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Article

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High lumbar disc herniation coexisting with thoracic meningioma – an issue of differential diagnostic

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Abstract: Meningiomas involving the spinal compartment are relatively rare compared to the intracranial ones representing between 7,5% and 12,5% of all CNS meningiomas, most of them being located in the intradural compartment respecting the pial layer of the spinal cord. Affecting ten times more often women rather than men, especially in the 5th and 6th decade of life, they pose a difficult diagnostic setting despite modern neuroimagistic techniques. The matter of correct differential diagnosis becomes even more doubtful, most of the patients of that age having also associative degenerative disorders, e.g. lumbar disc herniation. In this case proper neurological examination is the key as we will furthermore demonstrate - the MRI exam being targeted on the level of the sensorial dysfunction and not on the most common region which gives according pathology. The following case presentation can be considered "classic" representing a patient with all the criteria mentioned above including a long history of rheumatologic and chronic back pain medication for pain relief .We used the Frankel Scale for grading the pre- and postoperative neurological status. Acute neurological deterioration (under 24 hours) is an important criteria for admission in emergency unit with around the clock exploration followed by microsurgical operation for the best possible outcome. Coexisting chronic lesions may be left behind and kept under surveillance, operated only when clear signs of health disorder appear. Because there are reported cases of thoracic meningiomas discovered after hernia disc operation and even cases of paraplegia due to a missed lesion, the aim of this article is to emphasize the importance of proper neurological examination preceding any MRI exploration.

Key words: spinal meningioma, high lumbar disc herniation, tumor resection, acute neurological deterioration

Background

Spinal meningiomas are relatively rare compared to the intracranial ones, representing only 1% of all meningiomas involving the nervous system(1). This is why, despite the advances and the availability of modern neuroimagistic methods nowadays, it is still a problem of missed diagnosis. Being a rare condition, one has to "light a bell" when coming across specific symptoms listed below. It is always frustrating when you receive a patient with a long history of treatment for a lumbar degenerative disorder, and a simple Babinski sign can make the difference. That is because spinal meningiomas are slow growing tumors and therefore their onset of symptoms is often insidious with unspecific back pains and the signs of spinal cord compression appearing late in the evolution(2). When you encounter associated pathology which can explain this clinical picture, it is even more difficult. On the other hand, degenerative disorders are very common and their concomitance with spinal tumors is a frequent fact.

The two diseases – degenerative and tumoral - may involve the same vertebral segment, and that is a favorable case because imaging for one will comprehend both of them, but there are cases when the two conditions appear in different regions, and a wrong indication for MRI may pass over the other . In the current paper we present the case of a woman of 60 years old which presents with severe back pains with a long history of medical treatment and severe paraparesis – Frankel C – motor function evaluated 3/5. She was already investigated MRI – lumbar region – and diagnosed with lumbar disc herniation L1-L2.

Case presentation

We present the case of a 60 year-old woman which was admitted in June 2017 in our center in emergency with severe paraparesis – Frankel C with motor function 3/5 on the right and 4/5 on her left leg. Low back pain was present during the last years, with a long history of medical treatment. In the last two months the patient experienced a gait disturbance with rapid aggravation in the last 24 hours. The neurologic examination revealed the paraparesis with bilateral Babinski sign, spasticity, hyperreflexia, clonus and urinary difficulties. Sensibility was depressed under T7 territory. On admittance the patient presented herself with an MRI of the lumbar region which evidenced a lumbar disc herniation at the L1-L2 level with spinal cord compression at the cone level. (Figure 1)

Figure 1 –T2- weighted sagittal image confirmed a disc herniation at the L1-L2 level

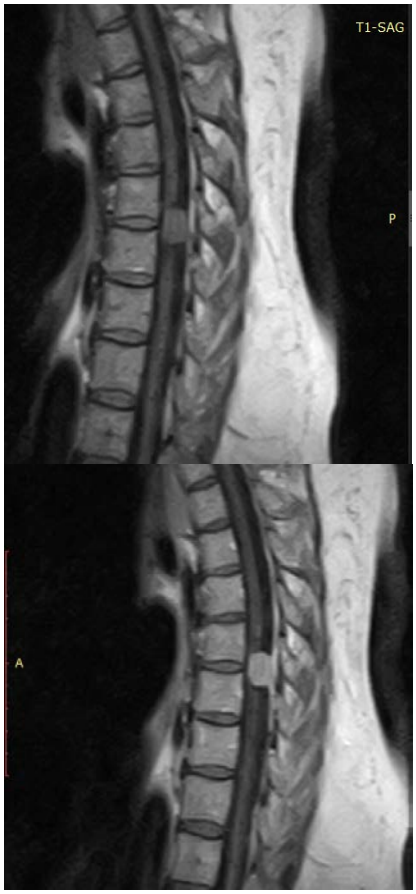

Figure 2- Sagittal magnetic resonance image - extramedullary mass located between D7-D8 vertebral level, spinal cord displacement and compression.T1- weighted images and important enhancement after Gadolinium injection

Because of the high level of sensory dysfunction an MRI of the thoracic region was performed in emergency and this one revealed an intradural extramedullary spinal tumor with homogenous enhancement at the T7-T8 level – most likely a meningioma – with obvious displacement and compression of the spinal cord. (Figures 2, 3).

