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Case Report

An unusual occurrence of chondromyxoid fibroma with secondary aneurysmal bone cyst in the cervical spine

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Abstract

BACKGROUND CONTEXT: Chondromyxoid fibroma (CMF) and aneurysmal bone cysts (ABCs) are rare bone tumors and even rarer in the spine. To date, no report has been made of CMF with secondary ABC in the cervical spine.

PURPOSE: The purpose of this study was to describe the diagnosis and surgical treatment of a case of CMF with secondary ABC of C6, a rare occurrence in an uncommon location.

STUDY DESIGN: The study design is a case report.

METHODS: A 27-year-old woman presented with numbness with paresthesias of the right upper extremity. Diagnostic imaging revealed diffuse enlargement of the right C6 lamina extending into the pedicle and medial facet joint. Surgical treatment consisted of complete C6 laminectomy, total resection of the extradural cervical mass, posterior lateral fusion at C5–C7, and posterior segmental instrumentation from C5 to C7. Histopathology was consistent with CMF with secondary ABC.

RESULTS: Laminectomy and instrumented segmental fusion provided an excellent clinical outcome. The instrumented fusion maintained the sagittal balance of the spine and stabilized across a complete facetectomy. The excision will likely avoid recurrence of the lesion.

CONCLUSIONS: Treatment of CMF and ABC is challenging in the spine because of the proximity to neural structures. Aggressive surgical treatment makes recurrence less likely but creates the risk of spinal instability. Adequate surgical treatment needs to provide spinal stability.

Keywords: Chondromyxoid fibroma; Aneurysmal bone cyst; Cervical spine; Bone tumor

Case report

The patient is a 27-year-old female administrative assistant. She initially presented to her primary care physician with a chief complaint of right-sided neck pain with numbness and paresthesias radiating into the right upper extremity, gradually worsening over the preceding 6 months. She had sustained no memorable injury, and her symptoms had failed to improve with nonsteroidal anti-inflammatory agents. The sensory abnormalities began proximally in the right shoulder and progressed to involve the right lateral arm, radial forearm, and eventually the thumb and index finger. She described her neck pain as moderately severe (pain score of 4 on a visual analog scale of 0–10). It began in the mid-posterior neck and extended into the right trapezius region, was unchanged with position or activity, and had been refractory to physical therapy including modalities and traction. The family history was significant for a malignant brain neoplasm, but the patient had an unremarkable medical history and review of systems.

Physical examination demonstrated no evidence of paraspinous muscular spasm or tenderness to palpation. Her cervical range of motion was normal and painless. Spurling sign was positive on the right side. Axial compression and

FDA device/drug status: not applicable.

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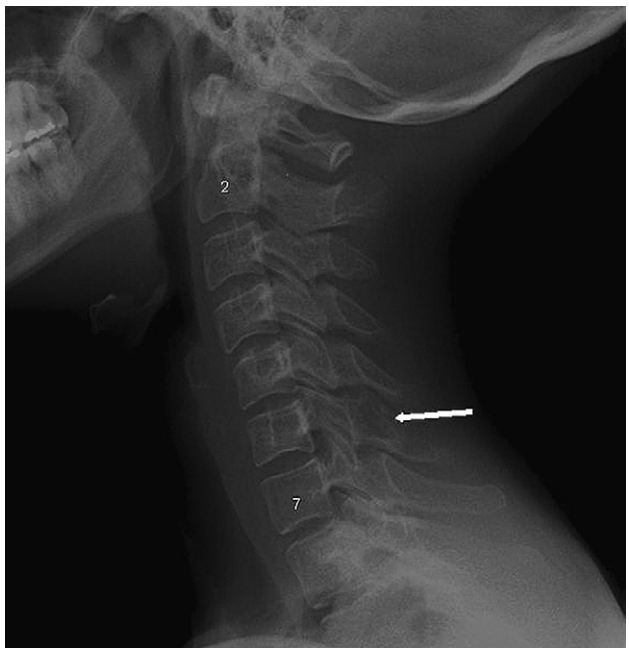

Fig. 1. Lateral cervical radiograph demonstrating lucency in the base of the C6 spinous process (arrow).

facet loading caused no pain. Motor examination was intact. Sensory examination was intact to both light touch and pinprick. Reflexes were brisk 3+ and symmetric in both the upper and lower extremities. Tinel sign and Phalen sign were negative at both the wrist and elbow.

