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A cervical paravertebral schwannoma: A case report

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Abstract

Objective: Paraspinal schwannomas arise from the dorsal nerve root. Symptoms of schwannomas may depend on their locations and sizes. This case was presented by a female patient with a dorsalgia for 10 years. She had not any specific symptoms but pain and a thick spot on the neck (cervical area). Paraspinal schwannomas involve the dorsal nerve roots, affecting people in the fourth and fifth decades of life. Paraspinal schwannomas are frequently asymptomatic and diagnosed incidentally on imaging of the spine. Total excision is mostly possible and the recurrence rate is low.

Keywords: Paraspinal schwannomas, Extradural schwannomas, Nerve sheath tumors, Periferic nerve tumors

Introduction

Schwannomas are the type of tumors originating from the nerve sheath. Although most of these tumors are benign, they can rarely be malignant. Most of them are extramedullary and are often seen in intradural areas.(1) Neurogenic tumors of the paraspinal region are common in the adult population. Paraspinal schwannomas that develop from the dorsal nerve of the spinal root can cause sensorial symptomatology. Schwannomas may also derivate from last four cranial nerves or autonomic nerves in parapharyngeal space, vagus nerve being the most common(2). Symptoms of schwannomas may depend on its location and size. While Schwannomas randomly cause symptoms, patients may suffer from pain, muscle weakness, tingling sensation, numbness, auditory problems or facial paralysis. In some cases, they may occur in syndromes with multiple manifestations. Treatments of schwannomas are surgical and several techniques are depending on its location. With the correct surgical approach, total excision is possible for these tumors.

Case

A 47-year old female presented with back pain for almost 10 years. She had not any chronic diseases and had not any surgical operations. Apart from the pain and a thickened spot on the neck for a year, she did not have any specific symptoms. In the first couple of years, her VAS score for the pain was 3, but she describes an increase to 7 in the last 2 years. She described her pain as a burning sensation and it did not get affected by movement. Blood tests including acute phase reactants were normal. Physical examination revealed no motor and sensory loss, both in her previous consults to other physicians and in ours. She was diagnosed with chronic muscle stiffness due to excessive use and underwent medical and conservative treatment for a few years. She had continuous NSAI usage for the last 2 years. For the first years, symptomatic treatment was episodic. Before coming to our clinic, she had undergone physiotherapy for 3 weeks and she described no decrease in her symptoms after these treatments. On the light of these facts, we thought of the possibility of a deeply located regional legion like a mass. These kinds of lesions are usually asymptomatic unless they grow and compress adjacent tissues and cause pain. Cervical MRI was planned to search for possible soft tissue problems. The tumor was found in the paravertebral area with intensive contrast enhancement (Fig 1). We thought it to be the cause of the pain that the patient has been suffering, so we planned a surgical approach with the patient's approval.

Under general anesthesia and in the prone position, the skin and dermis were cut on the C6 to the T1 level. After paravertebral fascia was opened and muscles were dissected, a 3-centimeter long soft mass was seen near the spinous processes of C7 and T1. We separated the mass from paravertebral muscles and spinous processes and burned the tail, so we could remove it from the C7 nerve sheath. (Fig2)

The pathology results showed that the tumor was a schwannoma, with residual peripheral tissue on it. The patient had a good recovery. After 8 months, symptoms - especially back pain- were gone and there were no sensorial and motor deficits. A follow-up MRI was planned to check the area (Fig 3).

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Table1: McCormick's Classification- Classification for para-spinal region tumors.

McCormick's Classification	
Type 1	• Dumbell tumours with significant intraspinal and anterior paraspinal components.
Type 2	• Confined to anterior spinal region and near spinal canal without foraminal or intraspinal extension.
Type 3	• Anterior paraspinal tumors with minor foraminal or intraspinal extension.
Type 4	• Involve vertebral, epidural and paraspinal regions.
Type 5	• Involve paraspinal soft tissue only (our case).

