revealed multiple sites of destruction involving ribs and pedicles of T-12 and L-1 vertebrae on the left side. A myelogram showed complete block at the level of the body of L-1. Chest films showed no pulmonary metastasis.

Operation. Because of the histologic diagnosis of mesenchymal chondrosarcoma of the jaw lesion, we assumed the other bone lesions to be metastases or additional primary foci of the same tumor. It was the opinion of the radiotherapist that radiation therapy would be ineffective. Therefore, a decompressive laminectomy was done at T-12 through L-1. The bone did not appear grossly invaded by tumor. A grayish, lobulated, moderately vascular tumor was encountered on the left side in the epidural space dorsally. The subtotal removal of this lesion restored dural pulsations.

The immediate postoperative course was uneventful and the patient has remained asymptomatic for 1 month.

Pathological Examination. Review of histological material obtained at the original biopsy, hemimandibulectomy, and laminectomy revealed essentially the same appearance. The bulk of the tumor was made up of masses of fairly well-differentiated cartilage occurring in small isolated islands and supported by stroma which was relatively anaplastic. The stromal cells were generally spindle-shaped with dark staining eosinophilic nuclei and scant cytoplasm (Fig. 1). Mitotic figures were common. Transitions between the spindle cell stroma and more mature cartilage were readily observed (Fig. 2). In certain areas there were masses of neoplastic cells occurring in association with cleft-like spaces lined by endothelium forming a pattern reminiscent of hemangiopericytoma.

Discussion

From the original description by Lichtenstein and Bernstein and from subsequent...
papers, it would seem that mesenchymal chondrosarcomas represent a distinct entity. Analysis of these cases reported indicates that the central nervous system could be involved in the following ways:

1. Primary involvement of the cerebral hemisphere
2. Secondary compression of the cerebral hemisphere from tumor arising in the dura or calvarium
3. Vertebral disease with secondary compression of the spinal cord

Raskind and Grant have reported the only known instance of primary mesenchymal chondrosarcoma affecting the cerebrum. Dowling has reported an instance of a partially calcified tumor arising from the dura and without attachment to the bone compressing the parietal cortex. The tumor simulated a meningioma. Dahlin and Henderson have published a similar case. Lichtenstein and Bernstein have reported a tumor arising from the parietal bone compressing the contiguous cerebral cortex. A few instances of primary or secondary involvement of the vertebrae with compression of the spinal cord have been reported. The latter was the chief feature of our case, al-

Fig. 1. Photomicrographs of chondrosarcoma invading cancellous bone. *Left:* The center of the field is occupied by a dense proliferation of spindle-shaped tumor cells. In the upper portion of the field, chondroid differentiation is noted. H. & E., ×110. *Right:* Relatively well-differentiated cartilagenous portion of the tumor. H. & E., ×110.

Fig. 2. Higher power view of the tumor showing transition from small dark spindle-shaped cells (*upper*) to the chondroid type (*lower*). H. & E., ×350.