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THE RESULT OF THE SURGICAL TREATMENT OF INTRADURAL-EXTRAMEDULLARY SCHWANNOMA

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Abstract

Schwannomas are the most common intradural extramedullary tumors of the spine, which observed at any age, more often in women and they can occur on any nerve of the human body. They usually occupy a posterolateral or lateral position in relation to the cord. The ventral midline is a very rare location for the origin of a spinal schwannoma [1]. Intradural intramedullary lesions comprise 20 to 30% of all primary spinal cord tumors [2]. The remaining 70 to 80% of primary intradural tumors are intradural extramedullary tumors [3]. Since their ventral location inhibits tumor visualization, the surgical removal of these lesions may result in spinal cord injury. Consequently, different surgical approaches have been suggested [4].

Keywords: schwannoma, magnetic-resonance imaging (MRI), extramedullary, intradural.

Introduction

We mentioned a clinical case of a 22-year-old female patient complained to Department and Clinic of Neurosurgery of Samarkand State Medical University complaining of numbness in her right leg, difficulty walking due to pain, the pain in the chest and back area, and general weakness. Magnetic resonance imaging (MRI) confirmed an intradural extramedullary volumetric process is determined in the lower thoracolumbar Th12- L1-2 areas with revealing osteochondrosis of the lumbosacral spine. With general endotracheal anesthesia, using intraoperative neurophysiological monitoring of motor-evoked potentials (MEPs), spinal tumor resection was performed. The pathological diagnosis following surgery was spinal schwannoma. Her neurological symptoms, conditions were significantly improved after performing surgery.

Despite many years of studying and introducing into clinical practice a wide arsenal of decongestants with different mechanisms of action, prevention and pharmacotherapy of ONGM is not always successful [7,8]. In the pharmacotherapy of ONGM, the empirical-symptomatic approach with a focus on dehydration still often prevails, and this approach often leads to the development of serious complications .

Materials and Methods

Extramedullary, intradural spinal tumors are rare. They comprise about 40-45% of all spinal tumors. They are distinguished from intramedullary tumors by their extra-axial location.

However, most common are schwannomas reaching 29% among other intradural-extramedullary tumors. The tumor belongs to a fairly common benign neoplasm of childhood, these tumors account for 8% of the formations that first appeared in the cranial cavity, and 20% of those that developed in the spinal cord [5]. The World Health Organization classifies schwannoma as a grade I benign tumor. Schwannomas are solitary in 90% of the cases. [6].

