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CASE REPORT

Hemangiopericytoma in the vertebral canal of thoracic segments: report of a rare case

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Abstract

In this paper, we explore the diagnosis and treatment of hemangiopericytoma (HPC). A rare case of HPC in the vertebral canal of thoracic segments is reported, and the clinical features as well as treatment approaches of similar cases in the literature are discussed. In the present case, we operatively resected the tumor and performed postoperative radiation therapy, with good treatment results.

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Key words: hemangiopericytoma (HPC); vertebral canal; therapy

Hemangiopericytoma (HPC) is a rare vascular tumor that originates from the pericytes of blood vessels. HPC has a propensity for metastasis and is frequently aggressive. HPC can grow rapidly and usually occurs in the base of the skull, falx, tentorium, or nearby sinus, but occurs in the spinal canal less frequently. Peripheral nerve tissue can be compressed by HPC, causing corresponding signs and symptoms. It is very difficult to distinguish HPC from meningioma. A case of HPC in the vertebral canal is reported in this paper.

Case report

A 50-year-old woman came to our hospital (Lanzhou General Hospital of PLA, China) with a one-month history of decreased sensation in the lower limbs. Magnetic resonance imaging (MRI) revealed a hyperintense, homogeneously enhanced, solid mass about 1.4 cm × 0.8 cm involving the vertebral bodies from T5 to T6, with obvious spinal cord compression; the back of the mass displayed a hyperintense stripe on axial FS-T1WI; a long T2 signal around the mass could be seen on T2WI (Fig. 1 and 2). The patient underwent surgery after admission, and the spinal cord at T5–6 was noted to be significantly swollen during the operation. There was a clear boundary between tumor and spinal cord. The main body of the tumor was located in the intramedullary space, but was partly extramedullary. The tumor was resected completely under the microscope. Follow-up MRI scans showed no residual tumor (Fig. 3). Microscopically, the vascular and fibrous interstitial tissue showed proliferation, and blood vessels were densely arranged in fibrous tissue (Fig. 4). Immunohistochemical staining of the tumor revealed EMA (–), CD34 (++), SMA (++), S-100 (–), Ki-67 > 30%, CD31 (+++), vimentin (++), desmin (–), and FVIII-RAg (+++). The postoperative pathology revealed that the tumor was an HPC. Adjuvant radiotherapy with a total dose over 60 Gy was administered to complete the treatment. We monitored the patient to prevent spinal cord edema and various complications of radiotherapy during treatment. The patient recovered well.

Discussion

HPC is a rare vascular tumor that originates from the pericytes of blood vessels [1]. HPC has a propensity for metastasis and is frequently aggressive. It can grow rapidly, and usually occurs in the base of the skull, falx, tentorium, or nearby sinus, but occurs in the spinal canal less frequently [2]. Peripheral nerve tissue can be compressed by HPC, causing corresponding signs and symptoms. It very difficult to distinguish HPC from meningioma. However, on immunohistochemistry, HPC is characteristically positive for CD34 and vimentin, and negative for

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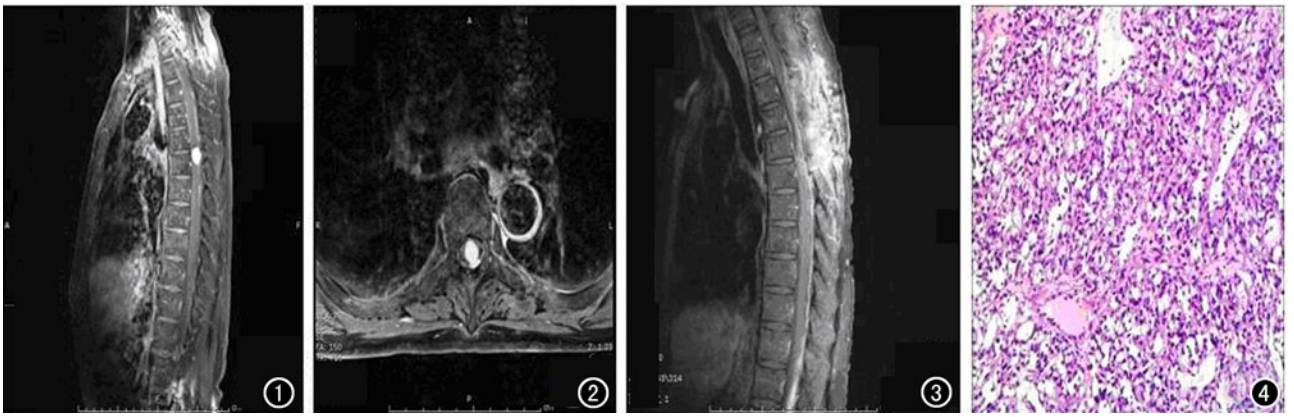

Fig. 1 Preoperative T1 MRI with gadolinium. Sagittal MRI showing an intradural and oval lesion with enhancing signal of the intervertebral space at T5–6, 1.4 cm × 0.8 cm; the posterior edge of the lesion is straight, with severe spinal cord compression

Fig. 2 Preoperative axial cut of T1-weighted enhanced MRI showing an enhancing lesion; T2WI sequence shows an annular hyperintense signal around the lesion

Fig. 3 Postoperative sagittal contrast-enhanced T1-weighted imaging: showing a mixed intra- and extradural signal in the surgical area, no abnormal signal at T5–6 and adjacent spinal vertebrae, part of the vertebral spinous process absent, and no residual lesion

Fig. 4 Tumor histopathology showing densely arranged capillaries, small slit-like blood vessels, interstitial vascular fibroplasia, and fusiform cells in the fibrous tissue [streptavidin peroxidase (SP) method, ×100]

actin and desmin [3].

It is also very difficult to diagnose intraspinal HPC by imaging, because isometric T1 and T2 mixed signals are commonly seen on MRI, and a vascular flow void signal can be seen in the tumor. Heterogeneous enhancement usually can be seen by enhancement scanning, with signals of a vascular flow void and cystic necrosis in the tumor.

The tumor cells are usually fusiform with unclear boundaries, and the nuclei are round or oval. The nucleoli are inconspicuous [4]. Pathological mitoses can often be seen. Immunohistochemically, HPC is characteristically positive for CD34, vimentin, CD99, and BCL-2, and negative for actin and desmin [3].

Total resection followed by radiotherapy and chemotherapy is the primary treatment for HPC. This can reduce the risk of tumor recurrence [5]. In this case, we resected the tumor, and used postoperative radiation therapy, with a good outcome.

Conflicts of interest

The authors indicated no potential conflicts of interest.

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