

Spinal Tumors Coexisting with Degenerative Spine Diseases; 3 Cases Report and Literature Review

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Abstract

Degenerative spinal diseases(DSD) are the most common problem in daily practice in neurosurgery. It should be kept in mind that it can be seen with spinal tumors and the neurological condition may depend on spinal mass origin. It should not be forgotten that these pathologies may be seen in the same regions of the spine as well as at different levels. At this point, the neurological examination needs to be done exactly. In fact, seeing the whole spine in several sections will help to recognize possible pathologies in radiological examination. When we look at the treatment, it is possible to treat it at different sessions as well as simultaneous surgical options.

Keywords: *Coexisting Spinal Tumor; Degenerative Spine Disease; Intramedullary Tumor; Neurological Examination; Spinal Meningioma*

Abbreviation

DSD: Degenerative Spinal Diseases

Introduction

Degenerative spinal diseases(DSD) are common problem can be seen with spinal tumors. Sometimes these two pathological conditions could be in the same region, but also in other regions. Management of these situations is still controversial. At this point, it is necessary to determine the main source of the patient's complaints. The general trend in the literature is that priority is in the treatment of tumors. DSD should also be treated concurrently in case of doubt on the clinical condition. We will present three cases with DSD seen concurrently with spinal tumors and look at the literature.

Case Presentations

Case 1

A 56-year-old female patient was operated for bilateral lumbar disc herniation approximately 1 year ago. She had not benefited from the operation and her complaints have progressed. When reevaluated, surgical treatment had been suggested for stenosis, epidural fibrosis and recurrent disc herniation by the center of first operation done (Figure 1a, b). However, cranial and cervical-thoracic MRI was seen in the patient because of the presence of upper motor neuron findings in the neurological examination of the patient. Surgical treatment was performed on the mass showing the clinical condition in the thoracic region (Figure 1c). Pathologic diagnosis was reported as meningioma.



Figure 1: Spinal stenosis, epidural fibrosis and left foraminal disc herniation can be seen in sagittal (a) and axial image (b) in MRI. Intradural spinal tumor in thoracic region is seen (c).

Case 2

A 52-year-old female patient applied for complaints of pain and numbness in both legs for more than 6 months. Neurological examination of the patient had no deficits. In lumbar MRI, L4-5 level broad-base disc herniation and intradural mass were seen (Figure 2 a,b). The patient underwent intradural mass excision after laminectomy and microdissectomy from one side. Pathologic diagnosis was reported as meningioma.

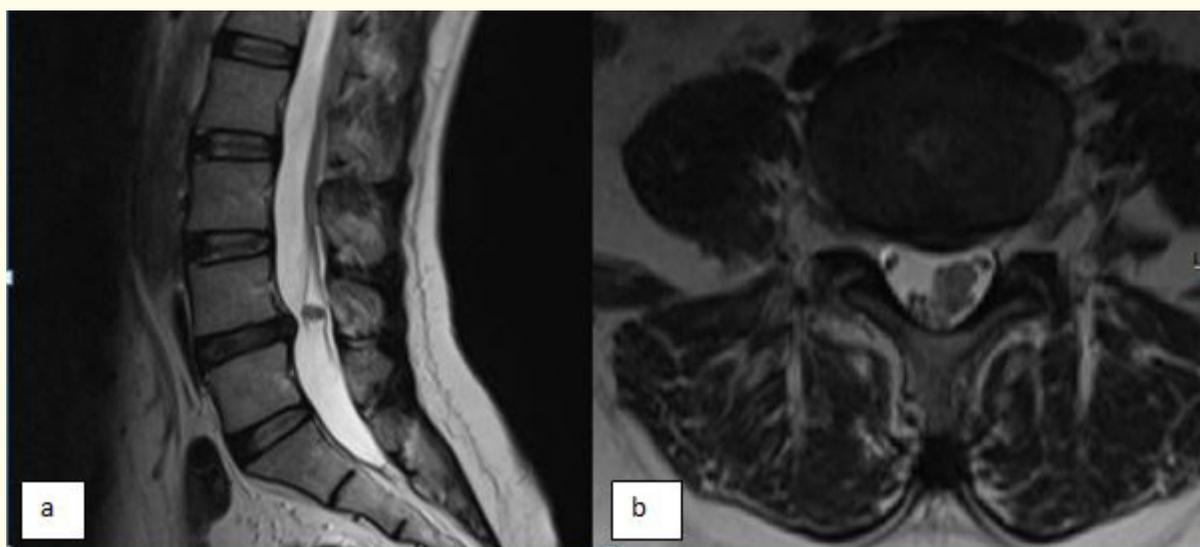


Figure 2: Intradural spinal tumor and disc herniation is seen at sagittal (a) and axial image (b).

