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Schwannoma of Dorsal spine: A case report of a 25 year old female with Schwannoma at D10-11 level

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Abstract
Background: Spinal Schwannomas are benign nerve sheath tumors within the spinal canal, typically arising from the spinal nerve roots and it is the most common nerve sheath tumor of spine.
Case presentation: This report describes a case of Schwannoma at D10-11 level in a 25 year old Indian female. The clinical, radiological, neurological evaluation and management are presented in this report.
Conclusion: nerve sheath tumor has high propensity to involve at dorsal spine and early diagnosis and gross total excision usually give very good clinical and neurological outcome.

Keywords: intramedullary Schwannomas, nerve sheath tumor, dorsal spine, excision, neurofibromatosis

Introduction
Spinal canal Schwannomas account for 30% of spinal tumors, most of which are generally associated with neurofibromatosis type1 & type 2. Intramedullary Schwannomas not associated with neurofibromatosis are rarely reported, which account for approximately 0.3% of all medullary tumors and 1.1% of spinal Schwannomas. These lesions have appeared as single lesions or dumbbell intra and extra medullary ones.

Case presentation
A 25 year old female patient with Bilateral lower limb weakness with gait instability of gradual onset over the last 8 months was admitted with no history of trauma, neurofibromatosis or specific skin lesions. Neurological examination revealed that motor power of both the lower limbs was 3/5. All modalities of sensations were decreased below L1 level on right side. The Bilateral knee jerks and ankle jerks were hyperactive with well sustained ankle clonus was observed. MRI shows an extra medullary intradural lesion in Right half of spinal canal from D10 to D11 level. The lesion was Hypo intense on T1W images and Hyper intense on T2W images. The axial section reveals neural foraminal compression. Radiological diagnosis was suggestive of meningioma / nerve sheath tumor. The surgery was performed under general anesthesia with patient in prone position. After D9-D12 pedicle screw fixation D10-D11 laminectomy done, tumor was exposed and separated from dura that involves D10 - D11 vertebral body anteriorly. Tumor was removed piecemeal from vertebral body, epidural space and both right side foramen (D10- D11). Both nerve root and spinal cord were free from compression from tumor. Cavities of D10- D11 vertebral body filled with bone graft. Histopathological examination of the tissue confirmed the diagnosis of *Schwannoma.* Post operatively, the patient showed significant results, with improvement in gait instability, motor power 4/5 in both lower limbs and Bilateral normal sensations in lower limbs.

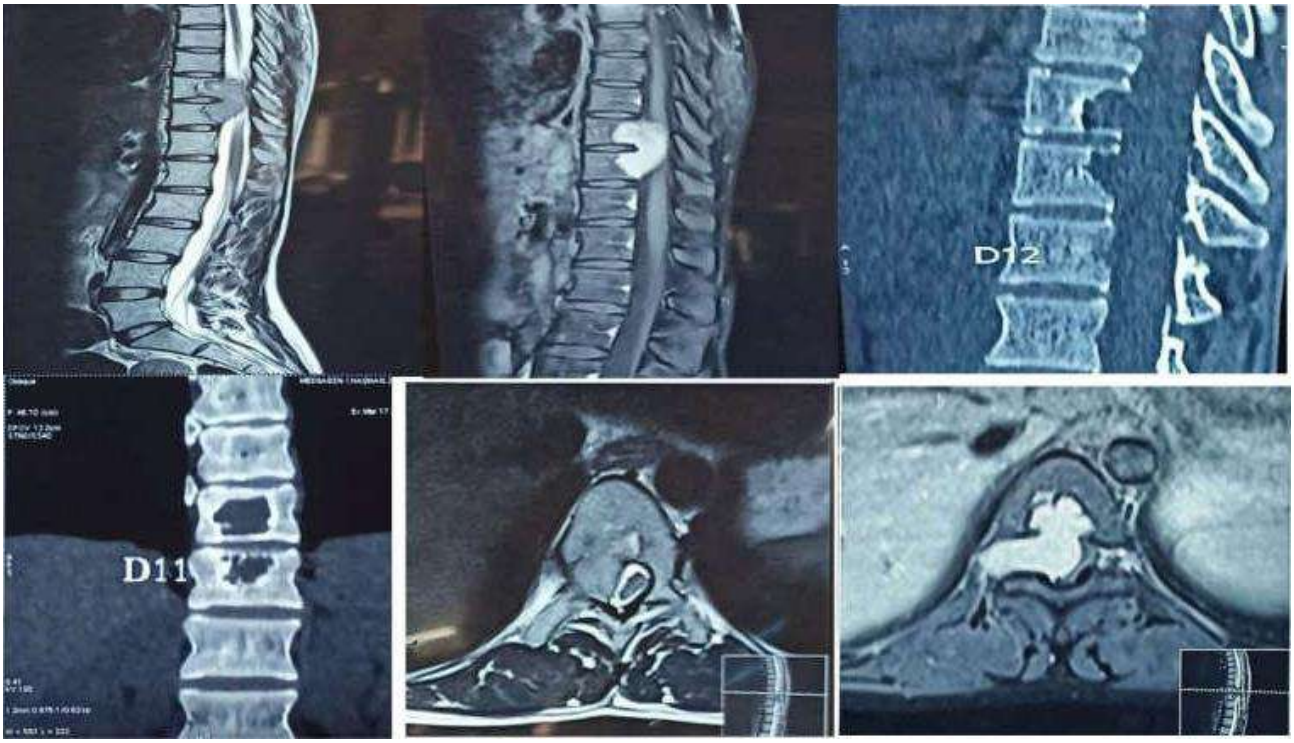

Fig 1: Preoperative imaging finding showing nerve sheath tumor or Schwannoma with lytic and expansile mass and compressing the spinal cord at D10-D11 level

