



## Case Report

# Management of recurrent schwannoma of the cauda equina: A case report

Francisco Perez-Pinto, Juan Felipe Abaunza-Camacho, David Vergara-Garcia, Camilo Benavides, William Mauricio Riveros, Leonardo Laverde

Department of Neurosurgery, Center for Research and Training in Neurosurgery, Samaritana University Hospital, Rosario University School of Medicine, Bogota, Colombia.

E-mail: Francisco Perez-Pinto - francisco.perez@urosario.edu.co; \*Juan Felipe Abaunza-Camacho - juan.abaunza@urosario.edu.co; David Vergara-Garcia - david.vergara@urosario.edu.co; Camilo Benavides - camilo.benavides@urosario.edu.co; William Mauricio Riveros - mauroneuro@yahoo.es; Leonardo Laverde - leolaverdef@yahoo.com



### \*Corresponding author:

David Vergara-Garcia, M.D.,  
Department of Neurosurgery,  
Center for Research and  
Training in Neurosurgery,  
Samaritana University Hospital,  
Rosario University School of  
Medicine, Bogota, Colombia.

david.vergara@urosario.edu.co

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## ABSTRACT

**Background:** Schwannomas of the cauda equina are rare intradural primary spinal tumors. Many of these patients initially present with cauda equina syndromes, and only 2.2% demonstrate clinical recurrence. Gross total excision is the procedure of choice.

**Case Description:** A 62-year-old female had undergone resection of a cauda equina schwannoma 5 years previously. She newly presented with cauda equina symptoms attributed to a recurrent schwannoma. Following gross total secondary tumor resection, the patient's preoperative deficits fully resolved, and the tumor never recurred.

**Conclusion:** Secondary gross total excision of schwannomas of the cauda equina is critical to avoid further tumor recurrence.

**Keywords:** Cauda equine, Gross total excision, Intradural tumor, Schwannoma, Tumor recurrence

## INTRODUCTION

Spinal schwannomas represent 20% of primary tumors of the spinal cord.<sup>[3,4]</sup> Those with lesions of the cauda equina typically present with progressive lower extremity weakness/radiculopathy with/without sphincter dysfunction.<sup>[3,6]</sup> Gross total tumor resection is the mainstay of treatment to avoid lesion recurrence.<sup>[5,7]</sup> Here, we describe the efficacy of gross total excision of a schwannoma involving the cauda equina in a 62-year-old female presenting with myelopathy and sphincter dysfunction.

## CASE REPORT

A 62-year-old female who had undergone prior subtotal resection of a schwannoma of the cauda equina (5 years ago) newly presented with a 3-month history of low-back pain/dysesthesias radiating into her right lower extremity, anesthesia in her perineal region, and urinary retention. Her lower extremity examination revealed a partial paresis (4/5), hyporeflexia, and hypoesthesia of the lower limbs and perineal region.

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### Magnetic resonance (MR) study

A gadolinium-enhanced MR imaging (MRI) documented an intradural extramedullary solid lesion with marked gadolinium enhancement extending from L1 to L2, resulting in anterior compression/displacement of the cauda equina/conus medullaris [Figure 1]. Due to the prior history, this was determined to likely be a recurrent schwannoma of the cauda equina.

She underwent bilateral laminectomies of L1-L2; following the durotomy, a well-defined (14 × 20 × 22 mm) solid yellowish lesion was visualized adjacent to the filum terminale; it was completely resected. Neuromonitoring potentials and electromyography remained unchanged. Next, a T11-L3 transpedicular screw-rod system was used to prevent mechanical instability in the thoracolumbar junction because of the multiple laminectomies performed at this level.

She was discharged three days postoperatively, having regained full neurological function except for residual



**Figure 1:** (a and b) Midsagittal view of a T2-weighted (a) and a contrast-enhanced T1-weighted (b) magnetic resonance imaging (MRI) of the lumbar spine demonstrating an intradural extramedullary spinal lesion (white arrowhead) from L1 to L2 with avid contrast enhancement. (c) Axial view of a contrast-enhanced T1-weighted MRI of the lumbar spine demonstrating high-grade compression of conus medullaris and cauda equina from an intradural extramedullary lesion (white arrowhead).