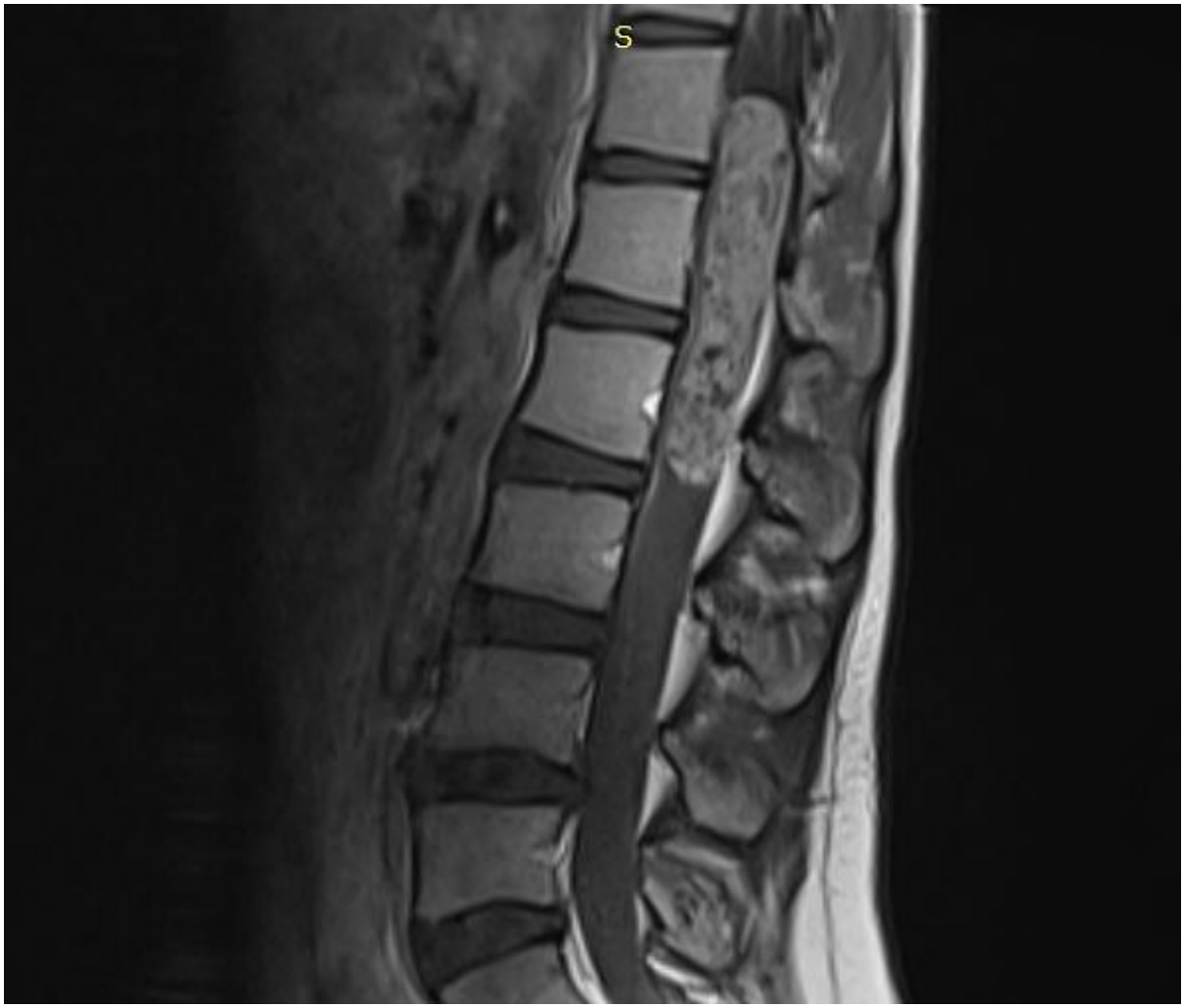
Schwannomas are the most common intradural extramedullary tumors of the spine, which observed at any age, more often in women and they can occur on any nerve of the human body [7]. Intradural spinal schwannomas are usually dorsal, lateral or dorsolateral in position [8]. Schwannomas can present with 2 main symptoms – radiculopathy and neurogenic claudication – as well as worsening sensorimotor loss and back pain radiating from the tumor level [9]. Patients with unilateral localized spinal tumors are more likely to experience localized back pain, whereas concentric growths are associated with diffused pain and motor deficits. [10,11]..

Purpose of the study – to base the success of operative treatment in a patient with thoracolumbar schwannoma.