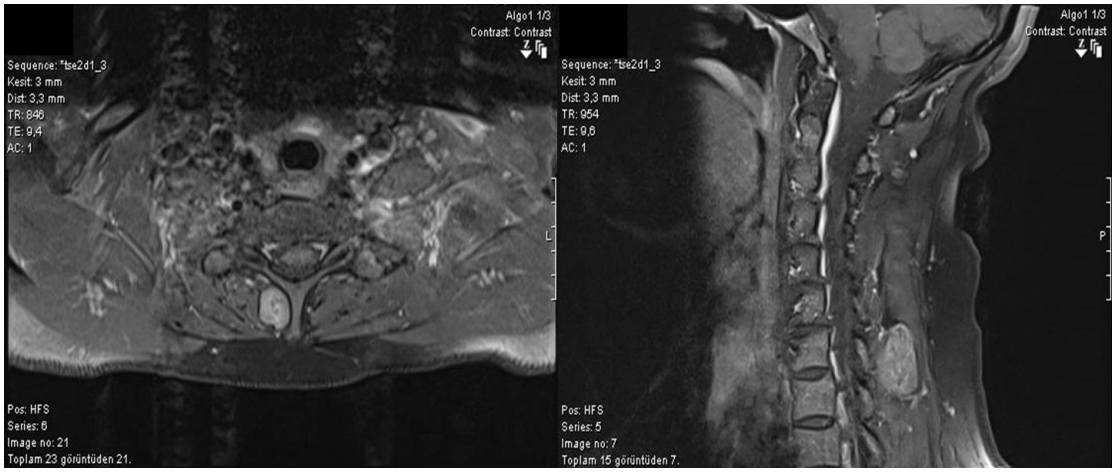

Figure 1: Patient's pre-operative cervical MRI, showing a smooth-contoured mass lesion at C7-T1, near the spinous processes on the para-vertebral area. The lesion is T2-hyper-intense, T1-hypo-intense and has post-contrast series intensive contrast enhancement with a necrotic component at the center. The maximum tumor diameter of the lesion was 18 mm.

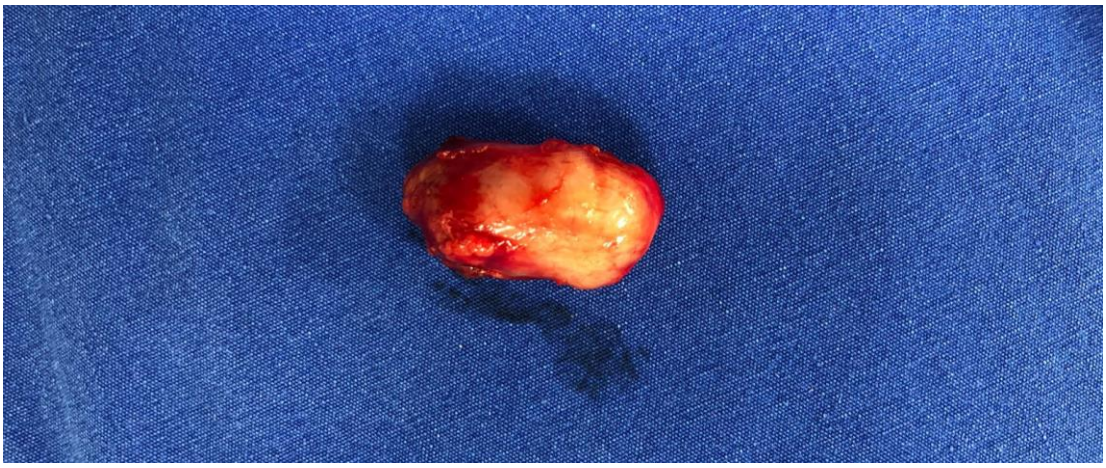

Figure 2: The tumor showed macroscopically. All the contours of the tumor were found to be smooth. The pathology results showed that the mass is a schwannoma with residual peripheral nerve tissue on it.

