

Brief Report of Special Case

Primary malignant fibrous histiocytoma extending into spinal canal through intervertebral foramina

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Case report

A 60-year-old man was referred to us because of gradual-onset radiculopathy in his left leg for 2 months. Magnetic Resonance Imaging (MRI) of the lumbar spine demonstrated a relatively homogeneous huge mass in the left paravertebral area from L1 to L3 (Fig. 1A, B). Axial MRI scan (Fig. 1C) confirmed the extension of the tumour into the adjacent spinal canal through the neural foramina, forming an extradural mass, which resulted in the compression of both the dural sac and the nerve roots. The patient was operated on by a staged-resection. First, a left retroperitoneal approach was performed for the paraspinal mass. The tumour appeared brown to tan in color and was moderately firm. Nine days after his first operation, the patient underwent a resection of the intraspinal/extradural tumour by a posterior approach. After the left L1-2 hemilaminectomy was performed, the extradural tumour was easily identified, dissected, and completely removed. Microscopically, it was a highly cellular tumour composed of anaplastic cells assuming a gigantic size with bizarre nuclei, which were admixed with inflammatory cells (Fig. 1D). The tumour cells were immunohistochemically characterized by positive staining for vimentin confirming its mesenchymal origin, and CD68 consistent with histiocyte-like qualities (Fig. 1E, F). A diagnosis of inflammatory malignant fibrous histiocytoma (MFH) could be made. Postoperatively, the patient made an uneventful recovery and received radiotherapy as an adjuvant therapy.

Keywords: Radiculopathy; extradural mass; malignant fibrous histiocytoma (MFH).

Discussion

Primary MFH extending into the spinal canal through the intervertebral foramina, resulting in compression of both the dural sac and the nerve root, is a rare occurrence. Kellett and Dearnaley [4] first described a case of MFH involving the spinal nerve root in 1976. Since then, 8 additional cases have been described, making a total of

9 cases including the present one. MFH is a pleomorphic tumour which is primarily composed of primitive mesenchymal cells and two partially differentiated cell lineages, one with fibroblasts features and the other with histiocyte features [3, 5]. The presence of primitive mesenchymal cells admixed with histiocytic cells, fibroblastic cells, and intermediate cells has been reported in many studies of MFH, suggesting that both histiocytic cells and fibroblastic cells are derived from common precursor cells [2, 3]. Therefore, it is generally accepted that pluripotent primitive mesenchymal cells are the cells of origin for MFH.

Our case is of interest because of its formation and growth pattern. Unlike our case, the tumours reported by Kellett and Dearnaley [4] appeared to originate from the meninges or the perivascular mesenchymal cells within the spinal cord or its coverings. In contrast, the tumour in our case originated most probably in the paraspinal area and extended into the adjacent spinal canal through the neural foramina. This formed an extradural mass, which resulted in compression of both the dural sac and the nerve roots.

The widely-accepted treatment for MFH is a gross surgical resection, followed by radiotherapy and/or chemotherapy. However, the prognosis seems to be poor with the currently available therapies as recorded in the literature [1, 5]. Here we report what is believed to be a unique case of MFH causing radiculopathy as the tumour penetrated into the extradural space of the spinal canal through the intervertebral foramina.