Case 3

A 67-year-old male patient had reduction in walking distance of about 2 years, complaints of numbness in hands and legs and neck pain. Cervical pain increased in the last 2 months. We expected cervical pathology due to patient's age and the clinical condition. We recommended cervical MRI scanning to the patient. After MRI, cervical stenosis, cervical C4 vertebral lytic tumoral infiltration and intradural smooth confined mass in upper thoracic region were observed (Figure 3a, b). The patient underwent cervical laminectomy, C4 vertebral biopsy and transpedicular acrylic application and excision of upper thoracic mass in the same session (Figure 3c, d). The patient benefited from surgical treatment. Pathology results were reported as plasmocytoma and meningioma.

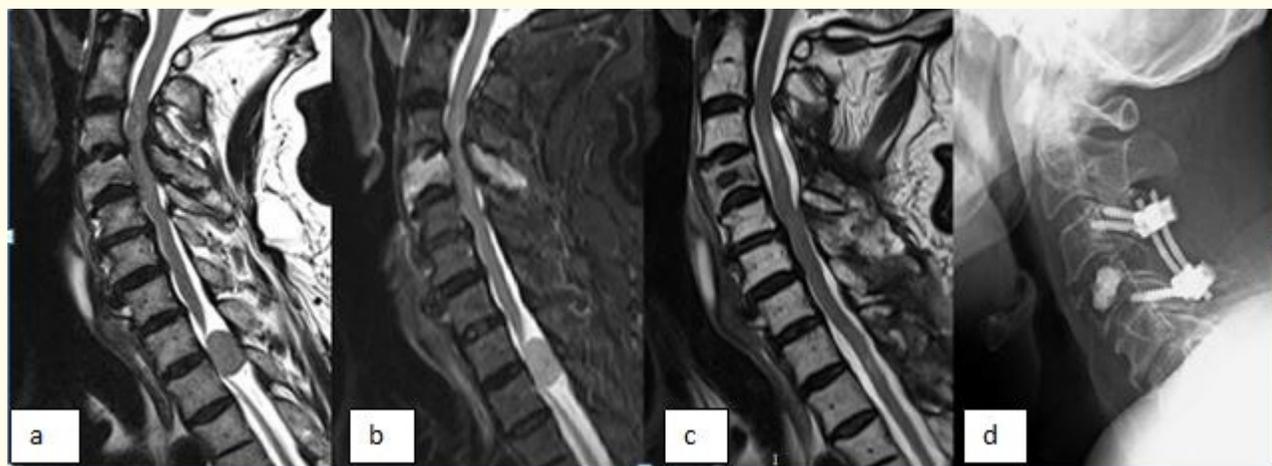


Figure 3: Cervical stenosis, lytic infiltration in C4 vertebrae and smooth shaped intradural mass in upper thoracic region is seen in different sagittal T2 sequence. (a,b) Postoperative sagittal T2 image shows the canal decompression at cervical region, mass excision in thoracic region and acrylic application. (c) Postoperative X-ray shows lateral mass screw application and bone reconstruction in C4 (d).

Discussion

DSD are very common problems [1]. They form a large part of the diseases that neurosurgery treats. Since it is so common in daily practice, firstly it comes to mind in patients' neurological complaints. However, another condition that produces neurologically similar complaints is spinal tumors.

Spinal tumors have also started to increase in frequency [2]. They can be seen at different levels of the spine at different rates. They may also be intramedullary, intradural, extramedullary or combined. However, the coexistence of spinal tumors with DSD is extremely rare. Previously, some publications have been reported DSD together with spinal tumors [3-6].

DSD usually manifest themselves with signs of back, neck pain, and radicular symptoms. Spinal tumors also produce similar clinical situations. For this reason, patients with this complaints are considered primarily DSD instead of spinal tumors. This may lead to misdiagnosis in many patients. As a result, patients can go through unnecessary operations [7,8].

