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Case Reports & Case Series

Dorsal meningioma and subdural hematoma in a patient without risk factors for anticoagulation. Description of a very atypical case and review of the literature

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ABSTRACT

Spontaneous hematomas associated with spinal meningiomas have been very rarely reported. They have been frequently associated with coagulation disorders or traumatic lumbar punctures.

We report a case of a 72-year-old woman without coagulation disorders with a dorsal meningioma at D9-D10 level admitted in our hospital for scheduled surgical treatment. While awaiting surgery she developed an acute neurological worsening due to a subdural hematoma and required urgent surgical evacuation. After the surgery, the patient had a complete neurological recovery. This is probably the first case reported in the literature of this presentation to date.

1. Introduction

Spinal meningiomas represent about 1.2% of all meningiomas and are very rare compared to intracranial meningiomas. They represent 25% of spinal tumors [7].

Spontaneous hematomas associated with spinal meningiomas have been reported very rarely (Table 1), they have been frequently associated with patients with coagulation disorders, lumbar punctures or traumatic events [3,9].

We report a rare case and probably the first one in the literature, of a 72-year-old woman with a dorsal meningioma at D9-D10 level and spontaneous intratumoral hemorrhage. The patient was admitted in our hospital for a scheduled surgical treatment. While awaiting surgery she developed an acute neurological worsening due to a subdural hematoma and required urgent surgical evacuation.

2. Clinical case

A 72-year-old woman presented to the outpatient clinic with a history of paresthesias in her left foot and gait instability started in October 2017. Two weeks later she developed a sudden-onset dorsolumbar pain and gait instability worsen. She was admitted in our center for diagnostic procedures.

Regarding the past medical history of the patient, she had arterial hypertension, dyslipidemia and type 2 diabetes mellitus. She was not taking anticoagulation or antiplatelet therapy, and no other risk factors of hemorrhage were present in this patient.

Spinal MRI showed an intradural extramedullary mass lesion at D9-D10 level with homogenous enhancement suggestive of a dorsal meningioma. The tumor was compressing the dorsal spinal cord causing radiological myelopathy. MRI also showed a hypointense subdural collection on T2-weighted images adjacent to the enhancing lesion suggestive of acute bleeding. (Fig. 1 (1.1, 1.2)).

On the 4th day of admission she suddenly presented hypoesthesia of lower limbs and symmetric 3/5 paraparesia with distal predominance. Urgent surgical decompression was indicated, we performed a D9-D10 laminectomy. The subdural collection seen on MRI corresponded to a subdural hematoma with subacute characteristics (Fig. 2 (2.1–2.6)), complete resection of the tumor with coagulation of the dural implantation was performed (Simpson II resection). No alterations of the motor evoked potentials were detected during surgery in the electrophysiological monitoring.

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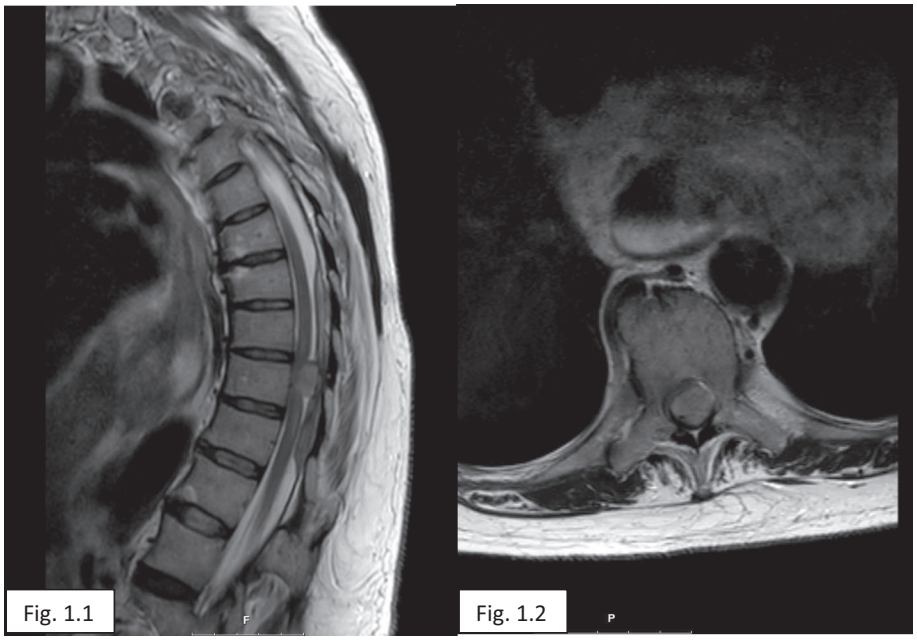

