CASE REPORT / OLGU SUNUMU

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SURGICAL SCIENCES / CERRAHİ TIP BİLİMLERİ

Thoracic Intradural Extramedullary Epidermoid Tumor: Two Rare Cases

Torakal İntradural Ekstramedüller Epidermoid Tümör: Nadir İki Olgu

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Abstract

Intradural epidermoid tumors of the spinal cord are commonly associated with spinal cord dysraphism or invasive procedures. The spinal epidermoid tumor, frequently located intradural extramedullary region, is typically found in the lumbar region, and its placement in the thoracic region is rare. Furthermore, it is rarely observed without underlying spinal dysraphism or invasive intervention.

The first case, a 52-year-old female patient was evaluated for back pain. On the thoracic magnetic resonance imaging (MRI) conducted, a 7-mm diameter intradural extramedullary non-enhancing nodular formation posterior to the T3 vertebra was detected. This lesion was completely excised via surgical intervention because of the increased size and the resultant hypoesthesia below T4 dermatome noted at follow-up.

The second case, a 31-year-old woman presented with new-onset weakness in both legs. Notably, she has a history of a spinal mass lesion in the thoracic region 5 years ago. Thoracic MRI was performed to examine the recurrence, and it revealed a hypointense mass lesion axial plane with intradural extramedullary circumferential enhancement in the left posterior T6 level. This lesion was completely removed. No recurrence was noted at follow-up, and the histopathological diagnosis confirmed an epidermoid tumor.

An isolated epidermoid tumor should be considered in the differential diagnosis of intradural -extramedullary mass lesions of the thoracic region. The tumor was successfully resected in its entirety via surgical intervention without any neurological deficit. Our cases support the fact that surgical resection is a crucial factor in recurrence.

Key Words: Epidermoid Cyst, Intradural Extramedullary Tumor, Spinal Cord Tumor, Thoracic Spine

Öz

Spinal kordun intradural epidermoid tümörleri genellikle spinal kord disrafizmi veya invaziv prosedürlerle ilişkilidir. Sıklıkla intradural ekstramedüller yerleşimli olan spinal tümör genellikle lomber bölge yerleşimli olup torakal yerleşim nadir görülmektedir. Ayrıca, altta yatan spinal disrafizm veya invaziv girişim olmadan görülmesi oldukça nadirdir.

İlk olgu, 52 yaşında kadın hasta sırt ağrısı şikayeti ile tetkik edilmiş. Torakal manyetik rezonans görüntüleme (MRG), T3 vertebra posteriorunda intradural-ekstramedüller yerleşimli 7 mm çaplı, kontrastlanmayan nodüler oluşum saptandı. Takiplerinde boyut artışı olması ve T4 dermatom altı hipoestezi gelişmesi üzerine cerrahi girişimle total olarak eksize edildi.

İkinci olgu, 31 yaşında kadın hasta yeni başlangıçlı her iki bacakta güçsüzlük şikayeti ile başvurdu. Hastanın 5 yıl önce torakal bölgeden spinal kitle nedeniyle operasyon öyküsü olması nedeniyle nüks açısından yapılan torakal MRG'sinde T6 seviyesinde spinal kord sol posteriorunda, intradural ekstramedüller çevresi kontrastlanan hipointens aksiyel düzlemde kitle lezyonu saptanmıştır. Hastanın aynı seviyeye yapılan yeni cerrahi girişim ile intradural ekstramedüller yerleşimli morfolojik olarak epidermoid tümör ile uyumlu kitle lezyonu total olarak eksize edildi. Histopatolojik olarak da epidermoid tümör olarak değerlendirilen hastanın ikinci operasyonla total rezeksiyon sonucu 1 yıllık takibinde nüks saptanmadı.

Torakal bölgenin intradural-ekstramedüller yerleşimli kitle lezyonlarının ayırıcı tanısında izole epidermoid tümör akılda tutulmalıdır. Olgularımızda güvenli total tümör rezeksiyonuyla rekürenssiz ve nörolojik defisitsiz başarılı cerrahiye ulaşıldı. Olgularımızda da görüldüğü üzere cerrahi rezeksiyonun rekürens açısından önemli bir faktör olduğu desteklenmektedir.

