

## Case 2094: Primary haemangiopericytoma of the spine: CT and MR findings

Subspecialty: Neuroradiology

Date of Publication: 2003.09.16

Zuccoli G, Ferrozzi F, Tognini G, Nigrisoli E, Nicoli F  
Arcispedale Santa Maria Nuova  
42100 - Reggio Emilia / ITALY

### Patient:

Age: 41 year(s)

Sex: male

### Clinical Summary

Paraparesis of the lower extremities.

### Clinical History and Imaging Procedures

The patient was hospitalised with paraparesis of the lower extremities. His past medical history was significant for occipital meningioma which had been treated with surgery with no recurrence noted. CT of the spine demonstrated zones of vertebral osteolysis affecting the column from T5 to the sacrum. Magnetic resonance imaging demonstrated hypointense lesions with moderate enhancement on T1-weighted imaging and heterogeneous predominantly hypointense lesions on T2-weighted imaging. CT of the abdomen, thorax and brain did not show the presence of primary lesions. The histological diagnosis performed after biopsy was malignant haemangiopericytoma of the spine. Therapy included subtotal surgical removal and spinal canal decompression followed by radiotherapy.

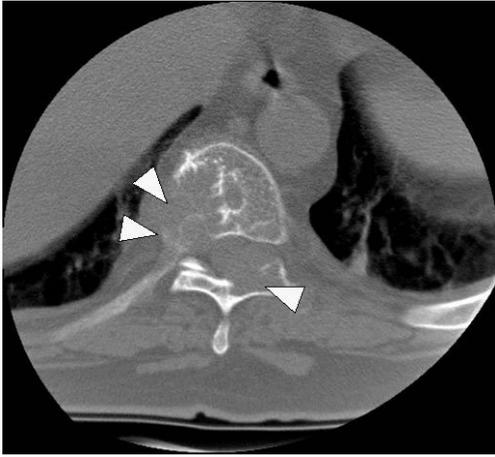
### Discussion

Haemangiopericytoma is a rare, vascular tumour which was described for the first time by Stout and Murray in 1942; it arises from Zimmerman's pericytes, and therefore it occurs anywhere capillaries are found. In fact haemangiopericytoma may originate in any part of the body, most frequently in soft tissue of the thigh, retroperitoneum, central nervous system and thorax. The incidence of metastatic diffusion varies in different published series; dissemination is usually haematogenous and frequently involves the skeleton and lungs. The recurrence rate seems to be higher for CNS tumours compared with musculoskeletal ones. Primary haemangiopericytoma in bone is rare and it may be considered extremely rare in the spine. Spine haemangiopericytoma usually presents as a soft-tissue, well-enhanced isolated mass involving the bone and paraspinal soft tissue spaces. Radiological findings are non-specific. Differential diagnosis includes angiosarcoma, haemangioendothelioma and atypical meningioma. On CT the tumour presents as a lytic lesion with cortical destruction. Periosteal new bone formation is not unusual. Calcification within the tumour has not yet been described in primary haemangiopericytoma of the bone. On MR, haemangiopericytoma shows intermediate signal intensity on T1-weighted imaging, contrast enhancement after gadolinium administration and heterogeneous signal intensity on T2-weighted imaging. Tumour histology shows a homogeneous vascular pattern with a population of round or ovoid cells. Therapy includes surgical removal, which is considered the treatment of choice. However, when the tumour is not easily accessible, radiotherapy may be considered along with surgery. Due to its high vascular support, selective embolisation has also been utilised in order to reduce blood loss during surgical excision.

### Final Diagnosis

Primary malignant haemangiopericytoma of the spine

**Figure 1: Dorsal CT**



**Figure 1a**

Axial CT at the dorsal level: multiple lytic lesions with cortical destruction are seen (arrowheads).

**Figure 2: Lumbar CT**



**Figure 2a**

Axial CT at the lumbar level: note the extensive soft tissue extension of the tumour along with bone erosion.

