SNI

SURGICAL NEUROLOGY INTERNATIONAL

SNI: Spine

OPEN ACCESS

For entire Editorial Board visit : http://www.surgicalneurologyint.com

Editor: **Nancy E. Epstein,** MD Winthrop Hospital, Mineola, NY, USA

Technical Note

Mobile cauda equina schwannomas: How to deal with this rare event and avoid surgical complications

Franz Jooji Onishi, Samuel Salu, Sérgio Cavalheiro

Department of Neurosurgery, Sao Paulo Federal University (UNIFESP), Sao Paulo, Brazil

E-mail: *Franz Jooji Onishi - franzonishi@gmail.com; Samuel Salu - samuelsalu@gmail.com; Sérgio Cavalheiro - sergiocavalheironeuro@gmail.com
*Corresponding author

Received: 10 April 18 Accepted: 11 May 18 Published: 26 June 18

Abstract

Background: Mobile schwannomas of the cauda equina are rare. Preoperative planning should take into consideration the possibility of tumor migration, avoiding unnecessary additional laminectomy or second operation.

Case Description: A patient with a previously known lumbar schwannoma was being managed conservatively until symptoms exacerbated and led to a new MR. When this study revealed caudal migration of the schwannoma from L3 to the L4–L5 levels, a right hemilaminectomy was performed for tumor resection.

Conclusion: Great care must be taken in the surgical resection of schwannomas as they may migrate from their initial location.

Key Words: Causa equina, hemilaminectomy, nerve sheath neoplasms, perioperative care, radiculopathy

Access this article online

Website: www.surgicalneurologyint.com

DOI: 10.4103/sni.sni_114_18

Quick Response Code:

INTRODUCTION

Mobile tumors of the cauda equina, which migrate rostrally and/or caudally, are rare. Usually, they present with transient and paroxysmal pain. Despite recent magnetic resonance (MR) imaging done just several hours prior to surgery, schwannomas may migrate some levels away from the previously identified site. This may lead to unanticipated extensive laminectomies or reoperations. Various factors may contribute to such tumor migration including redundant nerve root, postural changes and/or, the thrust of the injected radiopaque material during myelography.

CASE HISTORY

A 49-year-old male presented with 4 years of recurrent back pain and increased clumsiness of the right leg. The neurological examination revealed gait impairment in both legs due to pain (no focal motor deficit), and a positive right-sided Lasègue maneuver.

The initial (2015) unenhanced magnetic resonance imaging (MRI) showed a cystic lesion at the L3 level [Figure 1].Over two successive years, progressive pain and loss of motor function in the right leg, led to a MR. This study now demonstrated that tumor had moved to L4–L5 level [Figure 2]. Through a right-sided L4–L5 hemilaminectomy the tumor was completely removed utilizing intraoperative monitoring [Figure 3]. A dural incision revealed a fusiform cystic lesion covered by arachnoid membrane, attached to one nerve root and

How to cite this article: Onishi FJ, Salu S, Cavalheiro S. Mobile cauda equina schwannomas: How to deal with this rare event and avoid surgical complications. Surg Neurol Int 2018;9:125.
http://surgicalneurologyint.com/Mobile-cauda-equina-schwannomas:-How-to-deal-with-this-rare-event-and-avoid-surgical-complications/

Figure 1: Cystic lesion at L3 level (2015 june MRI)

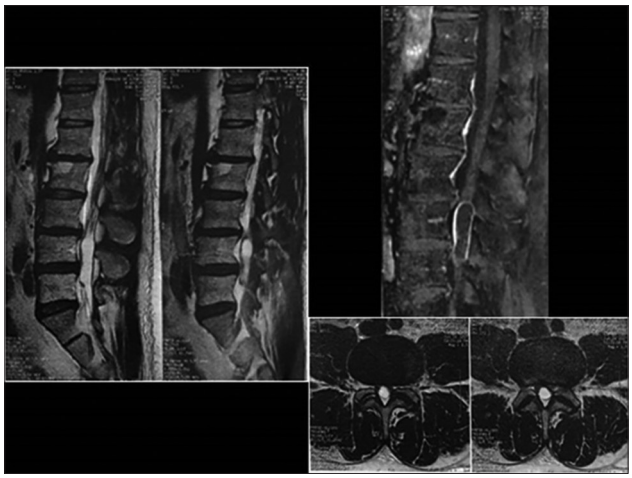

Figure 2: Cystic lesion with peripheral enhancement at L4-L5 level - caudal migration (2017 july MRI)

