Case report
Olgu sunumu

# NADİR GÖRÜLEN BİR TÜMÖR: PARASPİNAL SCHWANNOMA

## AN UNCOMMON TUMOR: PARASPINAL SCHWANNOMA

Hakan KESKİN[1], Elerki KALKAN[1], Emel GÜNDÜZ[2], Güzide Ayşe OCAK[3]

0000-0002-5736-5954, 0000-0002-8490-7894, 0000-0002-0306-9770, 0000-0001-5529-3654
*1 Department of Thoracic Surgery, Akdeniz University Faculty of Medicine, Antalya, Turkey*
*2 Department of Anesthesiology and Reanimation, Akdeniz University Faculty of Medicine, Antalya, Turkey*
*3 Department of Pathology, Akdeniz University Faculty of Medicine, Antalya, Turkey*
*Sorumlu Yazar/Corresponding Author: Hakan Keskin E-mail:* opdrhakankeskin@hotmail.com.tr
*Geliş Tarihi/Received:12.03.2020 Kabul Tarihi-Accepted: 24.04.2020 Available Online Date/Çevrimiçi Yayın Tarihi: 30.04.2020*
*Cite this article as: Keskin H, Kalkan E, Gündüz E, Ocak GA. An Uncommon Tumor: Paraspinal Schwannoma J Cukurova Anesth Surg. 2020:3(1),28-33. Doi: 10.36516/jocass.2020.29*

Öz
Periferik sinir kılıfı tümörlerinin en sık görülenlerden biri olan schwannomlar, düzgün sınırlı, sert, kapsüllü ve yavaş büyüyen benign tümörlerdir. Tedavisi kitlenin cerrahi olarak total eksizyonudur. Bu vaka sunumunda 32 yaşındaki bir kadın hastada oluşan ve oldukça nadir görülen paraspinal schwannomu, schwannomların vücudun her yerinde görülebildiğini hatırlatmak amaçlı sunuyoruz.

Anahtar Kelimeler: İntramuskuler schwannoma, neurilemmoma, göğüs cerrahisi, paraspinal schwannoma

Abstract
Schwannomas, one of the most common peripheral nerve sheath tumors are well-circumscribed, rigid, encapsulated and slow growing benign tumors. Treatment is total excision of the tumor. In this case report, we present a very rare case of paraspinal schwannoma in a 32-year-old female patient with the aim of reminding that schwannomas can be seen all over the body.

Keywords:Intramuscular schwannoma, neurilemmoma, throcic surgery, paraspinal schwannoma

## Introduction

Schwannoma was first described by Jose Verocay in 1910[1]. Although it can be seen at any age, it is more frequent between the ages of 20-50[2]. Male female ratio was reported as 3/2 in the literature[3]. Schwannomas are mostly benign and less than 1% become malignant in the form of a cancer known as neurofibrosarcoma[3]. Schwannomas originating from the nerves of the peripheral, cranial, or

autonomic nervous system in any part of the body constitute approximately %5 of all benign soft tissue tumors[3]. İntramuscular schwannoma is a very rare condition. Because of the lack of a specific diagnostic method, schwannomas are difficult to diagnose before surgery. Therefore, it is very important to add schwannomas to the preliminary diagnosis in slow growing and painless masses. In this article, we present a rare case of intramuscular schwannoma detected in the paraspinal muscle bundle on the lateral side of the thoracic 7-8 vertebra.

## Case Report

A 32-year-old female patient was admitted to our outpatient clinic due to a growing mass in her back area for approximately one year. On physical examination, there was no pain, tenderness, heat increase and sensory loss in the swelling area. Only 2x1.5 cm mobile mass was detected at the T7-8 vertebra level. Firstly superficial tissue USG was performed to the patient but it was reported as non-diagnostic. In thoracal magnetic resonance imaging (MRI), a mass was detected in the paravertebral area along the T7 and T8 vertebrae adjacent to the spinous process in the left lateral part of the midline. This mass was a well-circumscribed mass that caused push in muscle tissues but did not show significant invasion. The hypointense T2 sequence in the T1 sequence, which had a transaxial size of approximately 30x19x15 mm, was predominantly hyperintense in the T2 sequence, and hypointense areas were detected in the central (Figure 1-2).

