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ABSTRACT

Spinal meningiomas represent almost one third of all intradural extramedullary tumors and occur rarely in men. They arise from arachnoid cap cells in the arachnoid cell rests within the meninges and can compress and displace the spinal cord and the nerve roots leading to motor and sensory impairment and also sphincter dysfunction. Most of them are benign with very good outcome after complete surgical resection. Imaging can be challenging in differentiating them from nerve sheath tumors including spinal schwannoma and spinal neurofibroma.

Keywords: spinal meningioma, imaging, gait impairment

INTRODUCTION

Spinal meningiomas are benign, slow-growing tumors, developed from the arachnoid layer of the meninges. They are the second most common intraspinal neoplasms and most often are located intradural extramedullary and posterolaterally to the spinal cord. 10% of them may have an extradural extension [1,2].

They are more frequent in women and the highest incidence is in the sixth through eighth decades. The most important risk factor is the high-dose exposure to ionizing radiation. Signs and symptoms of nerve root or spinal cord compression can be found and the majority of the patients develop motor deficit. Symptoms like sensory deficits, pain and sphincter dysfunction occur less commonly and usually later in the evolution of the disease [3].

CASE REPORT

We present the case of a 78-year-old man, with a history of myocardial infarction, treated with antiplatelet and antihypertensive medications, who was admitted in our neurological department for a low back pain which started 2 month before, radiating to his left lower limb, followed by rapidly progressive gait impairment. The neurological examination revealed wide-based, antalgic gait, impaired proprioception and vibration sensitivity in the lower limbs, increased deep tendon patellar and Achilean reflexes on the left side, bilateral S1 hypoesthesia, and gait ataxia, without muscle weakness or sphincter dysfunction.

We performed thoracolumbar spine MRI which showed an intradural extramedullary tumor, located posterior and right posterolateral of the spinal cord, at the level of the intervertebral disc T11-T12, measuring 14 / 11 / 15, 5 mm, well-circumscribed, T1 and T2 – isointense, with homogeneous contrast enhancement, compressing the dorsal columns and the neighboring nerve roots, without extension into the neural foramina. The subarachnoid space above and below the tumor was enlarged. The tumor was considered a spinal meningioma. The Ginkgo leaf sign also present, due to its shape, distinguishes it from a neurogenic tumor (Fig. 1, 2, 3).

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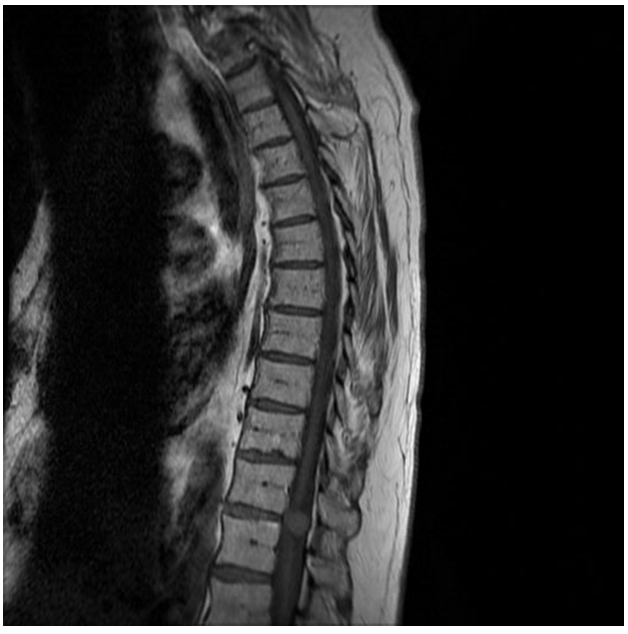

FIGURE 1. *Sagittal native T1-weighted MRI – presents isointense tumor in the lower thoracic region, compressing the spinal cord*

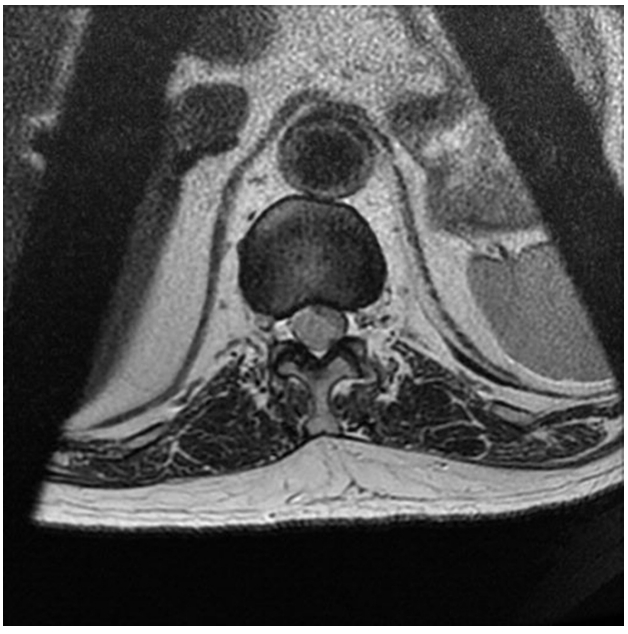

FIGURE 2. *Axial T2-weighted MRI – shows a right-sided intradural extramedullary tumor compressing and displacing the soinal cord to the left*