**Figure 3: Sagittal T2-weighted image of the spine**



**Figure 3a**

T2-weighted sagittal image: this image shows tumour diffusion within the axis bone at the dorsal, lumbar and sacral levels.

**Figure 4: Contrast-enhanced sagittal T1-weighted image of the spine**

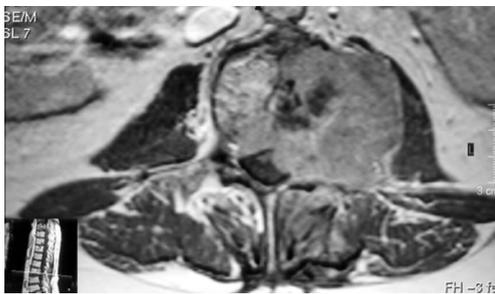
**Figure 4:** Contrast-enhanced sagittal T1-weighted image of the spine



**Figure 4a**

T1-weighted sagittal image: the lesion appears to be predominantly hypointense with respect to normal bone. A mild contrast enhancement of the affected bone is seen.

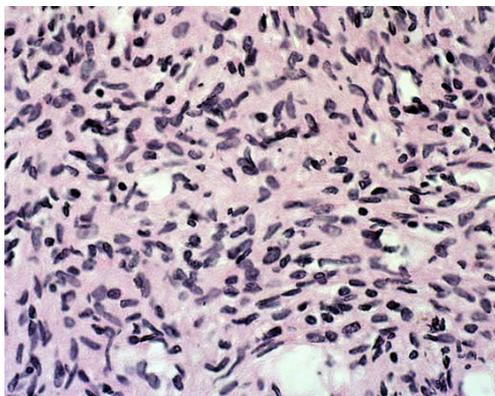
**Figure 5:** Contrast-enhanced axial T1-weighted MR image



**Figure 5a**

This axial post-contrast T1-weighted image shows the soft tissue tumour with mild contrast enhancement. Note the spinal canal involvement.

**Figure 6:** Histology



**Figure 6a**

Malignant haemangiopericytoma of the spine; note the homogeneous vascular pattern with a uniform population of ovoid and round cells.

**MeSH:**

[C04.557.645.380] Hemangiopericytoma

A tumor composed of spindle cells with a rich vascular network, which apparently arises from pericytes, cells of smooth muscle origin that lie around small vessels. Benign and malignant hemangiopericytomas exist, and the rarity of these lesions has led to considerable confusion in distinguishing between benign and malignant variants. (From Dorland, 27th ed; DeVita Jr et al., Cancer: Principles & Practice of Oncology, 3d ed, p1364)

[C04.557] Neoplasms by Histologic Type

A collective term for the various histological types of NEOPLASMS. It is more likely to be used by searchers than by indexers and catalogers.

[C04.588.149.828] Spinal Neoplasms

**References:**

[1] Lin YJ, Tu YK, Lin SM, Shun CT. Primary hemangiopericytoma in the axis bone: case report and review of literature. Neurosurgery 1996 Aug;39(2):397-9.

[2] Durr HR, Nerlich A, Lienemann A, Muller PE, Refior HJ. Malignant hemangiopericytoma of the bone. Langenbecks

Arch Surg 2000 Apr;385(3):207-12.

[3] Tang JS, Gold RH, Mirra JM, Eckardt J. Hemangiopericytoma of bone. Cancer 1988 Aug 15;62(4):848-59.

[4] Heckmayr M, Gatzemeier U, Radenbach D, Liebig S, Fasske E, Magnussen H. Pulmonary metastasizing hemangiopericytoma. Am J Clin Oncol 1988 Dec;11(6):636-42.

**Citation:**

**Zuccoli G, Ferrozzi F, Tognini G, Nigrisoli E, Nicoli F (2003.09.16)**

Primary haemangiopericytoma of the spine: CT and MR findings, {Online}

URL: <http://www.eurorad.org/case.php?id=2094>