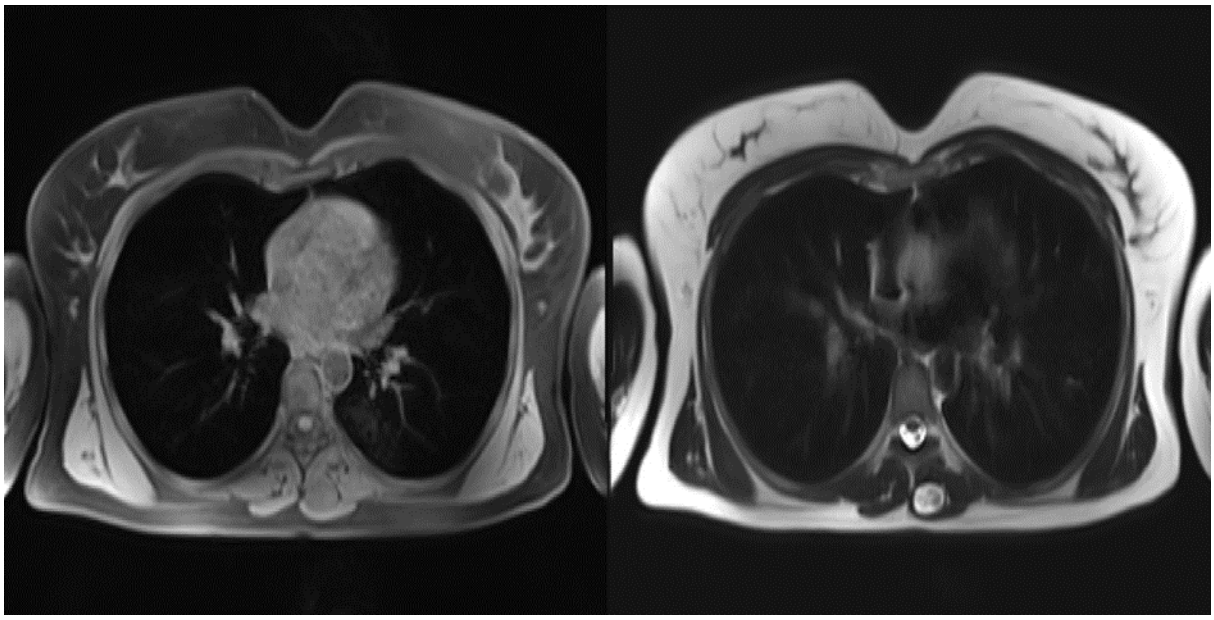

Figure 1: Magnetic Resonance Imaging of T7-T8 vertebrae left lateral T1 in the mass of the hypointense T2 sequence hyperintense appearance

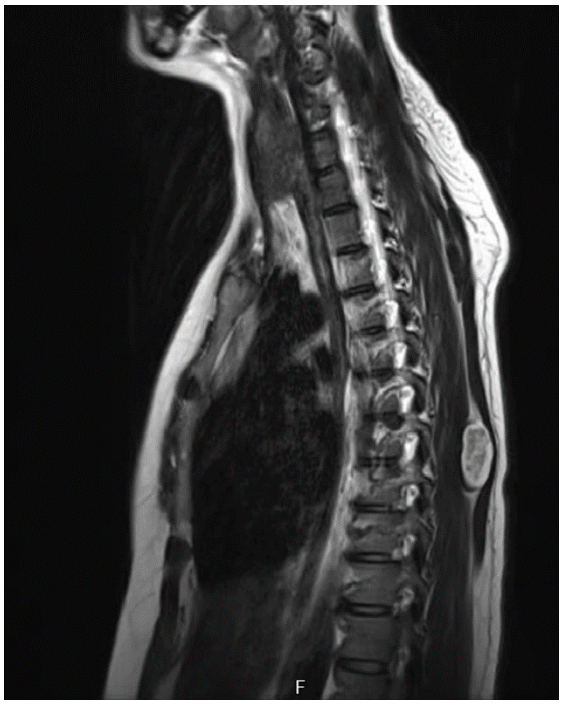

**Figure 2:** The appearance of the mass in the sagittal plane T2 in the magnetic resonance imaging

With these findings, a percutaneous core biopsy was performed with the preliminary diagnosis of neurogenic tumor. Under general anesthesia, a 3 cm incision was made from the top of the mass in the prone position. (Figure 3) Mass from muscle tissue surrounding the mass was separated by sharp and blunt dissection. The mass was surrounded by a thin capsule.

