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Solitary, asymptomatic, posterior, vertebral, intracanal, cervical spine osteochondroma

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Osteochondromas are common benign tumors most often occurring in the metadiaphyseal region of long bones. Spinal osteochondromas, however, are rare. Only one to four percent of osteochondromas occur in the spine. We present a case of a possible solitary osteochondroma (arising from the posterior C4 vertebral body and protruding into the central canal) as an incidental finding in an eight year-old female who was imaged after cervical spine trauma.

Case report

An eight-year-old female presented to the emergency room after cervical spine trauma. The patient was asymptomatic prior to the trauma but developed cervical spine tenderness as a result of the trauma. She did not have any symptoms of myelopathy or radiculopathy. A noncontrast CT of the cervical spine was obtained. Although no acute fractures were identified, a solitary, well-circumscribed bone tumor was incidentally identified arising from the posterior margin of the C4 vertebral body, with cortical continuity with the parent vertebra (Fig. 1). The tumor resulted in central canal narrowing. A pre- and postcontrast MRI of the cervical spine was performed for further characterization of the lesion. The MRI demonstrated marrow continuity of the lesion with the C4 vertebral body and a possible small cartilage cap (Fig. 2), consistent with an osteochondroma. There was associated flattening and compression of the anterior spinal cord at the C4 level. No evidence of malignant degeneration was identified. Given the lack of symptomatology, to our knowledge, the lesion was not resected and therefore, definitive pathologic correlation could

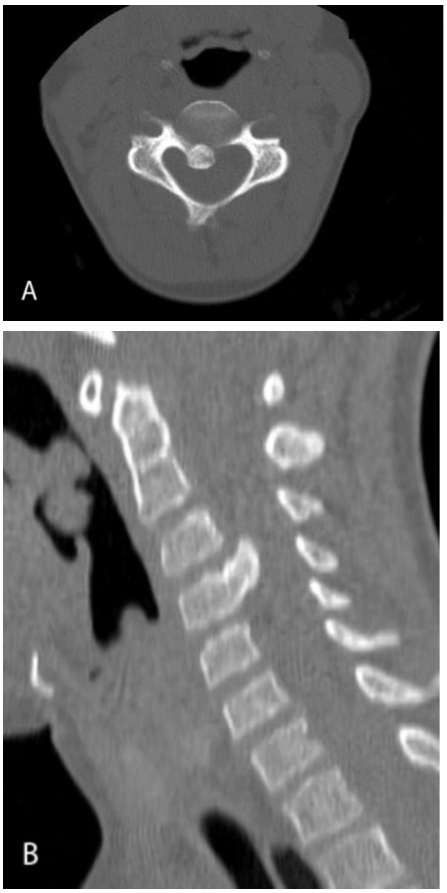

Figure 1. Eight-year-old female with cervical spine osteochondroma. Cervical spine osteochondroma in an asymptomatic 8 year-old female. Axial (A) and Sagittal (B) CT images in bone windows (C 570, W 3077) demonstrate a circumscribed, broad-based bony lesion arising from the C4 posterior vertebral body and protruding into the central canal. There is cortical continuity between the lesion and the parent vertebra.

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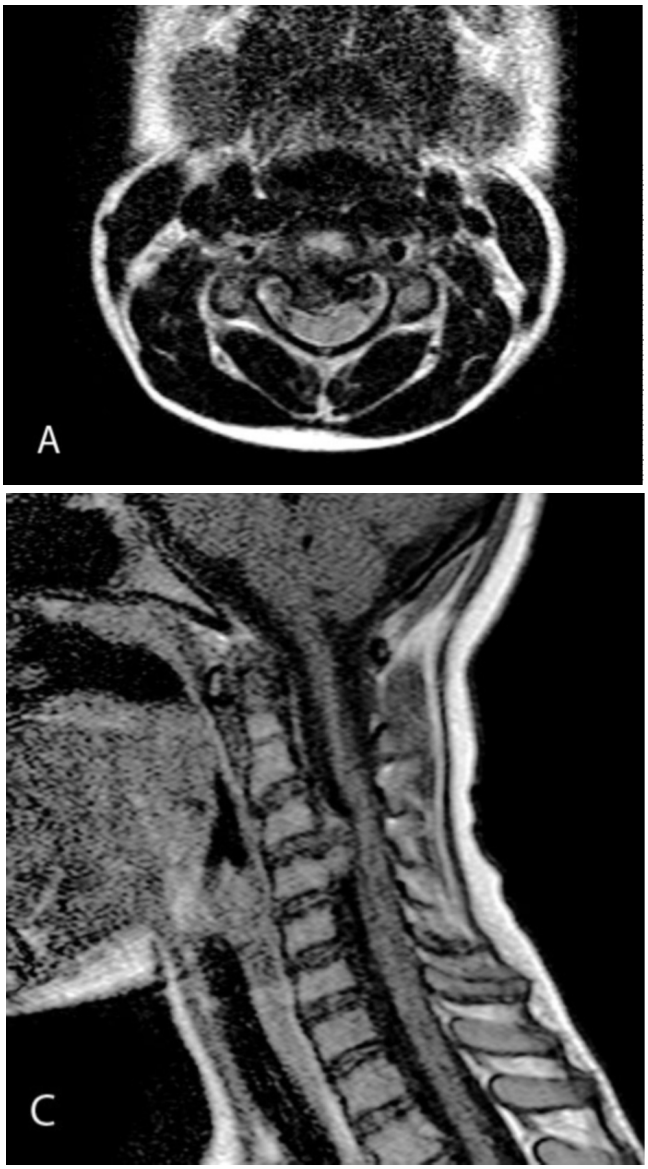