Anahtar Kelimeler: Epidermoid Kist, İntradural Ekstramedüller Tümör, Spinal Kord Tümör, Torakal Omurga

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Introduction

Epidermoid tumors are rare benign tumors commonly located in the intracranial region. Spinal epidermoid tumors are sporadic and constitute <1% of the intraspinal tumors (1). Epidermoid tumors may be congenital or acquired (2,3). Notably, epidermoid tumors are associated with spinal dysraphism, such as syringomyelia, dermal sinuses, or spina bifida. However, the most common etiology for acquired epidermoid tumor is recurrent lumbar puncture (3,4).

Epidermoid tumors can be extradural, intradural extramedullary or intramedullary, with intradural extramedullary being the type that is frequently observed (5). Epidermoid tumors are typically located in the lumbosacral spinal region and are rarely noted in the thoracic region (6); these tumors typically exhibit nonspecific symptoms that can vary depending on the location. Notably, symptoms such as paresthesia, paraparesis, motor-sensory complaints, and sphincter issues can cause grave difficulties. Epidermoid tumors become symptomatic over a long period owing to their slow-growing nature (3).

Case Report

Case 1

A 52-year-old female patient was admitted with a complaint of recurrent back pain, since 5 years. The patient did not have any history of penetrating trauma, puncture, or surgery in the thoracic region. Physical examination revealed no spinal dysraphism or skin abnormalities in the lumbar/sacral region. The patient had hypoesthesia below T4 dermatome on neurological examination.

However, the T1 and T2 sequences of contrast-enhanced thoracic magnetic resonance imaging (MRI) revealed a non-enhancing lesion with an increased nodular intradural extramedullary size of 7 mm (Figure 1). Finding of hypoesthesia below T4 dermatome on neurological examination prompted surgery.

The intradural mass was completely excised via T2 and T3 midline laminectomy and durotomy accompanied by intraoperative neurophysiological monitoring. Morphologically, the lesion was pearly white and lobulated. The spinal cord membranes and tumor periphery were well demarcated.

The patient's hypoesthesia improved during the postoperative period, and she was discharged 2 days after surgery. Histopathological evaluation was interpreted as epidermoid tumor. No residual tumor tissue or recurrence was observed on the control MRI performed at the 2-year follow-up (Figure 2).

Case 2

A 31-year-old female presented with new-onset weakness in both legs. Notably, she has a history of a spinal mass lesion in the thoracic region 5 years ago. On the examination, it was determined paraparesis, more prominent on the left. Therefore, a thoracal MRI was performed to examine the recurrence, and it revealed a 10×8 mm mass lesion at the widest part of the hypodense axial plane with intradural extramedullary circumferential enhancement in the left posterior T6 level (Figure 3).

The intradural extramedullary mass lesions were compatible with epidermoid tumor and were completely excised. The