Fig. 1. 1.1: Preoperative spinal MRI, T2 sagittal section, hypointense intradural extramedullary lesion at D9-D10 level, note the subdural collection adjacent to the solid mass and extending two levels above and below the lesion. 1.2: Preoperative spinal MRI, T1c axial section, left posterior hyperintense lesion with homogeneous enhancement occupying the spinal canal with severe compression of the spinal cord.

The patient had a good neurological outcome, paraparesia improved to a normal motor strength and normal ability to walk in the subsequent days after surgery, with intravenous steroids treatment and physical therapy as a complementary treatment.

The pathological examination of the lesion identified a metaplastic meningioma, grade I (WHO). Fig. 3 (3.1–3.3) where meningothelial cells can be seen presenting extensive areas of hemorrhage, they present extravasation of red blood cells and macrophages laden with hemosiderotic pigment.

Postoperative MRI showed complete resection of the meningioma, with resolution of the spinal cord compression. The hypointense collection corresponding to the hematoma was completely evacuated (Fig. 4 (4.1–4.2)).

Currently, the patient is in good neurological situation, without sensitive or motor deficits, not gross walking alterations and completely independent for activities of daily living.

3. Discussion

Meningiomas are the most frequently tumors on the extramedullary intradural spinal space, other tumors found in this location are paragangliomas, metastasis, lipomas, myxomas, sarcomas and vascular tumors [7].

Meningiomas are usually attached to the dura mater, these lesions originate from the arachnoid cap cells, they may appear at any site close to the dura mater. Approximately 25% of all primary spinal tumors are meningiomas. More than 80% of patients with spinal tumors are women as in our case, and 80% of them appear in the thoracic region.

In men, meningiomas are equally distributed between the cervical and thoracic cord. In total, about 15% are found in the cervical spine, 80% in the dorsal spine and 4% in the lumbar spine. Most of these tumors are slow-growing and low grade according to the WHO classification [1,7].

The clinical symptoms of a spinal meningioma depend on the location of the tumor. The most common include back pain (70%), motor deficit (60%), sensory disturbances (40%) and sphincter dysfunction (40%) [3,5]. Our patient presented with progressive paresthesia and later developed a sudden neurological motor deficit in relation to tumoral bleeding.

Very few cases of spinal meningiomas associated with spontaneous hematomas were described in the literature; most are in epidural hematomas related with a traumatic event such as lumbar punctures or in presence of bleeding risk factors, including anticoagulant or antiplatelet drugs or blood dyscrasias [1–7]. Our case probably is the only report in the literature to date of a dorsal spine meningioma presenting with a subdural hematoma in the absence of bleeding risk factors or trauma, the anatomopathological findings may suggest that the bleeding comes from the tumor itself.

Performing an early MRI is very useful for the early diagnosis of a hematoma in a patient with a sudden neurological deterioration, to establish a correct diagnosis and to plan an early surgical treatment [8,10,11].

Spontaneous acute spinal hematomas have been described in patients with coagulation disorders, acute spinal hematomas are also described after lumbar punctures. Swann reported that spinal tumors, particularly in the conus medullaris and the cauda equina can produce spontaneous subarachnoid hemorrhage although this event is exceptional. It's thought that the mechanism of bleeding is related to the fragility of the blood vessels surrounding the tumor with minimal or even no trauma [5]. In our case, hematoma seems to origin from spontaneous bleeding of the tumor itself. It is known that meningiomas are highly vascularized lesions [7] so sudden positional changes or Valsalva maneuvers can cause blood vessels rupture and cause spontaneous hemorrhages.

We suggest that the tumor and the dura mater are in close contact, so the blood vessels located between the two structures could be very fragile and therefore very easy to rupture and develop hematomas on the subdural space potentially causing neurological worsening for the patient.

this hypothesis has been commented previously by Vij et al. in his