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Technical Notes & Surgical Techniques

Primary epidural liposarcoma of the cervical spine: Technical case report and review of the literature

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ABSTRACT

Liposarcoma is the most common soft tissue sarcoma in adults. These tumors have a high incidence of osseous metastases, with a propensity to the spine; however, primary spinal involvement is very rare. A 56-year-old female patient presented with a 4 month history of cervical pain, including radiation to both upper limbs, without radicular distribution. Magnetic resonance imaging (MRI) showed an epidural lesion with gadolinium enhancement and bilateral extension into the intervertebral neural foramina (C5–C7), with spreading on the right side of the tumor into paravertebral tissue. The histopathological diagnosis was myxoid liposarcoma. To our knowledge it is the first case of primary myxoid liposarcoma of the cervical spine in the literature. Although rare, our case demonstrates that liposarcoma should be considered in the differential diagnosis of cervical tumors.

Introduction

Liposarcoma is the most common soft tissue sarcoma in adults. It classified into five distinct histological types: well-differentiated, dedifferentiated, myxoid, round cell, and pleomorphic [1].

Myxoid liposarcoma is the second most common subtype, accounting for 30%–40% of cases, and can frequently metastasize to extrapulmonary locations [1–3].

These tumors have a high incidence of osseous metastases, with a propensity to the spine [4]. However, primary spinal involvement is rare (one case with first manifestation involving the thoracic spine, two cases with lumbar involvement, and one case of intradural involvement).

In this article, we present for the first time a patient with primary liposarcoma of the cervical spine as the primary tumor origin.

Case presentation

History and physical examination

A 56-year-old female patient presented with a 4 month history of cervical pain, including radiation to both upper limbs, without radicular distribution. There was no clinical evidence of cervical cord compression. The patient was in good general condition, and had no other symptoms and no weight loss. Her medical history was unremarkable. Neurological examination on admission revealed apraxia and triceps paresis on both sides. Two stages of surgery were performed using an anterior and posterior approach.

Imaging findings

Magnetic resonance imaging (MRI) showed an epidural lesion with gadolinium enhancement and bilateral extension into the intervertebral neural foramina (C5–C7), with spreading on the right side of the tumor into paravertebral tissue. MRI also showed vertebral body infiltration and edema at C5–C7 level. The intervertebral disks were intact at all levels (Fig. 1). A preoperative CT scan showed evidence of bone destruction at C5–C7 and CT angiography showed vertebral artery displacement on the right side (Fig. 2). Preoperative clinical and imaging examinations (including abdominal CT scan, thorax CT scan, and bone scan) showed no evidence of tumors in other organs and confirmed the primary origin of the tumor.

Surgical intervention and histopathology

In the first step, the patient underwent incisional biopsy using an anterior approach. Histopathological examination showed a small, round cell malignancy consistent with myxoid sarcoma (Fig. 3). Immunohistochemistry indicated a positive reaction for CD34 (particularly in vessel networks), whereas other markers for muscles and epithelial differentiation, as well as S100 protein, were absent.

CD45 was rarely positive. The Ki67/MIBI proliferation index was 6%. The histopathological diagnosis was myxoid liposarcoma (MLS). Biopsy tissue was sent for cytogenetic analyses, which subsequently confirmed the t(5,6) (q13;p11) translocation, typical of myxoid tumors. The

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Table 1
The summary of different cases of primary spinal liposarcoma.

Author	Title	Type of tumor	Location of tumor
Hamlat et al. [9]	Primary liposarcoma of the thoracic spine	Pleomorphic liposarcoma	Thoracic
Lmejjati et al. [7]	Primary liposarcoma of the lumbar spine	Pleomorphic liposarcoma	Lumbar
Barra de Moraes et al. [12]	Primary liposarcoma of the lumbar spine	Pleomorphic liposarcoma	Lumbar
Cho et al. [1]	Intradural involvement of multicentric myxoid liposarcoma	Myxoid liposarcoma	Cervical spine
Our study	Primary liposarcoma of the cervical spine	Myxoid liposarcoma	Cervical spine

To our knowledge our case is the first case of primary cervical liposarcoma.

postoperative physical examination, bone scan, and chest and abdominopelvic CT scans showed no metastasis.

The patient was prepared for the next surgery in two stages. During the first stage, she underwent C6 and C7 vertebrectomy, discetomy of C5/6, C6/7, and C7/T1 with tumor resection, as well as paravertebral and intraspinal tumor and bilateral neurolysis of the nerve roots C5, C6, C7 and C8 via the anterior approach. The removed tumor was yellow and avascular in color (Fig. 4). Anterior reconstruction was performed using an expandable cage (Fig. 5, left).

