

Answer to Medical Quiz - 2

Answers:

- Ans. 1. Sagittal T1-enhanced magnetic resonance (MR) image shows a low signal mass, with rim-enhancement in the spinal canal at the T12 level.
- Ans. 2. Both T1- and T2-weighted MR images show a low signal mass.
- Ans. 3 Schwannoma
- Ans. 4. i). Meningioma, ii). Metastatic tumors, iii) Neurofibroma
- Ans. 5. Surgery

Review:

Spinal schwannomas are the most common benign nerve sheath tumors within the spinal canal, typically arising from spinal nerve roots of spine ¹. They are one of the most common intradural extramedullary spinal tumors, representing 15-50% of such lesions. Rarely (1%), it is intramedullary tumors ². They are most frequently seen in the cervical and lumbar regions and less frequently in the thoracic spine.

Peak incidence of spinal schwannomas is in the fifth through seventh decades ². There is no significant sex predilection. The vast majority of spinal schwannomas are solitary and sporadic (95%)². However, there is a link to type 2 neurofibromatosis (NF2). Nearly of spinal nerve root tumors in NF2 individuals are schwannomas or mixed tumors. The finding of multiple schwannomas in a young adult without the NF2 mutation may meet the criteria for schwannomatosis. Patients frequently complain of pain because dorsal sensory roots are where spinal schwannomas typically develop. There is also radicular sensory loss. There is less weakness. Large lesions may result in myelopathy. ³

These tumors typically detach from other nerve roots and develop from sensory root Schwann cells. These lesions typically have a globular shape and are highly defined. Schwannomas typically present as solid, well-defined, spherical lesions that are frequently accompanied by surrounding bone remodeling. When enormous, they may either protrude from the neural foramen or line with the long axis of the cord, generating sausage-shaped masses that can extend over several levels or may protrude out of the neural foramen, forming a dumbbell-shaped mass.

In most cases, neurofibromas and schwannomas cannot be distinguished radiographically.

Schwannomas can resemble neurofibromas on MRI, however schwannomas are more frequently linked to bleeding, intrinsic vascular abnormalities (thrombosis, sinusoidal dilatation), cyst development, and fatty degeneration. In neurofibromas ⁴, these features are uncommon. Neurofibroma, meningioma, intradural extramedullary metastases, tuberculoma, paraganglioma, and myxopapillary ependymoma are the prominent differential diagnoses. ⁵In MRI sequences, typical signal features include: 25% are hypointense and 75% are isointense in the T1WI. T1 C+: about 100% enhance, T2: more than 95% are hyperintense, and T2: typically with mixed signal ⁶. Although schwannomas are slow-growing lesions, they can nonetheless be quite harmful. Malignant change practically never occurs in them. Surgery is the treatment of choice. Gross total resection is usually curative for patients with sporadic tumors. There is a substantial prevalence of new tumor formation in NF2 patients⁷.

References:

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