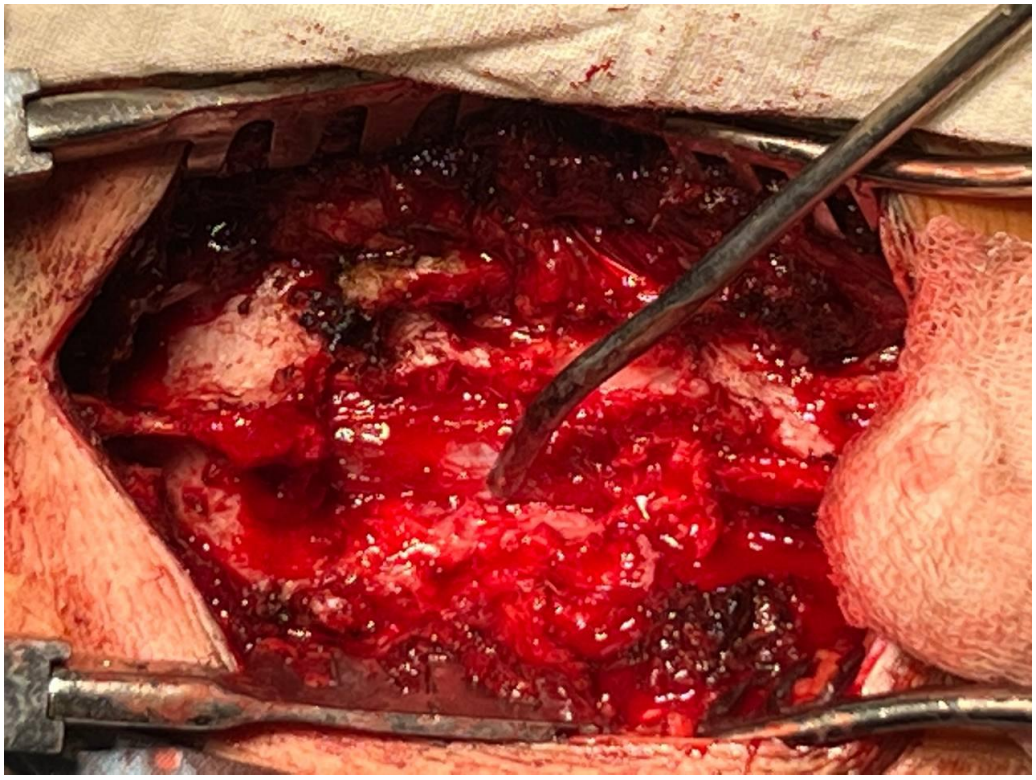
Presentation of a clinical case. A 22-year-old female patient complained to Department and Clinic of Neurosurgery of Samarkand State Medical University complaining of numbness in her right leg, difficulty walking due to pain, the pain in the chest and back area, and general weakness. The first complaining condition noticed visiting a local doctor. She was prescribed pain killers for her symptoms. The patient has considered herself sick for a year. She does not attribute her illness to any reasons. Because of her illness, the patient consulted the doctors of that region. After a few days, the pain subsided, and the next day it started to intensify