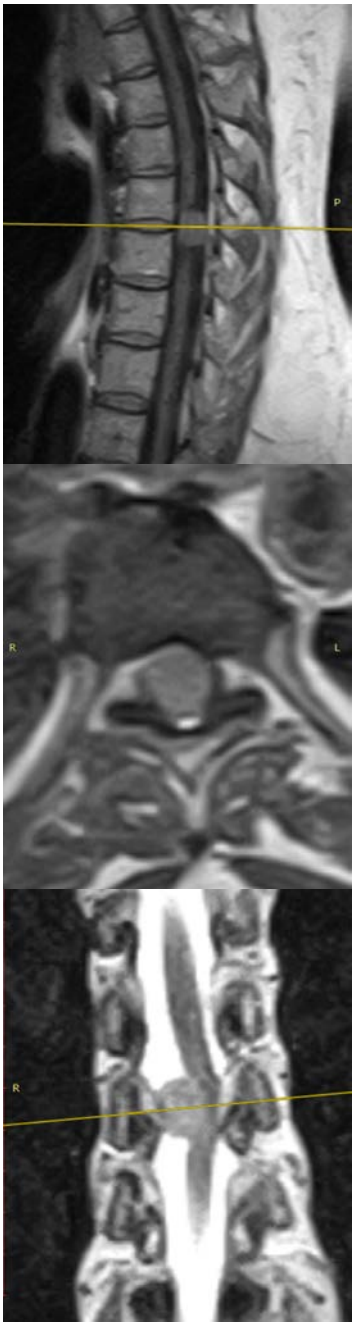

Figure 3 - Sagittal, axial and coronal MR image showing extramedullary mass on right lateral and anterior part of the spinal canal at the T7-T8 level with spinal cord dorsal displacement and compression

The very next day the patient was operated, we performed a microsurgical resection of the extraaxial tumor which was indeed a meningioma with a large and calcified dural insertion in the anterior lateral part of the canal with resection of the dentate ligament and coagulation of the insertion. The histological examination confirmed a meningothelial meningioma.

The postoperative evolution was favorable, the patient managed to walk without assistance after one week from surgery. The intensity of the low back pain decreased after the surgery and the patient preferred not to operate the lumbar disc herniation, resting it under our surveillance.

Discussion

We are in this paper in front of two different types of pathological conditions: one, the lumbar disc herniation, which is very common (3), representing for many neurosurgeons and orthopedists the major part of their activity, and perhaps that is why it comes first to the mind of the practitioner, so they will furthermore explore the patient in this direction. On the other hand we have a very rare condition – spinal meningioma – which may have an insidious evolution that can mimic other degenerative or neurological diseases. Spinal meningiomas are intradural extramedullary slow growing tumors, with insidious onset of symptoms, often only unspecific back pain, previous rheumatologic and back pain medical treatment being almost always present in the history of that disease.

Our patient also had a long period of anti-inflammatory, muscle relaxant, antalgic and neurotrophic treatment, with time intervals of remission in symptomatology, but with continuous deterioration of her gait disturbances. Finally she shows up in the emergency unit in a poor neurological status, with severe neurological deficit – Frankel C with motor function evaluated 3/5, with clear signs of spasticity, hyperreflexia, clonus and urinary difficulties, cutaneous hypoesthesia with a superior level on T7. She already had a lumbar MRI which showed a lumbar herniation on L1-L2 level, with spinal cord compression at the cone level, and she was sent for emergency neurosurgical treatment of this pathology. A conus medullaris syndrome has a clinical presentation that include loss of bladder reflex – urinary retention, paraparesis, hyperreflexia. What can make the difference? A meticulous neurological examination which in our case showed the level of sensitivity on T7 level and put the indication for thoracic spine MRI imaging.

The neurologic aggravation appeared in less than 24 hours so we considered our patient an emergency, exploring her the same day, and operating the next day, the result being favorable. The third day following surgery, we managed to raise the patient and she was able to walk some steps, and one week after that, she was able to walk without assistance. The postoperative evolution in spinal meningiomas is often associated with a good outcome even in the patients with neurological deficits or in elder ones (4). We did not perform any surgery on the L1-L2 disc herniation because the low back pain, apparently the only symptom related to this pathology, improved, and we shall surveil this condition.

There are other reported cases of patients operated for lumbar degenerative disorders with thoracic meningiomas discovered after the lumbar surgery was performed, even cases of paraplegia due to a missed thoracic lesion following lumbar surgery (5, 6, 7). We consider that is possible to avoid this type of error by giving more time to the neurological examination of our patients. This examination has to include motor, sensory and autonomous function tests in order to avoid missed diagnosis which can have a poor ending.

Conclusion

Spinal meningiomas are often benign lesions and a proper diagnostic and meticulous microsurgical resection will have in the outmost of cases good results. The concomitance of other spinal disorders, in particular these very frequent degenerative ones, may be a source of confusion and we emphasize, even if not necessary, the importance of a scrupulous neurological examination. Acute neurological deterioration has to be treated in an emergency manner. From our experience, we have to do any effort to operate as soon as possible, desirably in the first 24 hours, in order to obtain better results.

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