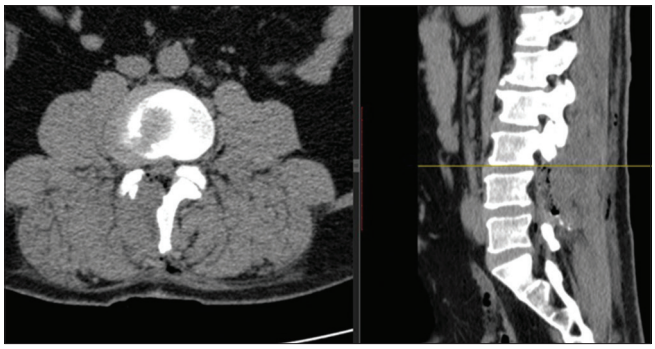

Figure 3: L4-L5 hemilaminectomy. Total resection was done

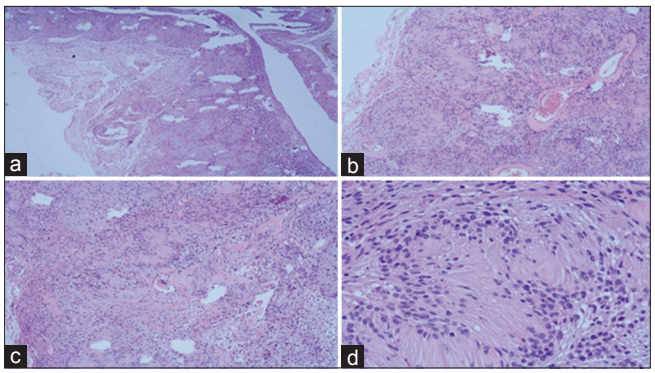

Figure 4: (a and c) : Spindle cell neoplasm composed of neoplastic Schwann cells with a capsule. (b) Thick-walled, hyalinized blood vessels. (d) Spindle cells with nuclear palisades (Verocay bodies) a: H and E, x100, b and c: H and E, x200, d: H and E, x400

located between several others. Histopathology confirmed a benign nerve sheath tumor [Figure 4]. This is the 15th such case reported in the literature of mobile lumbar schwannomas.

DISCUSSION

Mobile schwannomas of the lumbar spine are rare and have only been reported in 15 other cases [Table 1]. Primary factors potentially leading to tumor migration include redundant nerve root, trauma, postural adjustments/positioning on the operating table, Valsalva maneuver, and other factors that influence intrathecal, intrathoracic, or intra-abdominal pressures.[1,2]

There was only one report of possible tumor migration caused by trauma, with acute severe symptoms due to the incarceration of a mobile schwannoma after the patient's fall.[4]

Although rare, schwannomas involving the cauda equina are more likely to migrate versus those located in the cervical or thoracic spine.

Migration of lumbar schwannomas may lead to failed first operations that cannot successfully locate the tumor.[3]

Table 1: Summary of published cases of mobile schwannomas of lumbar spine

Year	Average age	Initial location	Levels moved
1978-2017	47.9 years	Most frequently within L1 and L4	1 or 2 level

Several cases reported finding no lesion after the initial dural incision at the preoperatively determined location; these cases required further exploratory laminectomy and durotomy. For example, Holin *et al.* described an extensive T12–L5 laminectomy performed due to migration of a 3.0 × 1.5 cm tumor.

The immediate preoperative localization made by MR can be confirmed with myelography[4] or intraoperative ultrasound.[5]

Interestingly, migration of intradural lumbar schwannomas may occur both cephalad and caudad to the original tumor site.

Financial support and sponsorship
Nil.

Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Friedman JA, Wetjen NM, Atkinson JL. Utility of intraoperative ultrasound for tumors of the cauda equina. Spine (Phila Pa 1976) 2003;28:288-9.
2. Kim SB, Kim HS, Jang JS, Lee SH.Mobility of intradural extramedullary schwannoma at spine: Report of three Cases with literature review. J Korean Neurosurg Soc 2010;47:64-7.
3. Marin-Sanabria EA, Sih IM, Tan KK, Tan JS. Mobile cauda equina schwannomas. Singapore Med J 2007;48:e53-6.
4. Sasaki M, Aoki M, Yoshimine T. Mobile schwannoma of the cauda equina incarcerated following caudal migration after trauma--case report. Neurol Med Chir (Tokyo) 2011;51:710-2.
5. Toscano DT, Felbaum DR, Ryan JE, Sayah A, Nair MN. Mobile schwannoma of the lumbar spine: A case report and review of the literature. Cureus 2016;8:e715.