again. Complaints that the patient's general condition has not improved after treatment have been increasing, and she has applied to the multidisciplinary clinic of Samarkand State Medical University. The patient was hospitalized in the neurosurgery department for examination and treatment based on the results of additional tests (MRI) and complaints.

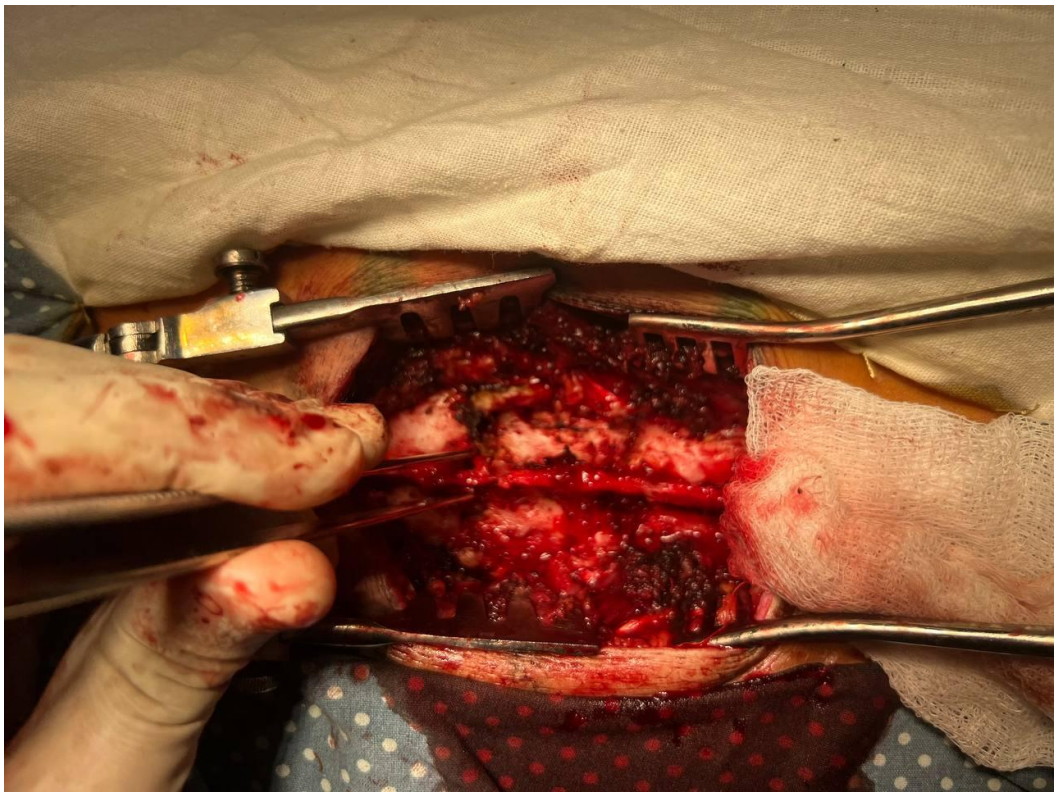
Neurological examination proved the permanent pain regularly in right thoraco-lumbar area. Th12-L1-L2 radicular pain syndrome is observed. Imperative urges to urinate are observed. The general condition of the patient was assessed using the Frankel scale “C” and McCormick 2 grade. (Fig. 1).