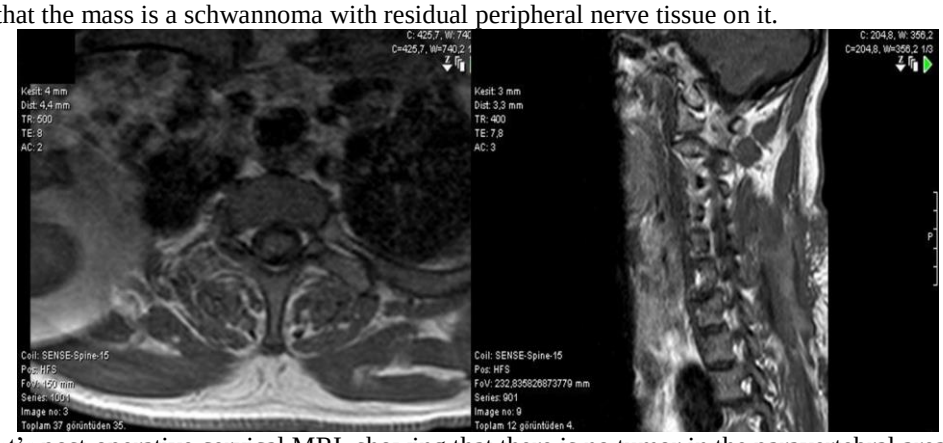

Figure 3: Patient's post-operative cervical MRI, showing that there is no tumor in the paravertebral area and that all tissues were looking normal.

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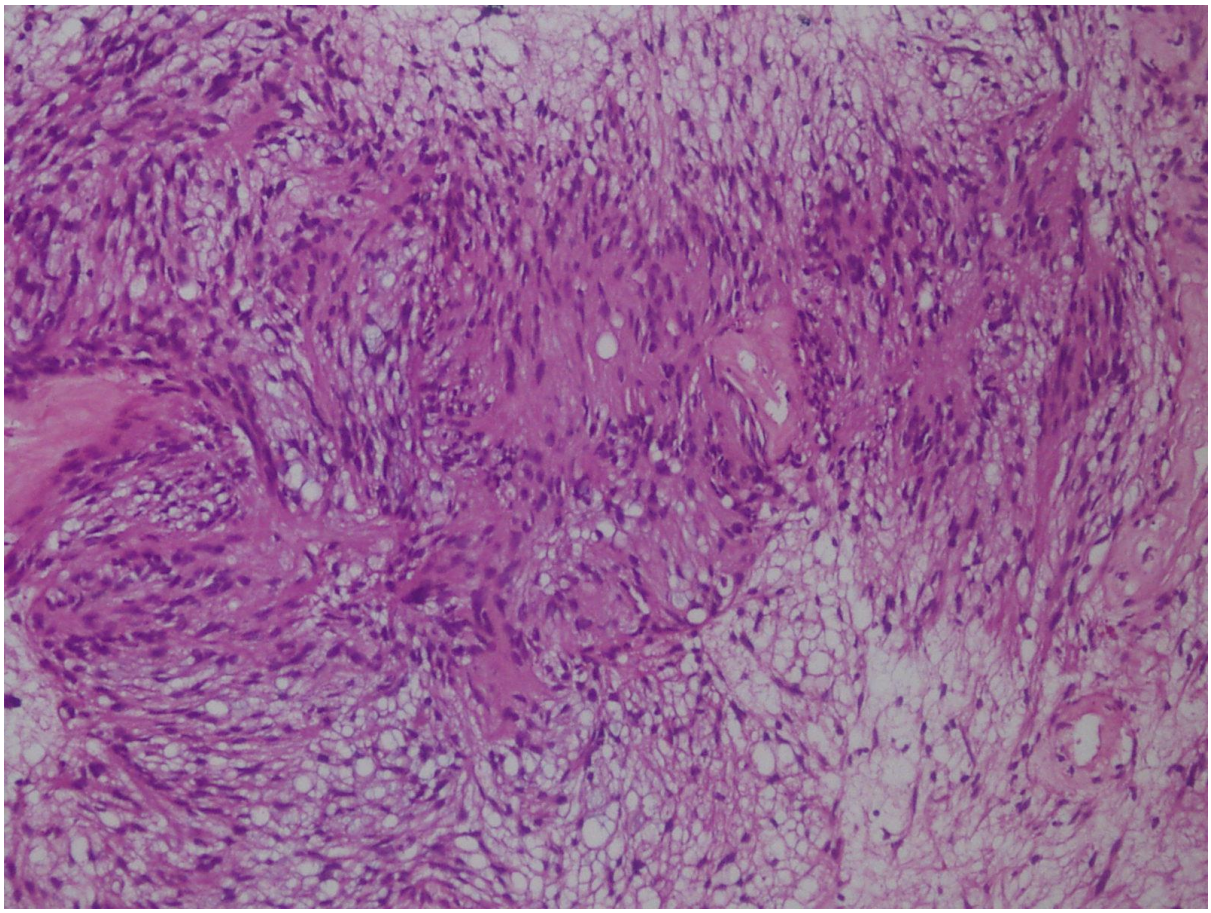