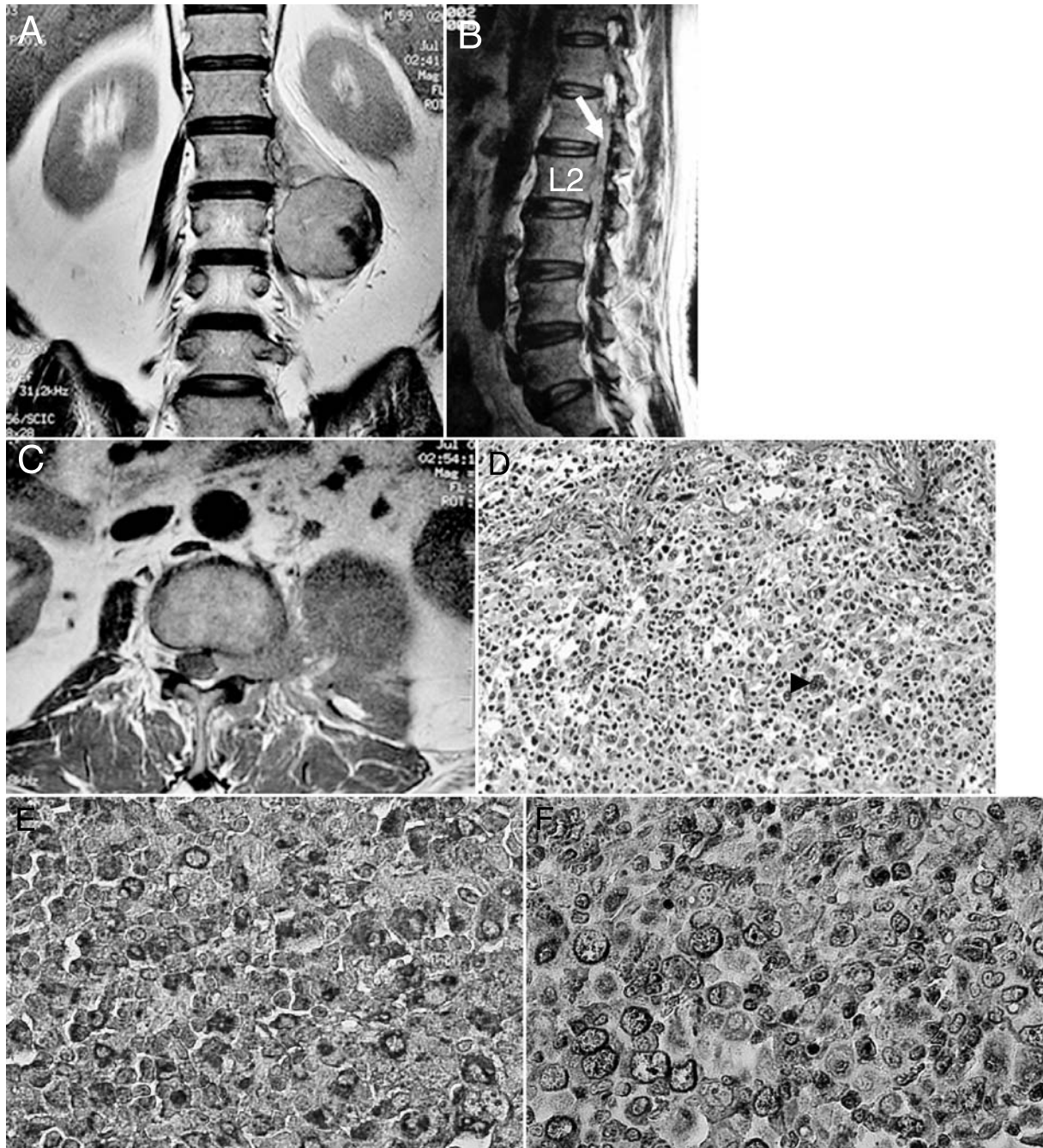


Fig. 1. (A) Coronal section of a T2-weighted image revealing a relatively homogeneous huge mass in the left paravertebral area from L1 to L3. (B) Sagittal section of a T2-weighted image showing the extradural portion of the tumour (*arrow*), which results in the compression of the dural sac. (C) Axial MRI scan producing an iso-signal intensity on the T1-weighted image. (D) Photomicrograph reveals that the highly cellular tumour is composed of anaplastic cells (*arrow head*) assuming a gigantic size with bizarre nuclei, admixed with inflammatory cells (H & E, $\times 100$). (E) Immunohistochemical staining demonstrating diffusely strong positivity of the tumour cells to CD68 ($\times 200$). (F) The tumour cells are positive to vimentin ($\times 400$).

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