

Case Report

Spinal Schwannoma presenting due to torsion and hemorrhage: case report and review of literature

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Abstract

BACKGROUND CONTEXT: The presentation of a tumor due to torsion, with hemorrhage from presumed reperfusion injury as a result of infarction of the lesion, is extremely rare and may be different than typical tumor presentation.

PURPOSE: The aim was to describe a patient with a rare case of twisted intradural nerve sheath myxoid Schwannoma.

STUDY DESIGN: This was a case report and a review of literature.

METHODS: A patient presented with acute onset of severe pain was found to have minimally enhanced intradural extramedullary cystic lesion. The patient underwent bilateral L2 and L3 laminectomy and microsurgically assisted intradural exploration.

RESULTS: At laminectomy and intradural exploration, it was found to be a Schwannoma, which had rotated above and below, with obvious color change consistent with either infarction or hemorrhage. Because the color change ceased abruptly at the site of the torsion, we presumed that the mechanism of the hemorrhage in and around the Schwannoma found at pathologic evaluation was due to the torsion. The torsion caused vascular insufficiency (likely venous) and produced subsequent reperfusion-related hemorrhage, because of the compression of the vascular supply coming from the proximal and distal ends of the root of origin. The patient did well with complete resolution of his symptoms and 11 years of pain relief.

CONCLUSIONS: This acute infarction of the tumor and the associated nerve caused the acute pain syndrome that is not commonly associated with lumbar Schwannomas. Patients with acute onset of severe radiating pain may have torsion of a benign tumor arising from the nerve in question. © 2015 Elsevier Inc. All rights reserved.

Keywords:

Schwannoma; Torsion; Pain; Spinal; Intradural tumor; Acute infarction of tumor

Objective

Schwannomas, a type of nerve sheath tumor, make up about one-third of primary spinal tumors [1–3]. Schwannomas develop from Schwann cells and are usually benign. Local pain and radiculopathy from compression of local structures is the

most common presenting syndrome; however, when the tumors are large enough, motor weakness or cauda equina syndrome may occur. The presentation of a tumor due to torsion of the lesion and its attached nerve is extremely rare [4], and hemorrhage within spinal tumors is also rare [5].

The following is a rare case of an intradural nerve sheath myxoid Schwannoma, which had twisted, resulting in torsion and hemorrhage within the lesion causing pain and weakness in the nerve distribution in question.

Clinical presentation

A 62-year-old otherwise healthy man presented to the emergency room because of extensive pain, and numbness

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in the right L4 distribution, and was unable to ambulate without assistance because of the pain. On examination, he was found to have mild (4/5) weakness of right dorsiflexion. A magnetic resonance imaging revealed an intradural lesion with cystic changes in the regions of L2 and L3 and minimal enhancement with gadolinium administration (Fig. 1, Left and Right). The abruptness of the presentation led to a preliminary diagnosis of tumor (benign, such as Schwannoma or metastatic) with hemorrhage, parasitic infection, or intradural focal abscess.

Operative findings

The patient underwent bilateral L2 and L3 laminectomy and microsurgically assisted intradural exploration. On exposure of the cauda equina, we were able to identify the lesion as a reddish round purplish mass arising from one nerve fascicle, approximately 1.5 cm in diameter. On further separating the rest of the cauda equina from the lesion, we found that the proximal and distal ends of the nerve on either side of the lesion had the appearance of more than one full turn of rotation of the nerve in a very focal manner, with associated compression of the concomitant vascular supply. This was associated with an abrupt border where

the root appearance changed within the coils of the torsion of the root, becoming profoundly darker, without spread above or below this point (Figs. 2 and 3). Provocative stimulation of the nerve failed to demonstrate any activation of either leg muscle electromyography, bladder manometry, or anal sphincter electromyography.

After bipolar cautery was applied proximally and distally to the rotated sections of the root on either side of the lesion, the root was cut with microscissors, and the lesion was sent in its entirety to pathology.

Histology

Received in formalin, the specimen consists of a tan-brown soft-tissue nodule measuring 1.8×1.2×1 cm. Microscopic sections using hematoxylin and eosin stains show neoplasm characterized by predominantly loose stroma with evenly distributed round to oval regular nuclei against a clear myxoid background, interspersed with thick-walled blood vessels and occasional more cellular foci with architecture occasionally reminiscent of palisading or Verocay bodies (Fig. 4). There is extensive recent hemorrhage throughout the tissue but no evidence of necrosis, atypia, or mitotic activity. The tumor is diffusely positive for

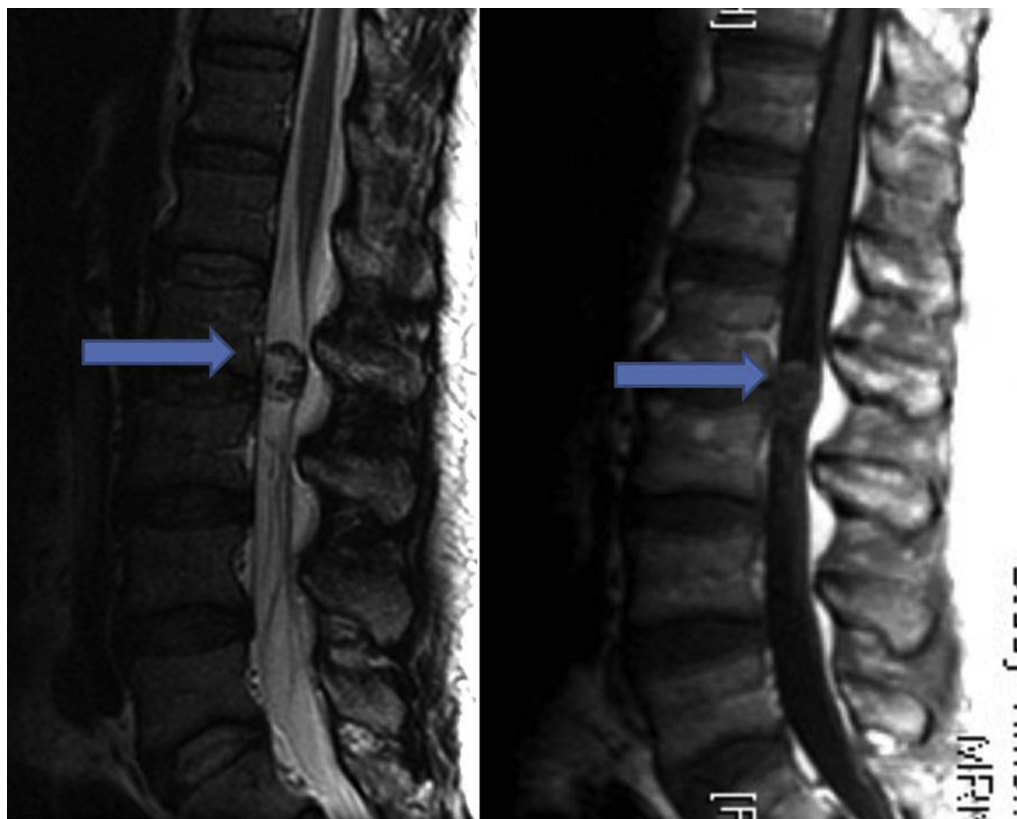


Fig. 1. (Left) Magnetic resonance imaging lumbar spine T2-weighted sagittal image showing the lesion, with heterogeneous internal architecture, in the intradural extramedullary space. The arrow points to the lesion. (Right) Magnetic resonance imaging lumbar spine T1-weighted sagittal image after gadolinium contrast infusion, with low homogenous uptake of contrast. The arrow points to the lesion.

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