Macroscopically; the mass is encapsulated and 3 cm in its greatest dimension (Figure 4). On histopathologic examination, encapsulated tumor was composed of hypercellular Antoni A and hypocellular Antoni B areas. The tumor cells were neoplastic Schwann cells which had eosinophilic cytoplasm without discernible cell borders and elongated wavy nuclei. These tumor cells were diffusely immunstained with S-100 antibody (Figure 5). According to these findings the final diagnosis was “Schwannoma”. The patient is followed up uneventfully in the postoperative 4th month.

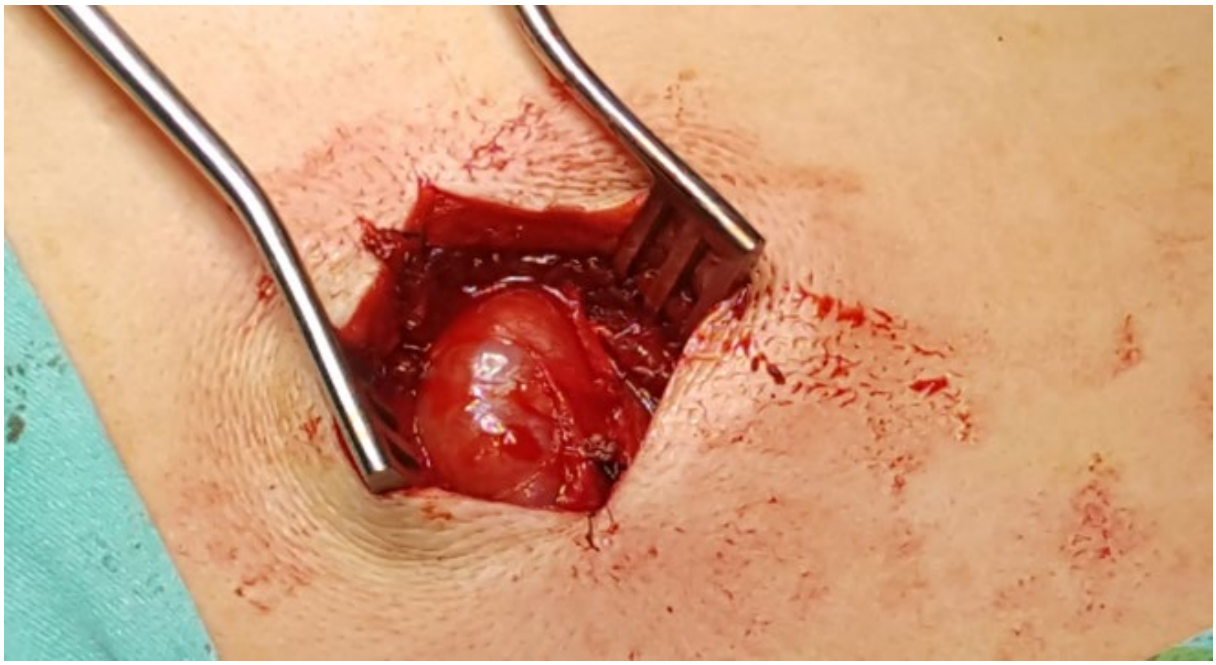

**Figure 3:** The capsule was detected on the mass after dissection

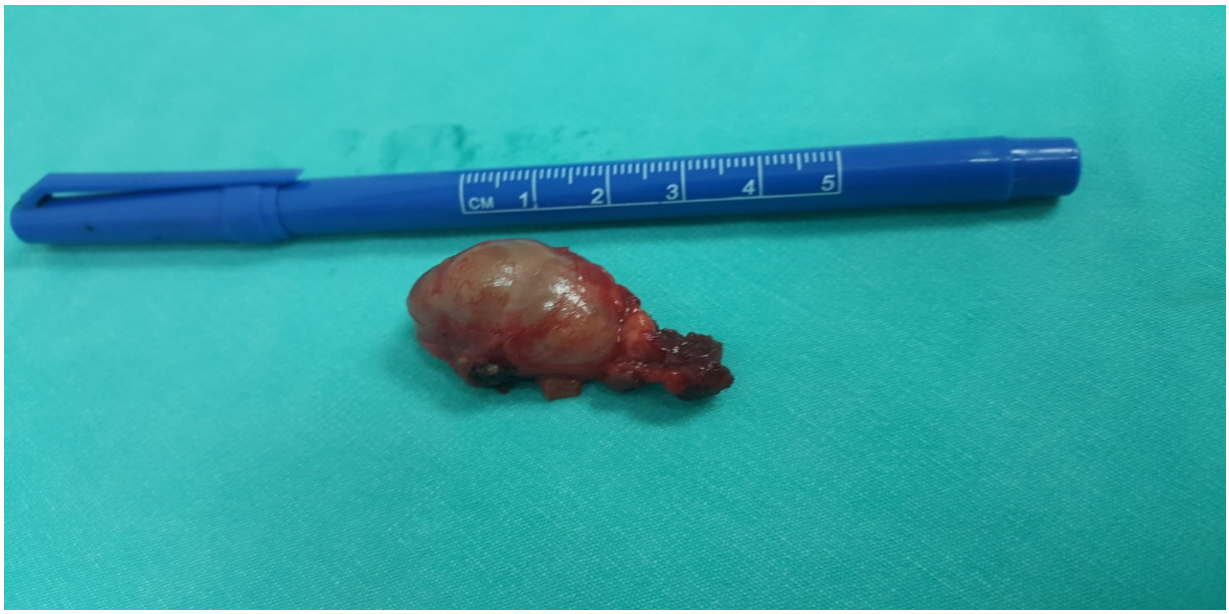


**Figure 4:** Macroscopic view of the mass.

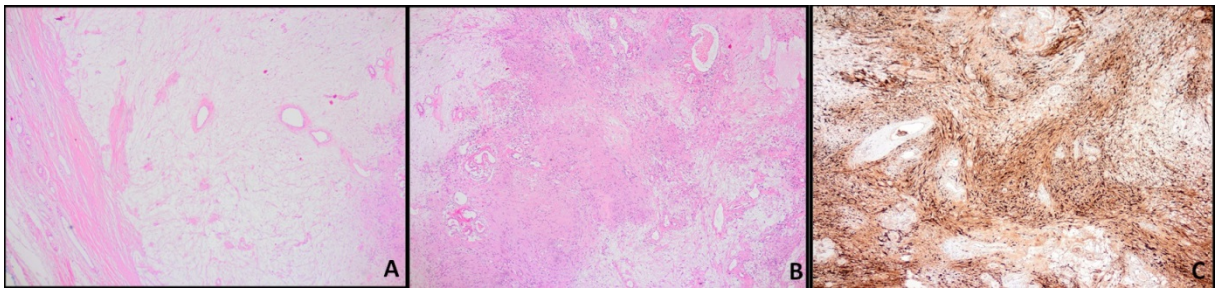


**Figure 5**: a) There is a capsule around tumor. H&E X 400
b) The tumor composed of hypercellular Antoni A and hypocellular Antoni B areas. H&E X 400
c) Neoplastic Schwann cells are diffusely immunreactive to S-100 antibody. X400

**Table 1.** Cases of intramusculer schwannom published so far

| | **Age** | **Gender** | **Area** | **Treatment** |
|---|---|---|---|---|
| Ohla et al (5) | 34 | Female | L4 right | Total excision |
| Kim et al (6) | 62 | Female | L2-L4 left | Total excision |
| Shah et al (3) | 45 | Male | T9-T11 right | Total excision |
| This work | 32 | Female | T7-T8 | Total excision |

The tumor cells were neoplastic Schwann cells which had eosinophilic cytoplasm without discernible cell borders and elongated wavy nuclei. These tumor cells were diffusely immunstained with S-100 antibody (Figure 5). According to these findings the final diagnosis was "Schwannoma". The patient is followed up uneventfully in the postoperative 4th month.

## Discussion

Schwannomas constitute %30 of all spinal neoplasms. Only %20 of all schwannomas are detected in the extradural region[3]. Intramuscular schwannomas constitute 2.6% of the schwannomas detected in the extradural region[4]. In the literature, cases of intramuscular schwannoma originating from various parts of the body have been reported. These cases are generally described as slow-growing and painless masses[4]. However, as far as we know, only 3 cases of intramuscular schwannoma (Table 1) were detected in the paraspinal region[3,5,6].

