Atypical Vertebral Hemangiomas

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Purpose
The purpose of this investigation is to identify and describe vertebral hemangiomas that have an atypical imaging and/or clinical presentation.

Materials & Methods
This study evaluated 13 patients with a total of 15 vertebral hemangiomas. The diagnoses were based on a combination of plain radiographic, CT, MR imaging, myelographic or angiographic findings and were corroborated with pathologic examination in 5 cases. The cases were reviewed by 2 neuroradiologists. Images were evaluated for the presence or absence of several features, which based on the literature are considered typical for vertebral hemangiomas (vertical striations or “honeycomb” appearance on plain film, an intraosseous mottled or “polka dot” appearance on CT, and increased signal intensity on both T1- and T2-weighted MR images). Other features considered included the location of the vertebral hemangiomas, and the presence of paraspinal or epidural soft tissue involvement.

Results
Six of these patients were symptomatic and presented with back or neck pain, or lower extremity sensorimotor deficits. Of the 15 vertebral hemangiomas evaluated, 8 were located in the thoracic spine, 5 in the lumbar spine, 1 in the cervical spine, and 1 in the sacrum. Plain radiographs demonstrated typical vertical striations in 4 out of 7 vertebral hemangiomas. One case demonstrated air in a partially collapsed vertebral body, and no vertical striations were noted. CT findings included: posterior element involvement, ventral epidural soft tissue extension, coarse trabeculations, and low density or lytic foci. MR evaluation of 8 out of 9 cases demonstrated decreased signal intensity on T1-weighted images and increased signal intensity on T2-weighted images. Three of these demonstrated posterior soft tissue extension on T2-weighted images. In 2 of the 4 cases in which there was epidural soft tissue extension shown by MR imaging or myelography, angiography confirmed the presence of a hypervascular lesion. These were treated subsequently by endovascular spinal embolization.

Conclusion
Vertebral hemangiomas are a common benign tumor of vertebral bodies that occasionally can have an atypical imaging or clinical presentation. Vertebral hemangiomas can show an atypical appearance on standard MR sequences. The diagnosis may require clarification with other imaging studies or, less commonly, by biopsy. A less typical location for vertebral hemangiomas includes the cervical and lumbosacral aspects of the spinal axis. Vertebral hemangiomas, which present in these locations, may mimic other neoplastic processes. Vertebral hemangiomas that
possess epidural soft tissue components, cortical breakthrough, or are fractured pathologically can be symptomatic and may present with back pain and/or myelopathy or radiculopathy.

References