Figure 4: A common finding in schwannoma is the formation of Verocay bodies within the cellular Antoni A zones, defined as palisading rows of nuclei around a pink fibrillary and hypocellular Antoni B zones, contain degenerative changes (H&E, x200).

Discussion

Schwannomas are benign rare tumors that originate the nerve sheath of peripheral nerves. It is the most common cause of intradural extramedullary tumors in the paraspinal area, but it can also be seen extradural. Schwannomas of the cervical sympathetic chain are extremely rare compared to lumbar or thoracic types, and they originate from the superior part of the cervical chain.(3) However, schwannomas can originate from any peripheral nerve in the body, nerves of the head and neck being the most involved ones. Paraspinal schwannomas develop around dorsal nerve roots in the 4t-5th decades of life. This tumor mostly presents as asymptomatic and is found incidentally in spinal imaging. The most common symptoms are lancinating pain and/or paresthesia. They may also compress the nerve roots and cause non-specific abdominal or back pain. Schwannomas may be sporadic and solitary or multiple as in neurofibromatosis type 1.(5) They may extend along the spinal nerve and impose as a dumbbell mass, consisting of both intradural and extradural components. Intramuscular schwannomas are highly uncommon, with palpable masses that present with either no symptoms or lower extremity numbness, but with no characteristic features. Intramuscular schwannomas originate from motor branch nerves. Neurological symptoms, including pain, motor weakness or paresthesia are rarely seen. In our patient who had no radicular pain, motor weakness or tenderness, the tumor was located in the erector spinal muscles.

The histological hallmark of a schwannoma is the alternating pattern of two distinct tissue types: fascicular type (Antoni-A) and reticular type (Antoni-B) (Fig 4). Antoni A regions are composed of more densely arranged cells with specific areas of palisading nuclei arranged in rows, whereas Antoni B regions tend to be more hypocellular, with a loose and disorderly arrangement. In the present case, as the MRI findings were indicative of a benign nerve sheath tumor, we cautiously removed the encapsulated mass from the origin but could not identify the dorsal ramus nerve. Our tissue biopsy confirmed the presence of a very rare intramuscular benign schwannoma, with typical features. Schwannomas usually demonstrated by hypointensity on T1-weighted images and hyperintensity on T2-weighted images.(4) McCormick's Classification is used in the classify paraspinal region tumors.(6) (Table 1).

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Conclusion

The diagnosis of paraspinal tumors is delayed by non-specific symptoms such as pain. In some cases, the tumor may expand and cause motor weakness or sensory deficit. If it is feasible to remove, the main treatment choice is surgery, radiotherapy is in the alternative. Total excision is mostly possible and the recurrence rate sare extremely low after a successful surgery

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Ethical issues: Author declare, originality and ethical approval of research. The study was conducted under defined rules by the Local Ethics Commission guidelines and audits.

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