The most common symptoms in extradural schwannomas are tenderness (5-52%), radicular pain (20%), Tinel sign (60-96%) and motor weakness (7.6-82%) [7]. In addition, cough, dysphagia due to compression effect of slow growing mass, cranial nerve palsy, Horner syndrome and hearing loss can be detected. Neurological findings and pain are less common[8]. Neurological symptoms such as pain, motor weakness and paresthesia are not detected since intramuscular schwannomas are caused by a small motor branch nerve within the muscle. The most common symptom in intramuscular schwannomas is the slow-growing, mobile mass[3]. In our case, the patient defined the size increase in the back area. The patient did not have any other symptoms because the mass was too small to cause compression.

Contrast MRI is the gold standard in cases with a neurogenic lesion in the differential diagnosis. MRI of the schwannoma shows mild hypointense or isointense in T1 sequences and hyperintense in T2 [3]. In the transverse MRI sections, multiple small ring-shaped round structures representing intra-lesion nerve bundles are called fascicular marking and are frequently found in nerve sheath tumors[3]. Despite the pathognomonic findings in the radiological examination, the diagnosis is made by histopathological examination. In this case, a tumor with a neurogenic origin was considered because of the hypointense in the T1 sequence and the hyperintense in the T2 sequence.

Schwannomas are encapsulated, well-circumscribed tumors. The tumor is histopathologically composed of Schwann-like cells with a spindle-wave nucleus and shows a biphasic pattern defined as Antoni A and Antoni B areas [1]. The Antoni A pattern consists of spindle-shaped cells that form long nuclei, fascicles and strips. The Antoni B pattern is hypocellular areas with a weak number of myxoid matrix and a small number of cells. Verocay bodies, which are oval acellular areas surrounded by parallel nuclei, can be seen. Antoni A is rich in laminin, a high molecular weight glycoprotein produced by Schwann cells in regions A. Schwann cells show positive immunoreactivity with S-100 immunohistochemical antibody.

The preferred treatment for schwannoma is the total surgical removal of the mass. Despite the risk of encountering recurrence, it is recommended that the neural structure from which the tumor originates is protected as much as possible. In cases with preoperative diagnosis, intraoperative electrophysiological monitoring and preservation of the neural structure in which schwannoma originates may cause postoperative complications and recurrence[8]. Recurrence after total excision is rare in patients with Schwannoma. In

this case, the definitive diagnosis of the mass was made by postoperative pathological diagnosis.

It should be kept in mind that schwannomas, which are mostly confined to the paravertebral region, can be intramuscularly located for the chest surgeons. Schwannoma should be kept in mind in the differential diagnosis of smooth, painless and mobile masses in the back area. The fascicular sign detected on MRI is an important marker for schwannom. As in all schwannomas, total surgical excision is considered curative treatment.

## Funding

None.

## Conflict of Interest

None.

## References

1. Joshi R. Learning from eponyms: Jose Verocay and Verocay bodies, Antoni A and B areas, Nils Antoni and Schwannomas. Indian Dermatol Online J. 2012;3:215-9.
2. Weber AL, Montandon C, Robson CD. Neurogenic tumors of the neck. Radiol Clin North Am 2000;38:1077-90.
3. Shah KA, Shah AC. Paraspinal Schwannoma of dorsal ramus nerve: A case report. Clin Orthop Trauma. 2018;9:1-4.
4. Knight DM, Birch R, Pringle J. Benign solitary schwannomas: a review of 234 cases. J Bone Jt Surg Br. 2007;89:382-7.
5. Ohla V, Scheiwe C. A purely paraspinally located schwannoma from a dorsal root of a spinal nerve. Br J Med Med Res. 2014;4:1366-70.
6. Kim JH, Cho TG, Kim CH, et al. Erector spinal muscular schwannoma of the dorsal ramus nerve: a case report. Korean J Spine. 2015;12:204.
7. Kwon BC, Baek GH, Chung MS, et al. Intramuscular neurilemoma. J Bone Joint Surg Br 2003;85:723-5.
8. Keleş E, Eroğlu O, Özercan İH, et al. Schwannoma in the Supraclavicular Region: Case Report. Turk Arch Otorhinolaryngol 2018;56:54-7.