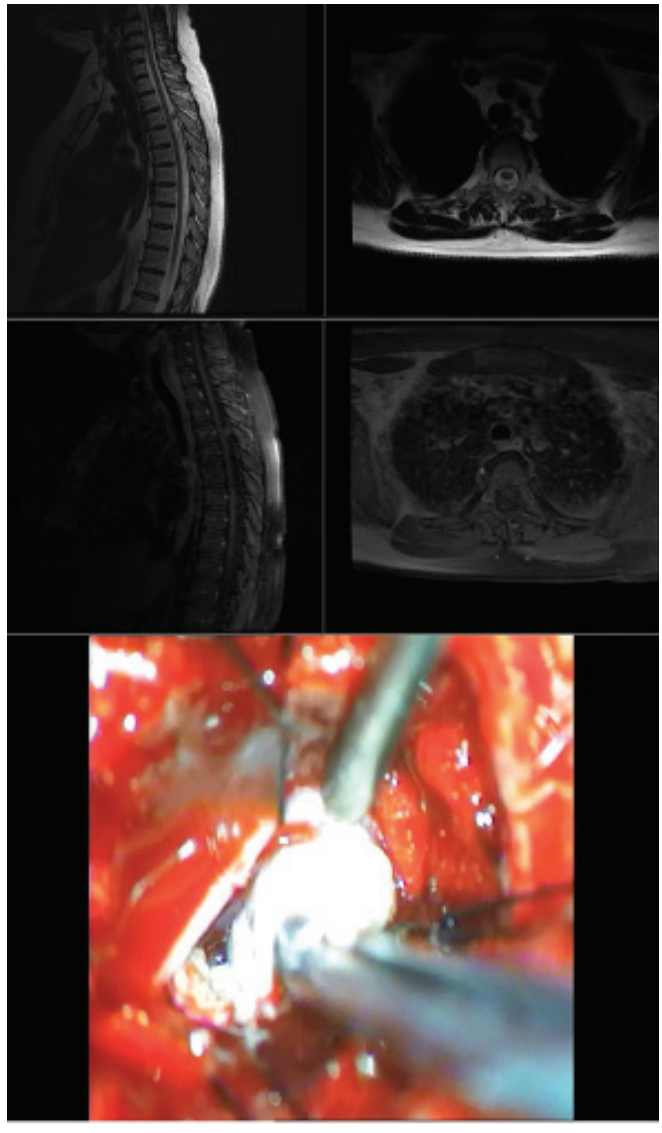

Figure 1: Preoperative T1 and T2- weighted MRI and intraoperative images of the first case
MRI: Magnetic resonance imaging

patient's preoperative paraparesis improved postoperatively. The histopathological diagnosis confirmed an epidermoid tumor, and no recurrence was observed at the 1-year follow-up (Figure 4).

Discussion

Thoracic epidermoid cysts constitute approximately 0.8% of all spinal epidermoid tumors (4). The tumor tissue is typically located in the intradural extramedullary region, and microscopic examination shows stratified squamous epithelium and keratin strands (7).

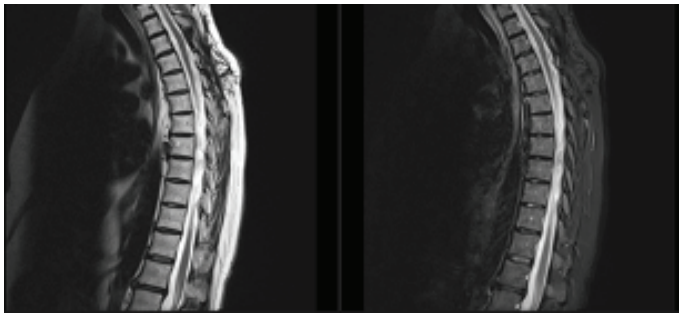

Figure 2: Follow-up T1 and T2- weighted MRI images of first case
MRI: Magnetic resonance imaging