Imaging studies demonstrated an obvious abnormality. A lateral cervical radiograph demonstrated lucency in the base of the C6 spinous process (Fig. 1). T2-weighted sagittal magnetic resonance imaging showed a hyperintense lesion involving the lamina and right lateral mass of C6 extending into the neural foramen (Fig. 2). T1-weighted axial magnetic resonance imaging with gadolinium showed a homogenous pattern of enhancement in the C6 lamina and right lateral mass (Fig. 3). T1-weighted coronal magnetic resonance imaging with gadolinium demonstrated contrast-enhancing epidural tumor extension (Fig. 4). Computed tomography demonstrated evidence of a hypodense lesion causing diffuse expansion of the right C6 lamina with extension through the anterior cortex into the epidural space (Fig. 5). There were obvious canal compromise and foraminal stenosis caused by a soft-tissue mass.

A chest radiograph (negative) and nuclear medicine bone scan were performed to rule out metastatic disease finding only abnormal signal uptake in the lower cervical spine.

The surgical intervention consisted of complete resection of the C6 lamina and right lateral mass, complete resection of the extradural cervical mass, posterolateral fusion at C5–C7, and posterior segmental instrumentation from C5 to C7 (Fig. 6). Coronal computed tomography reconstructions demonstrated complete resection of the involved bony structures (Fig. 7).

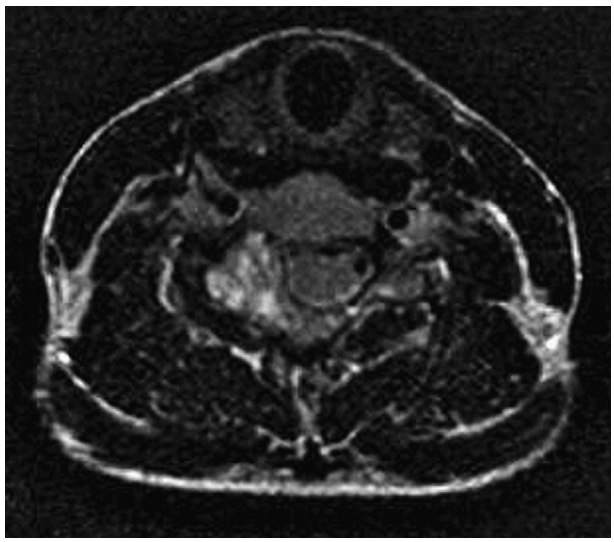

Fig. 2. T2-weighted sagittal magnetic resonance imaging demonstrating a hyperintense lesion involving the lamina and right lateral mass of C6 extending into the neural foramen.

Histopathological examination of the resected reddish purple epidural mass demonstrated no evidence of necrosis or mitotic figures on frozen section, whereas permanent section showed groups of spindle-shaped or stellate cells with abundant myxoid or chondroid intercellular material. Microscopic evaluation further identified a pale blue myxoid matrix containing intertwined strands of spindle and stellate cells with bland nuclei, finely dispersed chromatin, and inconspicuous nucleoli. These were rimmed by hypercellular areas that contained similar fusiform to spindle cells mingled with variable numbers of osteoclast-like giant cells. In certain areas, it appeared that there were small hemorrhagic cystic and cavernous spaces surrounded by

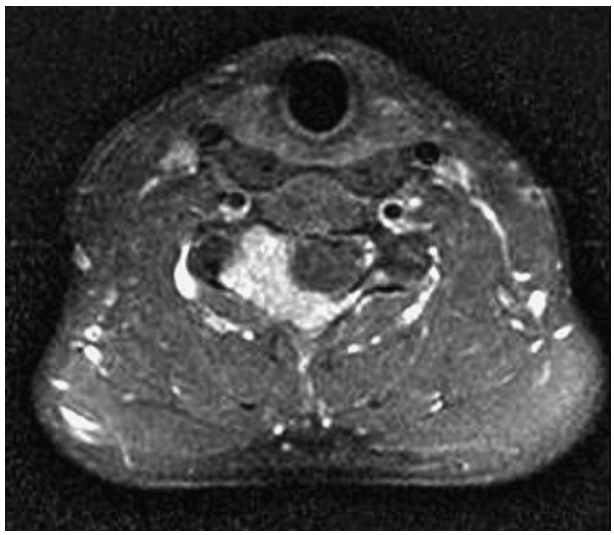

Fig. 3. T1-weighted axial magnetic resonance imaging with gadolinium demonstrating a homogenous pattern of enhancement in the C6 lamina and right lateral mass.