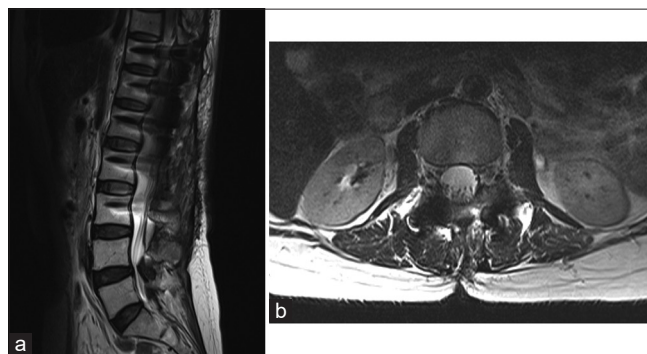
hypoesthesia in the perineal region. In addition, the postoperative MRI scans confirmed complete tumor removal [Figure 2].

### Pathology

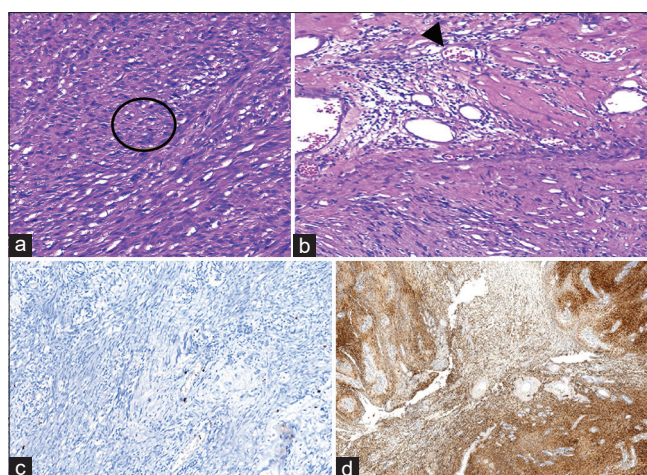
Pathology revealed a fusocellular tumor that was compatible with the diagnosis of a schwannoma of the cauda equina [Figure 3]. It had a Ki67 <1%, positivity for S100 protein and smooth muscle actin, and negativity for desmin, DC34, and CD117.

### DISCUSSION

Primary tumors from the spinal cord, spinal meninges, and cauda equina account for only 4.5% of all primary central nervous system tumors; the cauda equina is involved in 5.3% of these lesions.<sup>[3]</sup> The most frequent intradural primary spinal tumors at the cauda equina are myxopapillary ependymomas



**Figure 2:** Postoperative magnetic resonance imaging, sagittal (a) and axial (b) views, confirmed complete tumor removal.



**Figure 3:** Histologic findings of the lesion. (a and b) Show spindle cells, collagen fibers, microcystic changes, and hemosiderin deposits on Hematoxylin Eosin staining (black circle and arrowhead). (c) Shows a Ki67 <1%. (d) shows uniform S-100 protein immunoreactivity.

(43.5%), schwannomas (30.4%), and lymphomas/plasmacytomas (8.7%).<sup>[3]</sup> On physical examination, these patients can present with limited spinal motion (46.49% of the cases), motor deficit (34.1%), absence of one or several deep tendon reflexes (29.8%), and bilateral (2.63%) or unilateral (0.8%) anesthesia.<sup>[8]</sup>

MRI findings on T1 and T2-weighted MRI comprise T2 heterogeneous hypointensity, T1 heterogeneous hyperintensity, and marked contrast enhancement of the lesion.<sup>[6]</sup> MRI axial slices with >20% tumor occupation of the spinal canal, and >40% on sagittal images, correlate with symptomatic lesions.<sup>[4]</sup>

The main goal of treatment for schwannomas is complete surgical resection of the lesion. However, subtotal resection is obtained in one-fifth of the cases.<sup>[5]</sup> For those with recurrent schwannoma (as in 7.2% of the cases), surgery is the treatment of choice, particularly since these may become symptomatic (i.e. neurological worsening) in 2.2% of cases.<sup>[1]</sup> Although studies have shown that clinical improvement can be seen in 71% of patients treated with radiosurgery. Its role for these benign lesions is debatable.<sup>[2,8]</sup>

## CONCLUSION

Primary and recurrent schwannomas of the cauda equina should optimally undergo gross total excision to prevent tumor recurrence.

## Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

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Nil.

## Conflicts of interest

There are no conflicts of interest.

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