

Case Report

Open Access, Volume 3

Rostral migration of cauda equina schwannoma: Case report and literature review

Beltramello A; Lombardo F*; Longo C; Oliboni E; Ciccio' C; Sala G; Foti G

Department of Radiology, IRCCS Ospedale Sacro Cuore-Don Calabria, Negrar (VR), Italy.

*Corresponding Author: Lombardo F

Department of Radiology, IRCCS Ospedale Sacro Cuore-Don Calabria, Negrar (VR), Italy.
Email: fabio.lombardo@me.com

Received: Jun 23, 2023

Accepted: Jul 24, 2023

Published: Jul 31, 2023

Archived: www.jclinmedimages.org

Copyright: © Lombardo F (2023).

Abstract

A case of mobile schwannoma of the cauda equina migrating from L3 body to L2-L3 disc level in a period of 9 months is reported. This rare occurrence must be taken into account by the Neurosurgeon in order to avoid further exploratory laminectomy and durotomy after the initial negative dural incision.

Keywords: Mobile schwannoma; MRI; Cauda equina; IDEM (Intra-Dural Extra-Medullary) tumors.

Case presentation

A 55 yrs. old caucasian male presented with 2 years history of left buttock and posterior thigh pain that was exacerbated by night.

Neurological examination revealed muscle spasm with gait impairment in both legs due to pain but no focal motor deficit and a positive left-sided Lasegue sign were present. A MR scan of the lumbar spine revealed an intradural tumor at L3 level with mayor sagittal axis of 2 centimeters (Figure 1A) and robust enhancement after Gadolinium administration (Figure 1B); a smaller similar lesion of no more than a few millimeters was present, immediately caudad to the bigger one. Surgery was proposed but the patient declined. 9 months after, the patient came back to the hospital for a worsening of his symptoms: a new MR scan of the lumbar spine revealed that both lesions were unchanged for size and signal intensity - also after Gadolinium (Figure 1C,1D) - in comparison to the former ones but they presented rostral migration of 12 millimeters, now being located at the L2-L3 intervertebral disc level. An extruded disc was present at L2-L3 level along with stenosis of the lumbar canal with consequent stretching and elongation of lumbar nerve roots inside the dural sac.



Figure 1: First lumbar sagittal T2 (A) and CE T1-weighted (B) images: well defined intradural extra-axial mass homogeneously enhanced posterior to the body of L3; another small nodule is seen immediately below. Second lumbar sagittal T-2 (C) and CE T1-weighted (D) images after 9 months: the tumor has migrated rostrally to the L2-L3 disc space.

4 days later the patient was operated: both schwannomas, loosely attached to the nerve roots, were removed. The post-operative course was uneventful so that the patient was discharged 3 days later. Histology confirmed the diagnosis of schwannoma.

Discussion

Several interesting points can be debated:

Characteristics of the lesion

Spinal schwannomas are the most common Intradural Extra-Medullary Tumors (IDEM), originating from the posterior nerve root [1].

At histology spindle cells with nuclear palisades and neoplastic Schwann cells are found [2].

Symptomatology

Patients with spinal schwannomas come to clinical evaluation for pain, sensory deficits and other minor neurological deficits; acute neurological deterioration is uncommon [3].

Incidence

Mobile spinal tumors are rare. Since the publication of the first report on mobile spinal tumors in 1963, 37 such cases have been published [4]. Spinal schwannomas are the most commonly seen mobile tumors (32 out of 37 cases: 88%). 84% were males and 16% females with a mean age of 49 years. Other mobile spinal tumors are: Ependymoma, neuroenteric cyst, enterogenic cyst, hemangioblastoma and paraganglioma [4-7].

The incidence of mobile schwannoma among all spinal schwannomas is 1.1% [3].

Spinal levels

Mobile spinal tumors are located most commonly in the lumbar spine and cauda equina (66% of all cases). Other cases were reported in the cervical spine (17%), thoracic spine (8%), thoraco-lumbar junction (6%), cervico-thoracic junction (2%) and sacrum (2%).

Time course

Interval between two distinct examinations showing the migration of spinal schwannomas ranged from 2 hours and 18 months [1,8]. In our case the second examination was done 9 months later.

Migration

Mean migration distance is 1.28 vertebral bodies (range 0.5 - 5): In our case it was 12 mm. corresponding to 0.5 vertebral body.

Migration occurs in rostral direction in 52% of cases, caudal direction in 40% or both in 8%.

Pathogenesis

The mechanisms underlying spinal schwannomas mobility have not been clearly explained, being essentially speculative.

Changes in spinal posture or procedures increasing intra-abdominal, intra-thoracic or intra-theccal pressure have been suggested to play a role in this rare phenomenon. In lumbar canal, mobility may be increased for the absence of the cord below L1 and longer length of the lumbar nerve roots [2].

On the other hand, changes in CSF dynamics due to compression or blockage of CSF pathways may cause tumor mobility: in our case, mobility of schwannoma at L3 level might be increased by disc herniation at L2-L3 level, as in the case reported by Ghalaenovi et al [9]. Furthermore, in our case there was sagittal stenosis of the lumbar canal, causing stretching and elongation of nerve roots.

Surgery

The possibility of mobility for IDEM in the spinal lumbar canal must be taken into consideration by the Neurosurgeon with the prescription of a recent MR examination prior to surgery in order to avoid to face with a missing tumor and, consequently, with the need to extend the laminectomy and durotomy [2,3].

Conclusions

Mobile schwannomas of the cauda equina represent rare lesions. In clinical practice, surgery should be planned within a short time after MRI or imaging should be repeated to avoid a negative surgical exploration.

References

1. Suprava Naik VAaSK. Migrating Extramedullary Intradural Schwannoma of Cervico-Thoracic Junction. *Journal of Spine*. 2016; 5.
2. Kothari A, Singh N, Anjum R. Mobile Schwannomas of lumbar spine: A diagnostic dilemma. *J Clin Orthop Trauma*. 2017; 8: 197-200.
3. Sarikaya C, Varol E, Cakici YE, Nader IS. Acute Neurologic Deterioration in Mobile Spinal Schwannoma. *World Neurosurg*. 2021; 146: 270-273.
4. Wortzman G, Botterell EH. A Mobile Ependymoma of the Filum Terminale. *J Neurosurg*. 1963; 20: 164-166.
5. Kojima S, Yoshimura J, Takao T, et al. Mobile spinal enterogenous cyst resulting in intermittent paraplegia in a child: case report. *J Neurosurg Pediatr*. 2016; 18: 448-451.
6. Luo H, Xiao J, Lv S, Zhu X, Cheng Z. A mobile hemangioblastoma of the cauda equina: Case report and review of the literature. *J Spinal Cord Med*. 2020; 43: 719-722.
7. Muthiah SS, Vijaykumar; Pradipta, Rath Kumar; Easwaran, Ramakrishna. A case of mobile intradural paraganglioma in the lumbar spine. *Journal of Spinal Surgery*. 2022; 9: 55-58.
8. Dong Yeob Lee HJC. Mobile Schwannoma of the Cauda Equina Diagnosed by Magnetic Resonance Imaging and Magnetic Resonance Myelography: A Case Report and Review of the Literatures. *Nerve*. 2017; 3: 71-74.
9. Ghalaenovi H, Fattahi A. Migrating spinal intradural schwannoma with adjacent disc herniation: A case report and brief literature review. *Surg Neurol Int*. 2018; 9: 228.