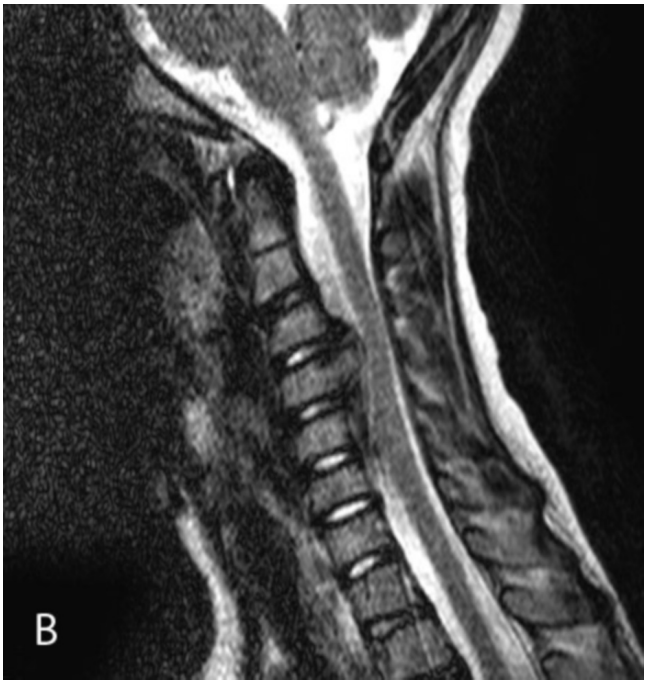

Figure 2. Eight-year-old female with cervical spine osteochondroma. MR images. Axial T2 (4100/100)-weighted (A), sagittal T2 (3500/135)-weighted (B), and sagittal T1 (400/12)-weighted postcontrast (C) images show a circumscribed lesion isointense to bone marrow on all sequences, arising from the C4 posterior vertebral body, with marrow continuity with the parent vertebra. A small, mildly hyperintense cartilage cap is possibly identified on the T2-weighted images. The lesion protrudes into the central canal, resulting in compression and flattening of the anterior spinal cord.

not be obtained. The patient did not have a known history of hereditary multiple exostoses.

Discussion

Osteochondromas are the most common benign bone tumors and most often affect the long bones, particularly the distal femur and proximal tibia. The lesion is composed of cortical and medullary bone, with an overlying hyaline cartilage cap. Continuity of the lesion with the underlying native bone cortex and medullary canal is considered pathognomonic for an osteochondroma. Hereditary multiple exostoses is a syndrome associated with multiple osteochondromas. Complications of osteochondromas include deformity, fracture, vascular compromise, neurologic sequelae, bursa formation, and malignant degeneration (1).

Spinal osteochondromas arise from the spine in 1% to 4% and 7% to 9% of people without and with hereditary multiple exostoses, respectively. They most commonly arise from the cervical portion, with C2 being the most frequently affected level (2). Within the spine, they more commonly arise from the spinous and transverse process, but can also arise from the vertebral body, pedicle, and rarely the facet joints (3, 4, 5).

The present case is unique in the location of the possible osteochondroma, arising from the posterior vertebral body. Not only is vertebral body involvement uncommon, it also tends to be isolated to the anterior vertebral body. Based on a review of the literature, we did not find any cases of cervical osteochondroma arising from the posterior vertebral body. Furthermore, the present case is also unusual in that the possible osteochondroma was asymptomatic, despite the central canal narrowing and spinal-cord compression. This is in contradistinction to most osteochondromas involving the spinal canal, which tend to cause neurological symptoms even when relatively small (1).

Radiological modalities in osteochondroma evaluation include plain radiographs, CT, MRI, and bone scintigraphy. MRI can be of use if malignant transformation is suspected. Bone scintigraphy can evaluate for the presence of additional osteochondromas, which are found in approximately 50% of patients with a cervical spine osteochondroma (6).

An osteochondroma that is asymptomatic, as in our potential case, requires no treatment. However, if there is associated pain or neurologic abnormality, it should be excised at its base. The osteochondroma should not recur after excision as long as the cartilage cap is entirely removed (3, 4). Laminectomy with decompression of neural elements is the treatment of choice for a symptomatic intracanal osteochondroma (7).

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