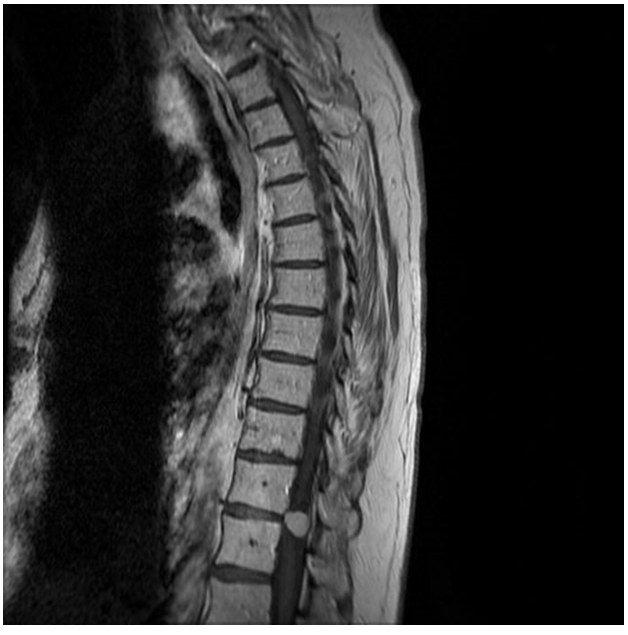

FIGURE 3. *Sagittal contrast-enhanced T1-weighted MRI – shows an intensely and homogeneous Gadolinium enhancing tumor compressing the spinal cord*

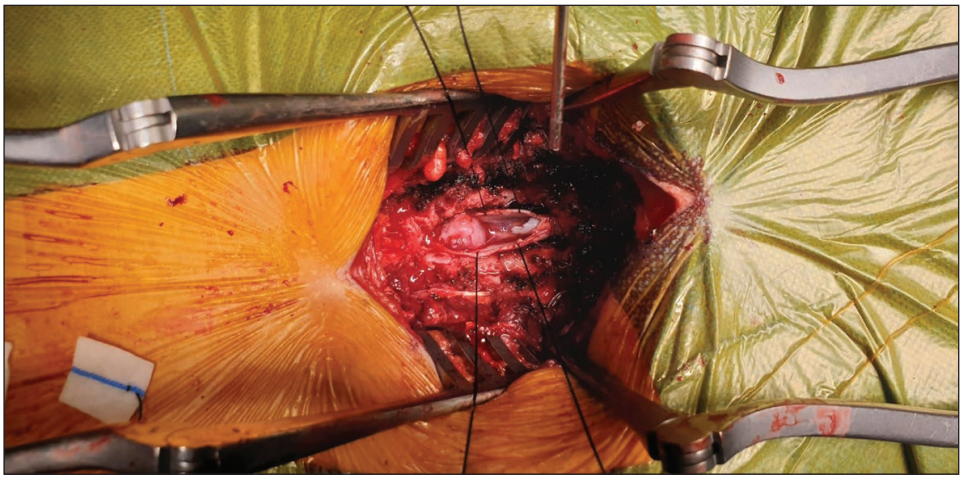

FIGURE 4. *Intraoperative image showing the dorsal meningioma after the opening of the dura*

The patient underwent neurosurgery in emergency with complete resection of the tumor. The histological examination confirmed WHO grade 1 meningioma (Fig. 4).

After 2 months, at a follow-up visit, a complete remission of his symptoms and signs was seen.

DISCUSSION

The most important differential diagnosis consists of nerve sheath tumors such as: spinal schwannoma and spinal neurofibroma, which are typically located ventrally, with low-intensity central region on post-contrast T1 and T2 weighted images, with tendency to multiplicity, without broad dural base and with neural foramina widening. Schwannomas are often associated with fatty degeneration, hemorrhage, cyst formation and intrinsic vascular changes [3].

70-90% of the spinal meningiomas are benign, classified as WHO grade 1 and histological meningothelial meningiomas. The most common location is the thoracic spine. They can be associated with neurofibromatosis type 2, especially in pediatric population [3,4].

Surgery, with complete resection of the tumor, is the treatment of choice and the very good results range between 79% and 98%. Recurrence is experienced in 9,7% of the patients who underwent surgery for grade 1 and 2 meningiomas and can be higher in patients younger than 50 years. Radiotherapy should be used in association for malignant spinal meningiomas [5,6].

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