Case 515

Eurorad

Vertebral schwannoma

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ISSN: 1563-4086
Section: Neuroradiology
Imaging Technique: MR
Case Type: Clinical Cases
Authors: Loshkajian A, Sigal R
Patient: 50 years, male

Imaging Findings:

Radicular and spinal cord compression with bilateral radicular pain , segmental sensitory changes (T12-L1 level), motor disturbance and loss tendon reflexes. Plain films of the dorsal and lumbar spine were normal. An MR exam was required leading to suspect a benign intra-dural and extra-medullary vertebral neoplasm. The patient was operated and the diagnosis of intra-vertebral dorsolumbar schwannoma was confirmed.
Discussion:

Nerve sheath tumors and meningiomas account for 80% to 90% of all intra-dural extra-medullary neoplasms. Two main types of nerve sheath tumors are found in the spine ; schwannomas (also known as neurinoma or neurilemoma) and neurofibroma. In both tumors the Schwann cell is the proliferating component. In schwannomas, the nerve fibers are located in the capsule of the tumor; they are further classified into Antoni type A (densely packed spindle cells) and Antoni B type (loose myxoid stroma). In neurofibroma the nerve fibers course throughout the lesion. Plexiform neurofibroma are found in patients with type 1 neurofibromatosis (NF-1). Schwannomas are slightly more common than neurofibromas. Both sex are affected but there is a slight female predominance with schwannomas. Nerve sheeth tumors can be intra-dural in 70% to 75% of cases, extra-dural in 15% of cases or combined intra and extra-dural masses in 15%. Less than 1% of these tumors occur inside the spinal cord. The location of these tumors throughout the spine is fairly uniform with a slight lumbar predominance. Multiple lesions are common in neurofibromatosis. Neurofibromatosis von Recklinghausen disease occurs in about one of every 4,000 births. Two types of NF exist, NF-1 (90% of all cases), and NF-2 (10% of all cases).NF-1 is due to a defect on chromosome 17; NF-2 results from a defect on chromosome 22. Both of these disorders are inherited in a dominant fashion. At MR schwannomas are lobulated, well-circumscribed, round or oval tumors with often hemorrhage, cystic or necrotic degeneration. Neurofibromas appear non encapsulated, fusiform, less well-delineated lesions. Necrosis and cystic degeneration are rare. Schwannomas and neurofibromas cannot reliably be distinguished on MR. 75% of nerve sheeth tumors are iso-intense compared to spinal cord on T1 weighted images, whereas 25% are hypo-intense. More than 95% are hyper-intense on T2 weighted sequences. Cystic, hemorrhagic or necrotic degeneration is seen as hyper-intense and heterogenous central signal intensity on T2 weighted images. After contrast administration, enhancement vary from homogeneous to cystic-appearing masses. The major differential diagnosis consideration with an intra-dural nerve root tumor is meningioma. However, most spinal meningiomas have a broad-based dural attachment. A dural «tail» sign is seen in some cases. Densely calcified meningiomas appear hypointense on MR and show minimal contrast enhancement. MR is the most adequate technique when spinal cord compression is suspected.
Differential Diagnosis List: Intravertebral dorso-lumbar Schwannoma.

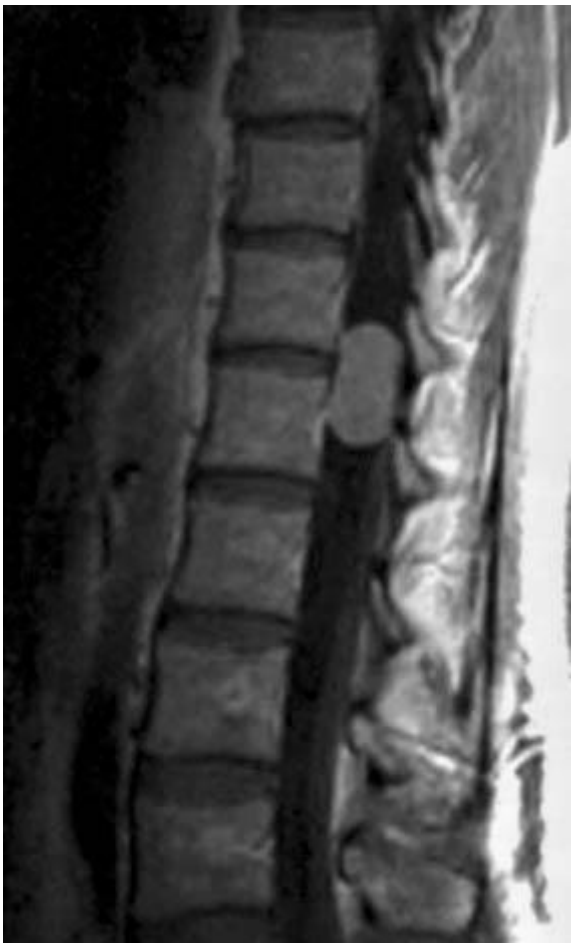
Final Diagnosis: Intravertebral dorso-lumbar Schwannoma.

