Abstract  Although no specific radiographic appearance has emerged so far for the epithelioid subtype of hemangioma, these lesions most typically manifest well-defined osteolysis. Other relatively common features include surrounding sclerosis, cortical expansion, and cortical destruction. We present a case of epithelioid hemangioma of the spine with an unusual radiological appearance which to our knowledge has not previously been reported: diffuse sclerosis of the involved vertebral body. The diffuse sclerosis seen in this case resembles the osteosclerotic process seen not only in benign entities such as subacute and chronic osteomyelitis, but also in malignant lesions such as osteoblastic metastatic disease and lymphoma.

Keywords  Hemangioma - Epithelioid hemangioma - Thoracic vertebra - Diffuse sclerosis - CT - MRI

Introduction

Hemangiomas of bone are benign tumors arising from blood vessels. Various histopathological subtypes including cavernous, capillary, arteriovenous, venous and epithelioid have been described [1, 2]. They are common lesions, particularly in the thoracic spine, with several sources reporting an occurrence of 10–11% in vertebral bodies found at autopsy [3, 4, 5, 6, 7]. Most often solitary, osseous hemangiomas are usually diagnosed in middle-aged patients, particularly women. They tend to be asymptomatic, and incidental findings on radiographs or at autopsy [2, 8]. The most common subtypes to involve the spine are capillary and cavernous hemangiomas. These lesions tend to have a characteristic appearance on radiographs, computed tomography (CT) and magnetic resonance (MR) imaging [7, 8, 9, 10]. In the case of epithelioid-type hemangioma, no specific radiographic appearance has emerged.

There have been only a small number of reported cases to date, possibly due to the erroneous classification of epithelioid hemangiomas as low-grade malignant hemangioendotheliomas, hemangioendothelial sarcomas and angiosarcomas [11, 12]. We report a case of epithelioid-type hemangioma of the thoracic vertebra with radiological features atypical for hemangioma in general and unlike those previously reported in the literature.

Case report

A 32-year-old woman presented with a dull ache in the mid-thoracic spine of 1 year's duration. She was otherwise well and had no significant past medical history. Physical examination and laboratory data were unremarkable. Radiographic evaluation of the thoracic spine revealed diffuse sclerosis of the T7 vertebral body (Fig. 1). Skeletal survey and radionuclide bone scan demonstrated no additional lesions. Contrast-enhanced CT scan...
showed an expanding lytic lesion involving the right anterolateral aspect of the T7 vertebral body. The lesion had a thin rim of ossification at its extraosseous periphery, and contained scattered calcifications and residual trabeculae. The remainder of the vertebral body exhibited generalized diffuse reactive sclerosis most prominent at the interface with the lesion (Fig. 2). MR imaging demonstrated heterogeneous, predominantly low signal intensity in the T7 vertebral body on T1-weighted images. Heterogeneous signal intensity was present in the T7 vertebral body on T2-weighted images as well. Slightly increased signal intensity was seen in the adjacent aspect of the T8 vertebral body on T2-weighted images (Fig. 3). At this time, the radiological differential diagnosis included lymphoma, low-grade infection, osteoblastoma, and “benign vascular lesion”.

At surgery, a brownish well-encapsulated lesion was seen protruding from the surface of the T7 vertebral body. The lesion was resected en bloc from the underlying dense bone and anterior fusion was performed using an iliac bone graft. On histopathological evaluation, the resected specimen demonstrated neoplastic cells arranged in variably sized vascular channels within the intertrabecular spaces. Many bone trabeculae were rimmed peripherally by osteoblasts. The vascular channels comprising the tumor were of variable size and differentiation. They were predominantly simple or mildly complex, in a loose fibrous stroma (Fig. 4). There was some mild irregularity in the shape of the blood vessels and most of the endothelial cells were flattened (Fig. 5). A portion of the specimen demonstrated both vascular channels and more solid areas having an epithelioid architecture. In both areas, the endothelial cells were somewhat prominent with plump nuclei. Within the solid areas, there were large atypical nuclei lying within foamy or vacuolated cells. Similar cells formed a few papillary projections within more differentiated vessels. The lesion demonstrated scant mitotic activity and there was no evidence of necrosis (Fig. 6). A histopathological diagnosis of epithelioid hemangiomia was made. At follow-up 4 years postoperatively by CT examination, there was no evidence of local recurrence or distant involvement. Subsequent clinical follow-up revealed no clinical symptoms.

**Discussion**

Osseous hemangiomas are common benign vascular lesions most often involving the vertebral bodies and calvarium, but also seen to a lesser extent in the bones of the face and tubular bones such as the tibia, femur, hu-