An unusual MR finding of spinal schwannoma

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SUMMARY

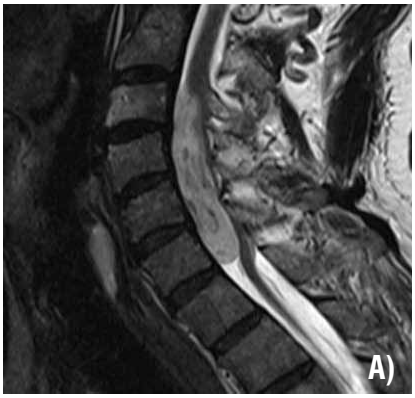
We present a case of atypical schwannoma of the cervical spine in a patient with cervical cord compression. Cervical cord tumor did not enhance on MR images after contrast administration, which is highly atypical for schwannoma.

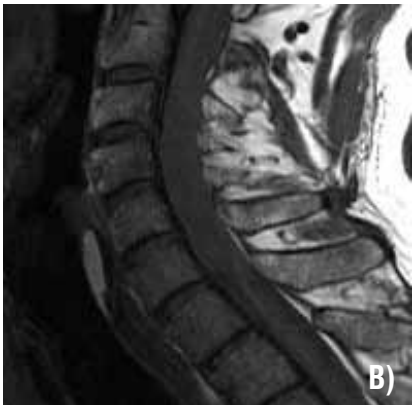
Key words: *Neurilemmoma; Spine; Cervical Vertebrae; Magnetic Resonance Imaging; Spinal Cord Compression*

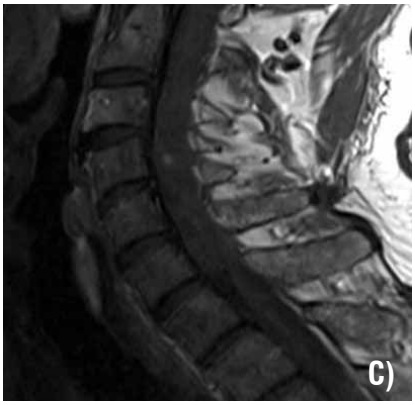
Schwannomas are common intradural extramedullary spinal tumors (1) that typically show homogeneous or heterogeneous enhancement and that are variably hyperintense on T2 weighted magnetic resonance (MR) images (2, 3). We report a case of acute cord compression caused by an atypically non-enhancing schwannoma of the cervical spine.

CASE REPORT

A 51-year-old man had a few months history of bilateral weakness of the upper extremities. On initial neurological examination, the patient had spastic paraparesis of muscles of both upper extremities, more prominent on the left side and positive Babinski sign. An MR examination of the cervical spine was performed without and with contrast material and showed lesion at the C3-6 level, which caused significant cord compression. This lesion showed heterogeneous signal intensity on T2-weighted images and very low nodular contrast enhancement on posterior wall (Figure 1A–C). The tumor expanded the left side foramina on C5-6 level what was a sign of longstanding process and typical for nerve sheath origin of tumor (Figure 1D). The patient underwent operation for decompression of the C3-6 tumor. A C3-6 bilateral laminectomy was performed with removal of the intradural spinal mass. Final pathologic diagnosis was schwannoma with very rare cystic degeneration.







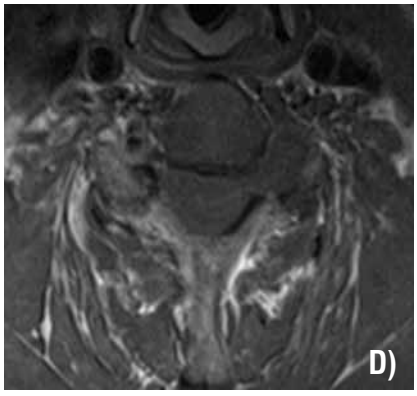


Figure 1. Fifty-one-year-old man with few weeks' history of bilateral weakness of the upper extremities

A) Sagittal T2-weighted image shows an intradural, extramedullary, inhomogeneous, oval-shaped mass in spinal canal at the C3-6 level. The cord is compressed and shows myelopathy signal.

B) Sagittal T1-weighted non-contrast MR image shows homogeneous signal intensity within the tumor

C) Sagittal T1-weighted, fat-suppressed, contrast-enhanced MR image shows no significant enhancement within the schwannoma

D) Axial T1-weighted, fat-suppressed, contrast-enhanced MR image shows expanding of left C5-6 foramina typical for tumors arising from nerve sheaths.

DISCUSSION

Nerve sheath tumors and meningiomas are the most common intradural extramedullary neoplasms (2,4). The two main types of nerve sheath tumors found in spine are schwannomas and neurofibromas. Both tumors are composed primarily of Schwann cells (5). Schwannomas are mostly solid or heterogeneous solid tumors (2,6). The tumors may undergo rare cystic degeneration, hemorrhage, or xanthomatous changes (3,5). Various theories have been proposed to explain the cystic changes occurring in schwannomas. Degeneration of the Antoni B portion of a neurinoma

can result in cyst formation and may then progress to form a larger cyst (6). Also, central ischemic necrosis can be caused by tumor growth resulting in cyst formation within the tumor (6). Previous reports have described the MR imaging characteristics of spinal schwannomas. They are typically hypointense relative to the cord on T1-weighted MR images and hyperintense on T2-weighted images (1). They may be inhomogeneous on T2-weighted images with focal areas of hyperintensity and hypointensity corresponding to cyst formation, hemorrhage, dense cellularity, or collagen deposition (3). Friedman et al (3) reviewed seven cases of spinal schwannoma and found heterogeneous enhancement in all cases. Peripheral enhancement was described in five of seven lesions, which, according to the authors, should suggest the diagnosis of schwannoma. In our case of intradural extramedullary spinal lesions in a man with symptoms of acute cervical cord compression, the MR appearance of the pathologically proved cervical schwannoma was typical on pre-contrast T1-weighted and T2-weighted MR images. However, contrast-enhanced T1-weighted images were atypical by virtue of the lack of contrast enhancement. We postulate that the lack of enhancement was due to absent perfusion within the cystic degeneration of the tumor.

Conflict of interest

We declare no conflicts of interest.

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