References:

Osborn AG. Tumors, cysts and tumorlike lesions in the spine and spinal cord. In Osborn AG (ed)Diagnostic Neuroradiology
Mosby, St-Louis, pp 895-898 (1994).

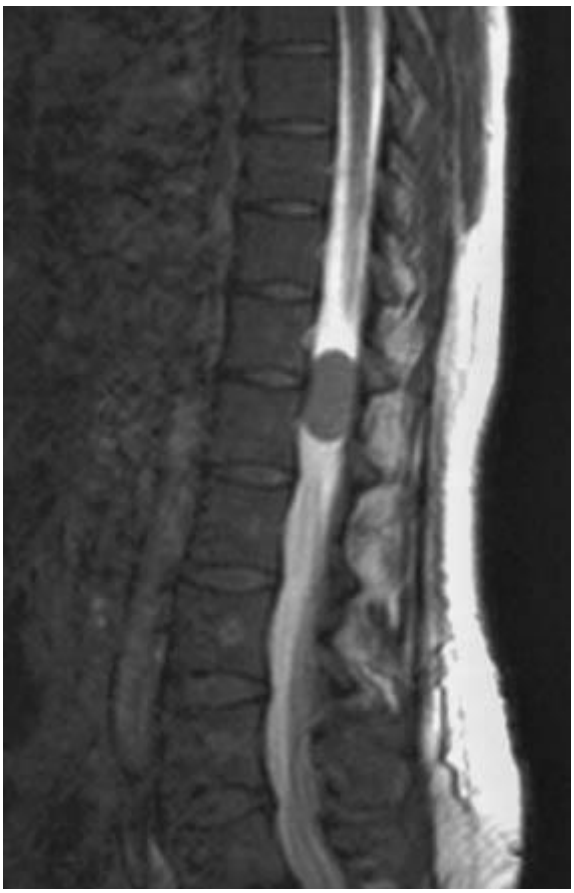
Figure 1

a



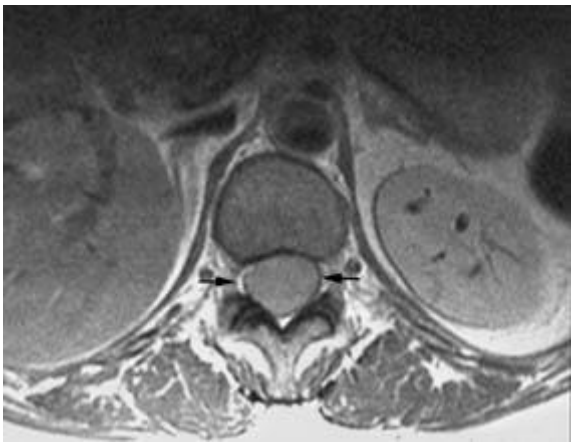
Description: MRI post-contrast sagittal T1-weighted image of the dorso-lumbar spine demonstrating a well-defined strongly enhancing tissular mass with spinal cord compression. **Origin:**

b



Description: MRI sagittal T2-weighted image; the lesion appears hypointense **Origin:**

c



Description: MRI axial T1-weighted postcontrast image demonstrating the tissular lesion filling the vertebral canal **Origin:**