Bilateral microdiscectomy was performed one year ago at another center because of complaint of not walking to our case number 1. However, the complaints of the patient continued progressively in last one year. In the next period, recurrent disc herniation and stenosis were suggested for reoperation in the lumbar region. Brain, cervical and thoracic MR were requested due to hyperactivity of the deep

tendon reflexes and spasticity in the lower extremities at the examination of the patient. In the later period, the patient who underwent surgery for thoracic tumor benefited from the operation. Similar cases were published firstly treated surgically for DSD and after diagnosed as spinal tumor [9,10].

On the way to diagnosis, physical and neurological examination should be essential. Physical examination and neurological examination are the most important help in distinguishing the tumor. The patient should be questioned in detail. Searching for long tract findings may be helpful in differential diagnosis.

Börm stated that in patients with spinal tumors, back and neck pain increases in a horizontal position, with more night pain and said that the pain in DSD increased under loading. Unilateral leg pain and positive laseque signs should be interpreted as DSD [11,12].

Additional radiological examinations should be requested in any case incompatible with the clinical situation. Today, the frequent use of MRI has both positive and negative aspects. All spinal regions were visualized by total myelography before MRI and it has been reported that no mass in spinal canal has been missed due to the observation of all spinal regions by myelography [13].

On the other side, there are also publications that indicate that the mass can be skipped by CT and X-ray imaging without using MRI. Börm found that 10 of 35 patients were treated by misdiagnosis and reported a 0.5% rate of patients who had to be treated because of a spinal mass but incorrectly who were treated for DSD [14]. Börm also sampled from his own patient group that there were spinal tumors diagnosed at only peroperatively although all preop tests were performed such as MRI, X-ray, CT.

The issue of which pathology should be treated first is controversial in the literature. In his study of Bellut, he stated that especially in the treatment of spinal tumors with DDD and especially in the lumbar and neck pain, the priority should be in tumor surgery, which is attributed to the postoperative recovery of 67% of the back and neck pain in his series [15].

Simultaneous DSD and tumor surgeries have been performed in the literature and also published [16-19]. Our number 2 case is a case of simultaneous DSD and intradural spinal tumor surgery performed at the same level. It would be rational to perform both surgeries at the same time in patients with radiculopathic findings who are clinically suspected and have a pathology very close to the surgical site. The main goal of intradural tumor surgeons should be total resection, whether DSD is treated or not [20,21].

When we look at extradural masses, we can have different problems. Extradural masses have high ability to hold the spinal bones and create instability. Treatment in these patients may vary according to the pathology of the tumor. If there is no intracanalicular compression, tumor involvement in the bone may be biopsied and treated accordingly. There is a similar situation in our 3rd case. Tumor involvement in cervical vertebrae (C4) was seen hypointense on T1-weighted MRI and hyperintense T2-weighted MRI. Besides, there was a regular shaped mass that completely obliterated the channel in the upper thoracic region. In addition, advanced cervical stenosis was observed. The neurological examination of the patient revealed signs in both the upper extremities and lower extremities. Intradural tumor excision, laminectomy due to cervical stenosis, transpedicular biopsy from the C4 corpus, and transpedicular acrylic application in the same session were planned. The operation included 3 pathology treatments. This is the first case in the literature that has been operated in the same session for DSD and two different primary spinal tumor. It has been published that there was no difference in instability between laminectomy and laminoplasty when applied in cervical tumor surgery [22]. However, fusion surgery is recommended after cervical laminectomy to be performed at 2 levels or above [23].

We also stabilized with C3-C5 lateral mass screw application after two level laminectomy because of both stenosis and tumoral infiltration extending to the lamina. We did not apply an extra stabilization after laminectomy applied to the upper thoracic region for not expecting instability in that region. In this case, the detection of the mass in the upper thoracic region was possible due to the wider screening of sections during cervical examination in MRI. We want form the technician to scan at least a few sagittal images that will display the entire spine, regardless of which region the MRI is studied. Routing this is an important point in the detection of spinal tumors.

Conclusion

The scope of surgical treatment of DSD coexisting spinal tumors is still controversial.

The general conclusion is first that tumor surgery should be done. However, the clinically symptomatic DSD can be treated in the same session. The diagnosis of spinal tumors can be missed and patients may experience unnecessary surgery/surgeries due to DSD. For this reason, neurological examination must be done with meticulously and in today's conditions, in MR imaging the whole spine should be seen at least in a few sections.

Conflict of Interest

All authors declare that there is no conflict of interest.

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