(Fig. 1) MRI thoracolumbar spine sagittal image with hypointense tumor mass on post contrast image.

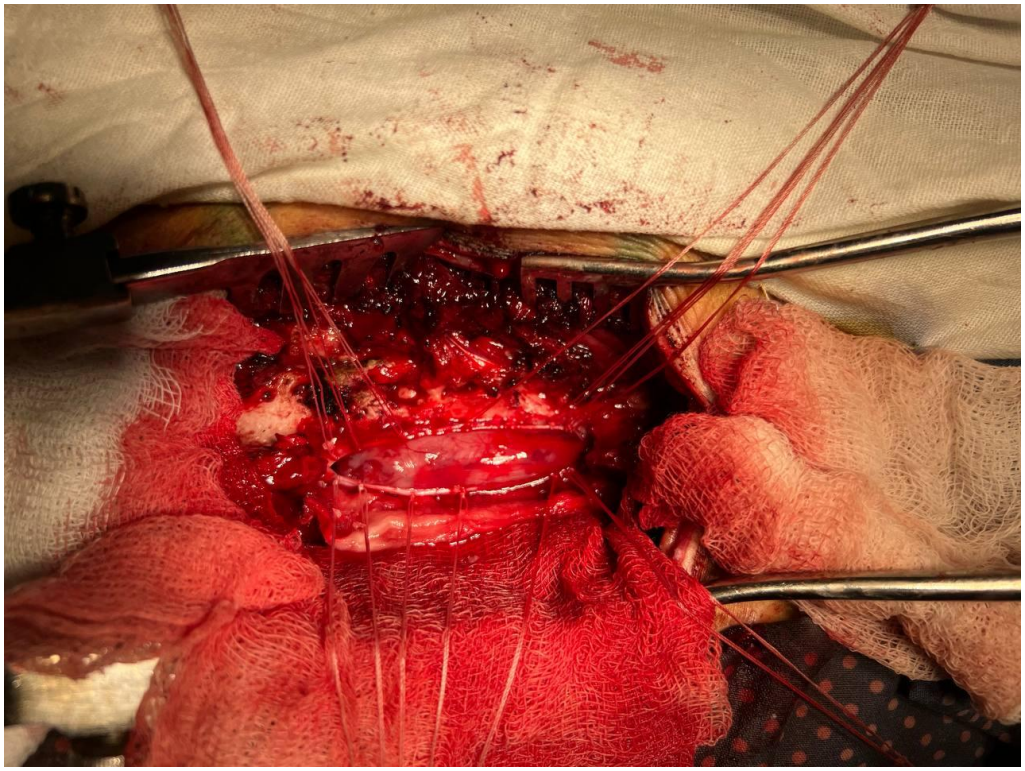


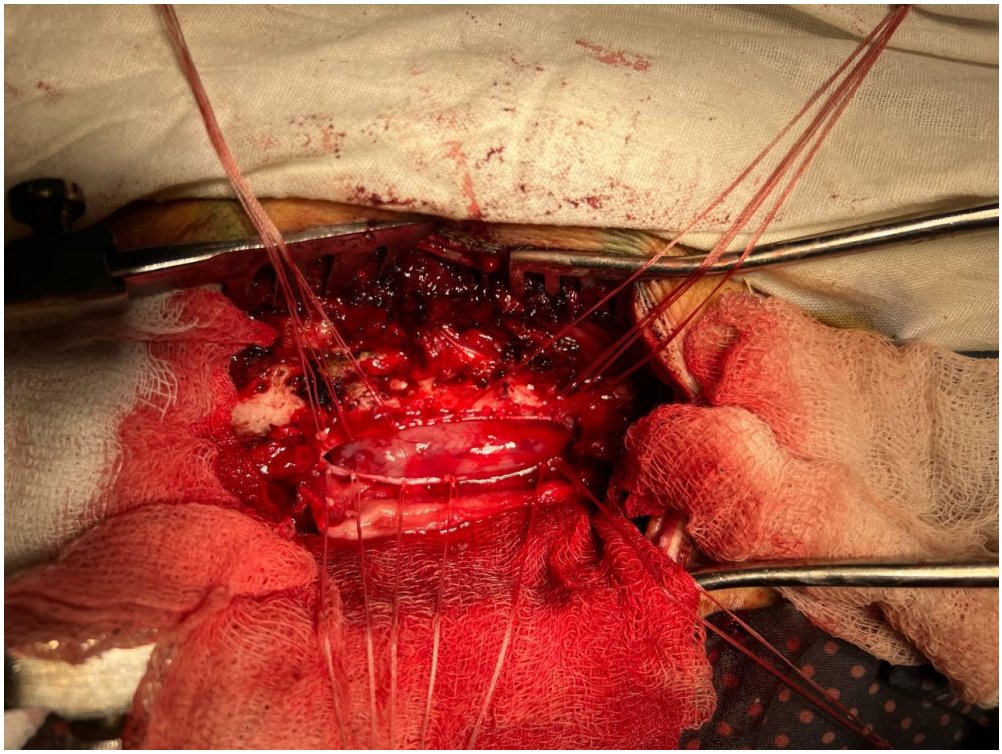
(Fig. 2). MRI post-contrast image, sagittal section with tumor compressing medulla