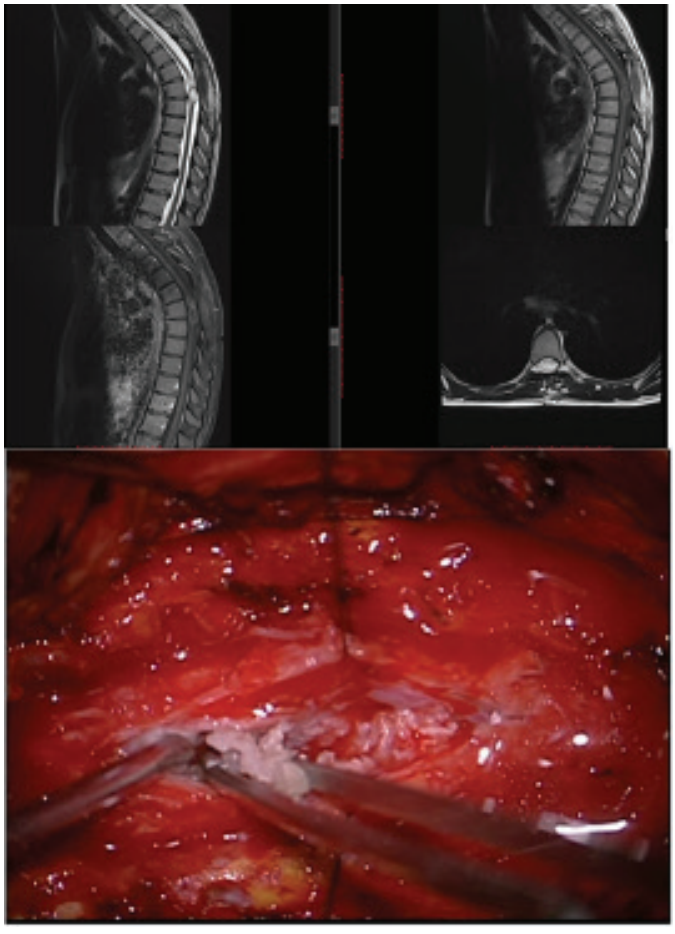

Figure 3: Preoperative T1 and T2- weighted MRI and intraoperative images of the second case
MRI: Magnetic resonance imaging

Spinal epidermoid cysts are classified into two types based on the etiology. The first type—congenital and acquired—presumably occurs congenitally as a result of the abnormal implantation of ectodermal cells during the closure of the neural tube between the third and fifth week of embryonic life (3,8), and in approximately 40% of spinal epidermoid cysts, these cysts are reportedly acquired with the replacement of epithelial tissue secondary to a previous lumbar puncture (5,9). The second type is isolated spinal epidermoid tumors that occur without congenital anomaly (dysraphisms), invasive procedures (i.e., lumbar punctures), or trauma. Although the occurrence of most of the epidermoid cysts in the lumbar region is not associated with congenital anomalies, this is not true regarding the cysts of cervical or thoracic regions (10).

A literature review has revealed that only eight cases of isolated spinal intradural extramedullary epidermoid cysts had been reported, six cases of those in thoracic region (1).

Radiologically, MRI is an effective imaging modality for the diagnosis of epidermoid tumors. MRI typically shows epidermoid tumors as isointense or hypointense on T1-weighted images and hyperintense on T2-weighted images (5). Although MRI signal variations can cause diagnostic difficulties in epidermoid tumors, physical examination and anamnesis may provide supportive data for diagnosis. Symptoms and clinical findings are attributable to the spinal cord or nerve root compression.

Moreover, avoidance of cyst content spillage into subarachnoid space is critical to prevent the development of chemical meningitis and arachnoidal adhesions that may develop postoperatively (3).

Although the thoracic or cervical region is an atypical site for epidermoid tumor, it should be considered in the differential diagnosis of MRI for the tumors in this region. However, the possibility of the occurrence of sporadic cases despite the absence of a history of spinal dysraphism and puncture, such as in our case, should be considered. A safe maximum resection should be performed to prevent recurrence. Nonetheless, long-

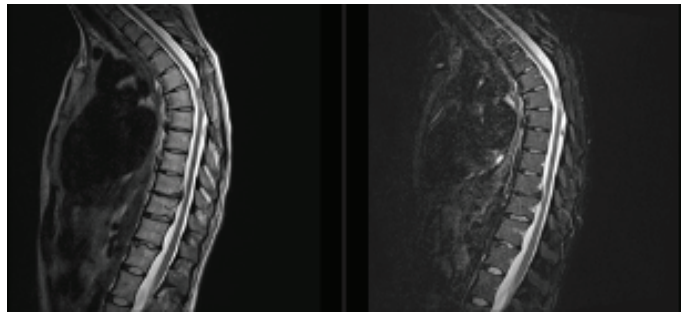

Figure 4: Follow-up T1 and T2-weighted MRI images of second case
MRI: Magnetic resonance imaging

term follow-up is recommended, particularly in cases where total resection is impossible owing to the risk of potential recurrence of epidermoid tumors.

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Ethics

Informed Consent: Informed consent was obtained from all the patients are including to the study.

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Authorship Contributions

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