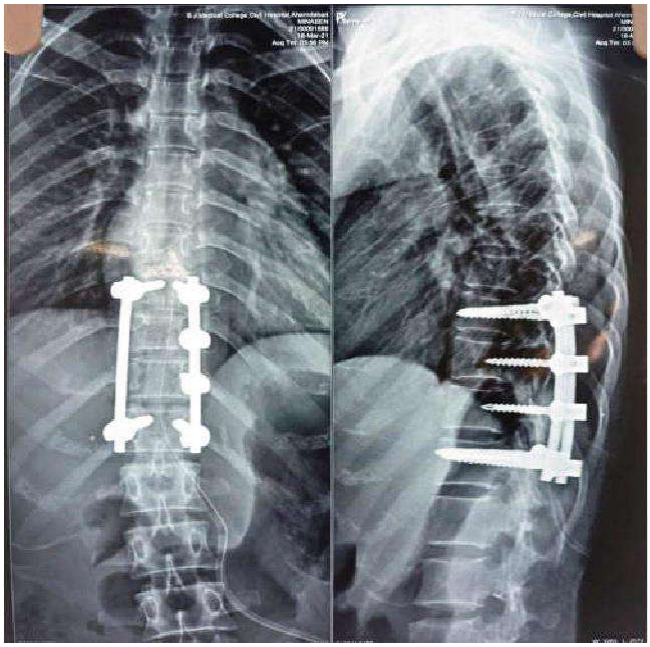

Fig 2: Showing postoperative x-ray with posterior stabilization with pedicle screw and decompression and excision was done

Discussion

Kernohan has been recognized as the first neurosurgeon to report an intramedullary Schwannoma in 1952, though Panfield had already described an intramedullary lesion with Schwannomas' characteristics in 1932.

Pansini G, Mouchaty H, Capuano C analyzed the literature from 1932 to 2002 and found only about 50 reported cases of neurofibromatosis related intramedullary Schwannoma. Schwannoma originate from the Schwann cells which are absent in CNS; thus it can explain the rarity of intramedullary Schwannoma. The pathogenesis of intramedullary Schwannoma is still not clear and various hypotheses have been proposed. The probable origin of this tumor include the [1] Schwann cells along the intramedullary perivascular nervous plexus [2]; Focal intramedullary proliferation of schwann cells in reaction to chronic diseases or trauma; [3] Ectopic schwann cells origination from migrating neural crest cells and; [4] Schwann cells related to aberrant intramedullary myelin fibers. The schwann cells also in posterior nerve root at root entry zone are assumed to be one of the pathogenesis of intramedullary Schwannoma. These are called as critical areas, as described by Mason, where nerve roots loses its sheath, could enter the subpial area in the spinal cord and appear as an intramedullary mass. The male to female ratio for intramedullary schwannomas is 3:1 with mean age of 40 years. They are usually single lesions affecting the cervical spinal cord (63%), the thoracic spinal cord (26%) and the lumbar spinal cord (11%). They have a slow growth pattern and because of this, the average onset between the first symptom and diagnosis is 28.2 months. According to new classification of Schwannoma by WHO, there are three types of Schwannomas; cellular, plexiform and melanotic. The infiltrative pattern of some intramedullary Schwannoma make total resection impossible and some authors suggest in these cases the use of radiotherapy for residual lesions.

Conclusion

The nerve sheath tumor has high propensity to involve at dorsal spine and early diagnosis and gross total excision usually give very good clinical and neurological outcome and although rare, the intramedullary Schwannomas should be considered as a possible diagnosis. Complete excision is the goal but sometimes it cannot be accomplished due to infiltrative pattern of the tumor.

Reference

1. Brown KM, Dean A, Sharr MM. Thoracic intramedullary schwannoma. Neuropathol Appl Neurobiol 2002;28:421-4. [PubMed] [Google Scholar]

2. Penfield W. Notes on operative technic in neurosurgery. Ann surg. 1946;124:383-5. [PMC free article] [PubMed] [Google Scholar]
3. Conti P, Pansini G, Mouchaty H, Capuano C, Conti R. Spinal neurinomas: Retrospective analysis and long-term outcome of 179 consecutively operated cases and review of the literature. Surg Neurol. 2004;61:34-43. [PubMed] [Google Scholar]
4. Feigin I, Ogata J. Schwann cells and peripheral myelin within human central nervous tissue: The mesenchynal character of Schwann cells. J Neurophathol Exp Neurol 1971;30:603-12. [PubMed] [Google Scholar]
5. Mason TH, Keigher HA. Intramedullary spinal neurilemmoma: Case report. J Neurosarg 1968;29:414-6. [PubMed] [Google Scholar]
6. Lopez J, Diaz DR, Medina YC, Jeronimo HS, Mendez AZ, Vazquez AG *et al*. Schwannoma intramedullary cervical. Arch neurocien 2004;9:55-8. [Google Scholar]
7. Wood WG, Rothman LM, Nussbaum BE. Intramedullary neurilemoma of the cervical spinal cord: Case report. J Neurosurg 1975;42:465-8. [PubMed] [Google Scholar]
8. Demachi H, Takashima T, Kadoya M, Suzuki M, Konishi H, Tomita K *et al*. MR imaging of spinal neurinomas with pathological correlation. J Comput Assist Tomogr 1990;14:250-4. [PubMed] [Google Scholar]