Spinal Aneurysmal Bone Cyst Causing Spinal Cord Compression

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A previously well female teenager presented with acute paraparesis. She reported a 2-month history of atraumatic back pain. Four days before admission, she progressed from walking independently to inability to mobilize. She had fecal incontinence and micturition difficulty. On examination, she had T8 sensory level with pinprick (including perineum) with reduced power (mostly 2-3/5, worse on the right) and lower limb hyperreflexia.

Computed tomography and magnetic resonance imaging (Figures 1 and 2) revealed an expansile lytic lesion in the posterior elements of T7 with fluid-fluid levels within enhancing septa consistent with an aneurysmal bone cyst (ABC), confirmed by histopathology. Dorsal epidural space extension and bilateral T7 superior and inferior articular process involvement with focal kyphosis result in spinal cord compression.

The patient underwent T7 laminectomy, resection of ABC, and posterior instrumented fusion (T5-T9) (Supplementary Figure 1, available online at http://www.mayoclinicproceedings.org) with complete neurologic recovery.

Aneurysmal bone cysts are benign neoplasms composed of neoplastic spindled cells harboring USP6 (17p13.2) rearrangements and various reactive cell types, including osteoblasts, osteoclast-like giant cells, endothelial cells, and myofibroblasts (Supplementary Figure 2, available online at http://www.mayoclinicproceedings.org). Changes include fusion of CDH11 with USP6 and upregulation of USP6 transcription. USP6 rearrangements are found in approximately 70% of ABCs.

Aneurysmal bone cysts are highly vascular and capable of locally aggressive growth. Most patients present before 20 years of age. Between 3% and 30% of ABCs are spinal (typically posterior elements). The main management includes intralesional resection, radiation therapy, en bloc resection (with or without preoperative embolization), or selective arterial embolization. In cases with high risk of instability, spinal instrumented fusion is required.

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FIGURE 1. Magnetic resonance imaging sagittal images: (A) T1 sequence post-gadolinium contrast and (B) T2 sequence, showing a large septated cystic lesion with fluid-fluid levels in the posterior elements of T7.
SUPPLEMENTAL ONLINE MATERIAL

Supplemental material can be found online at: http://www.mayoclinicproceedings.org. Supplemental material attached to journal articles has not been edited, and the authors take responsibility for the accuracy of all data.

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FIGURE 2. Computed tomography scan with bone settings: (A) midline sagittal, (B) off midline sagittal at the level of the right-sided facet joints, and (C) axial image, showing expansile lytic lesion in the posterior elements of T7 and segmented kyphosis.