The second stage of surgery was performed using a posterior approach 4 days after resection of the tumor from the neural foramina C5 and C5 neurolysis, as well as fusion surgery from C5 to T1 (Fig. 5,

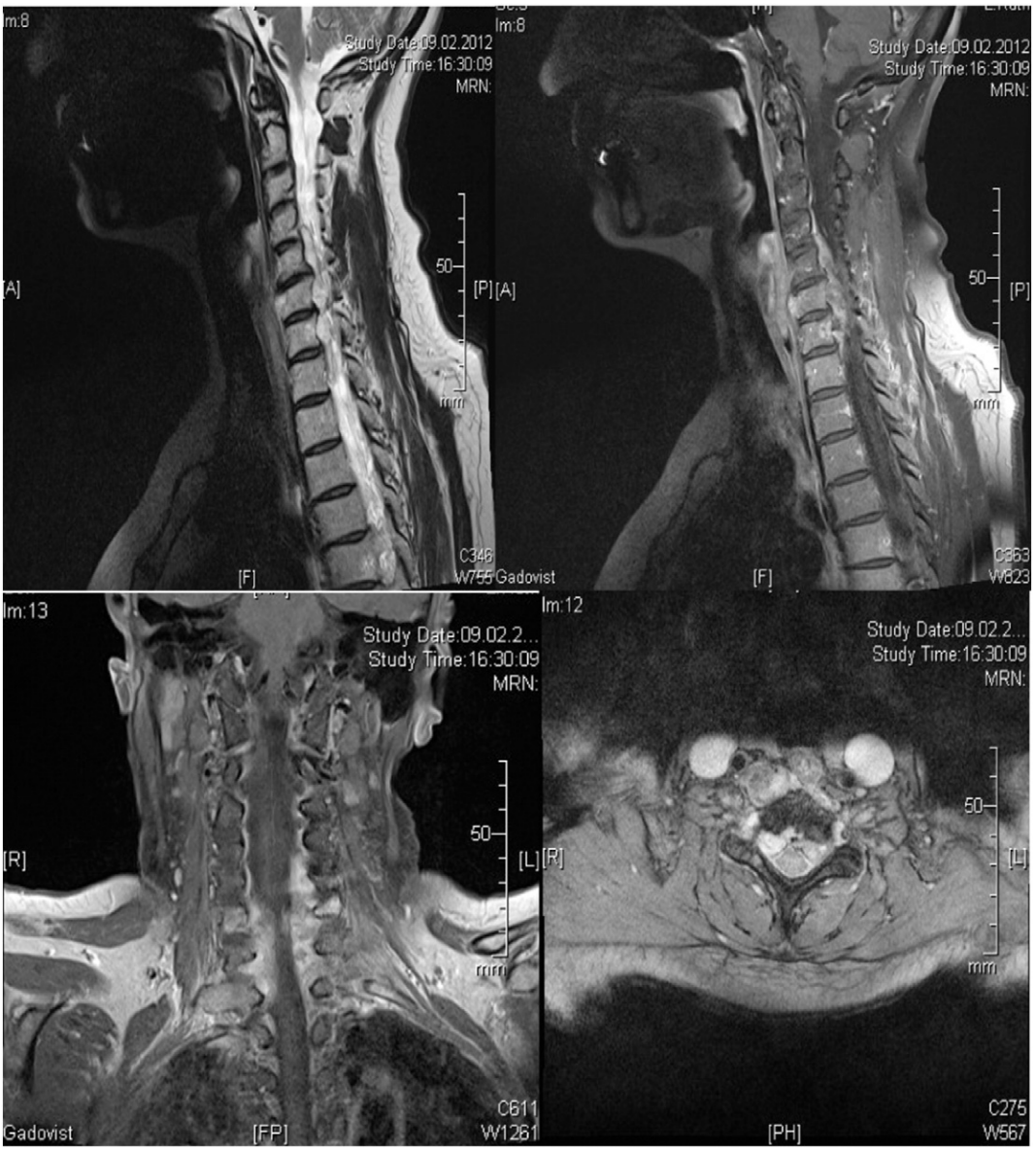

Fig. 1. T2 and T1-weighted magnetic resonance images after gadolinium infusion show an epidural mass at C5–C7 with pre and paravertebral involvement and compression effect on cervical cord. (Upper left: sagittal T2, upper right: sagittal T1 with contrast, lower left: coronal T1 with contrast, lower rights: axial T2).