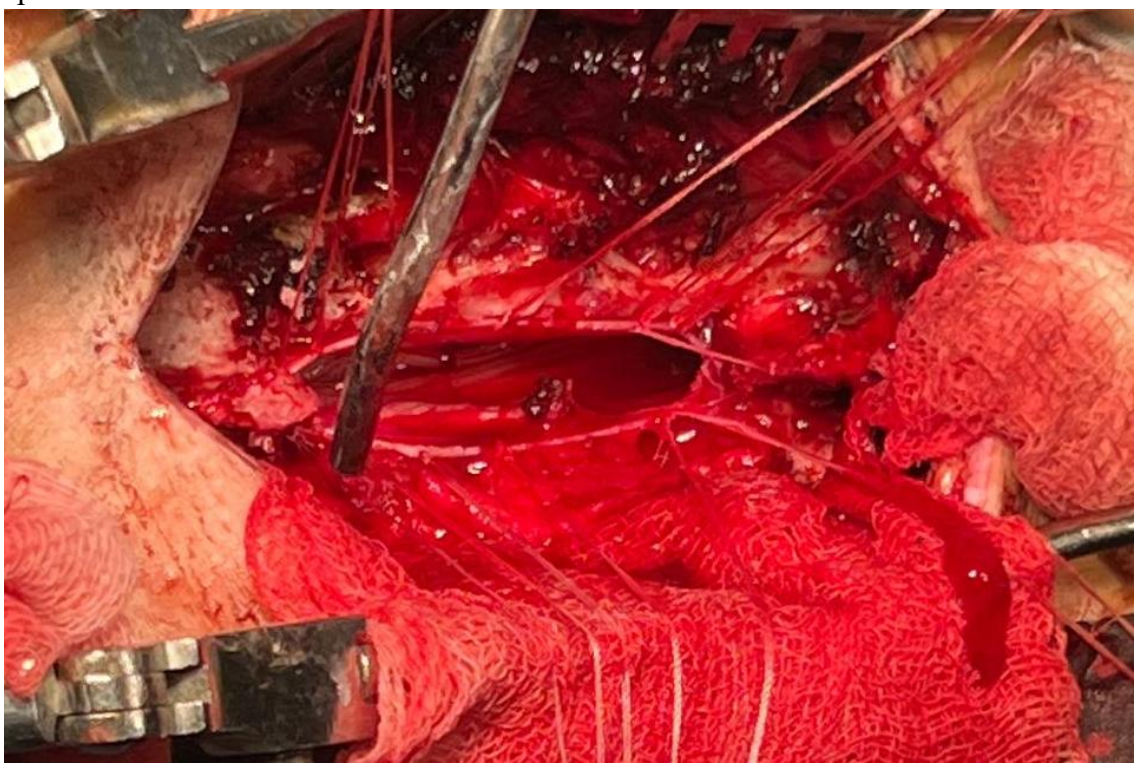


(Fig. 3). Cut layers from the skin till Dura mater.





(Fig. 4) . Interoperative imaging of extramedullary – Intradural tumor (schwannoma) inside spinal cord



(Fig. 5). Physical appearance of inside spinal after removing swannoma

(Fig. 6). MRI post operation period. Sag T1. Complete laminectomy of VL1 and partial laminectomy of VL2.

Operative approach. The area of the patient's spine to be operated on (Th12, L1-2) was determined using an C-arm. Undergoing general endo anesthesia, the skin and subcutaneous fat tissue in the area of Th11-12-L1-2 were cut along a straight line to the muscle aponeurosis. Paravertebral muscles were skeletonized from the spinous process and arches of the Th11-12-L1-2 vertebrae from both specimens. The material for tendoplasty was separated from the superior ligaments of Th12-L1-2 bodies and pulled to the caudal side. Then, complete laminectomy of L1 and partial laminectomy of L2 was performed. In this area, the dura mater is tense, and when palpated, it is felt that there is a formation of a relatively soft consistency in the subdural area (Fig. 3). The dura mater in this area was cut longitudinally to a length of 5.0 cm. In the opened area, a tumor nodule with an elongated-oval shape and a soft consistency was found, growing expansively, not attached to the dura mater, pressing the spinal cord from the back, left side, and severely atrophied. It was noted that the tumor nodule spread to Th12-L 1-2 areas and formed a block in the CSF channel in this area (Fig. 4). The tumor node was carefully separated from the surrounding tissue using special instruments. In the process of dissection of

the tumor, it was found that the tumor node was firmly attached to the end part of the spinal cord. The part of the tumor node attached to the spinal cord was separated using specific microinstruments. Total removal of the tumor was achieved by separating it from the surrounding tissue. The upper and lower conduction of the subdural space was completely restored (Fig. 5). The meninges were closed with continuous sutures and hermetic sutures. Tendoplasty was performed using the material created before the operation. A chlorinated vinyl tube was left in the wound area for drainage, and the wound was sutured in layers. The wound was treated with iodine, an alcohol compress and an aseptic bandage were applied.

Results

Removed intradural extramedullary tumor of the spinal cord in the area of VTh12-L1-2 (located in the right lateral, anterior, posterior chambers). A treating part of the spinal cord and recoveried formations of the nerve tracts in this area. A decreased lower paraparesis. Frenkel "E" McCormick Level 1 Postoperative Status.

Conclusion

Although schwannoma is a benign tumor originating from nerve sheath in thoracolumbar region, which is not often encountered in clinical practice. The final diagnosis also represented as neurinoma after histopathological examination. The definitive treatment is the total removal of the lesion. Therefore, the case confirms that the removal of thoracolumbar schwannoma is reasonable through one-stage surgery through excision of the diseased tissue as standard and complete as possible. The surgical treatment of schwannomas is likely to have a consequence, with a low probability of recurrence, a satisfactory prediction.

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