

Intradural extramedullary cystic schwannoma of the cervical spine

Elif Başaran Gündoğdu^{ORCID}, Mehmet Ali Ekici^{ORCID}

Department of Neurosurgery, University of Health Sciences, Bursa Yüksek İhtisas Training and Research Hospital, Bursa, Turkey

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ABSTRACT

Giant cervical intradural extramedullary schwannoma with severe spinal cord compression is a rare entity. Tumor spread and size are very important for surgical approach. In this case, we report a 55-years-old male patient with a giant intradural-extramedullary cervical schwannoma extending between C5 and T1 and causing spinal cord compression that underwent total resection with laminoplasty at C5-6-7 levels. The patient developed no additional deficit. To preserve the cervical lordosis, the patient used a cervical collar for three months. There has been no recurrence during two years of follow-up. Using the appropriate surgical method is essential in patients with spinal tumor in order to avoid additional neurological deficits and achieve cure.

Keywords: cervical schwannoma, laminoplasty, intradural extramedullary tumor

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Spinal schwannomas are slow-growing tumors of benign origin, which represent approximately 30% of all primary spinal cord tumors. Spinal schwannomas are most commonly intradural [1]. Extradural involvement becomes more pronounced for the cervical schwannomas, since the intradural segment of the nerve root is shorter at the cervical region compared to the other areas of the spinal cord. The general approach is laminectomy for cervical schwannomas, or unilateral facetectomy may be performed if the lesion is located laterally [2].

Giant intradural extramedullary schwannoma of the cervical spine has a low incidence and causes severe spinal cord compression. These patients present progressive motor and/or sensory deterioration [3].

CASE PRESENTATION

A 55-year-old male patient who had numbness and pain in his right arm and numbness in his right leg was admitted to the outpatient clinic. The neurological examination revealed hyperactive upper and lower extremity deep tendon reflexes (DTRs) and a positive Romberg test. Bilateral hypoesthesia was present at the C5-6-7-T1 dermatomes, although it was more pronounced on the right side. There was 1-2/5 weakness of the right arm. A cervical MRI study was performed. On the cervical MRI, there was an intradural extramedullary solid mass including cystic areas, which was extending between C5 and T1, compressing the spinal cord from the left side, and



Address for correspondence: Elif Başaran Gündoğdu, MD., University of Health Sciences, Bursa Yüksek İhtisas Training and Research Hospital, Department of Neurosurgery, Emniyet Caddesi No:35, 16115 Yıldırım, Bursa, Turkey
E-mail: basaran.elif@hotmail.com, Phone: +90 224 2955000, Fax: +902243660416

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Figure 1. (A-B-C) Cervical MRI taken preoperatively.

enhancing homogeneously with gadolinium (Figure 1A, 1B and 1C). In the operation, after laminectomy at C5-6-7 levels (Figure 2A and 2B), a midline incision was made on the dura and gross total resection of the tumor mass was completed. On macroscopic examination, the specimen was a solid-to-cystic mass

which was grayish-white in color and was partly adherent to the arachnoid (Figure 2C). Then the dura was sutured and laminoplasty was performed after hemostasis of the surgical area with cautious electrocautery (Figure 2D). On histopathological examination, hypo- and hypercellular areas (Figure



Figure 2. (A-B-C-D) During the operation laminoplasty and tumor mass.

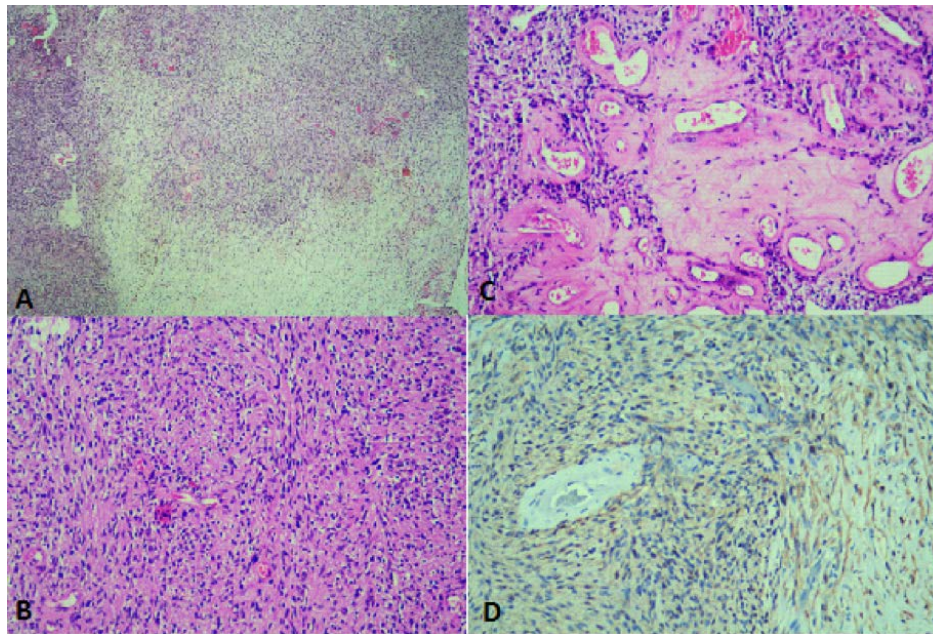


Figure 3. (A-B-C-D) Histopathological examination.

3A), Atoni A areas (Figure 3B), perivascular hyalinization (Figure 3C), and positive immunohistochemical staining for S-100 protein confirmed the diagnosis of schwannoma. During the first three months postoperatively, the patient used a cervical collar for preservation of the natural cervical lordosis. At the end of the postoperative third month, there was no severe kyphosis on the cervical X-ray

(Figure 4A and 4B). The patient was followed up for two years with no recurrence.

DISCUSSION

Five-fifteen percent of all adult spinal cord tumors are primary [4]. One third of all primary spinal cord

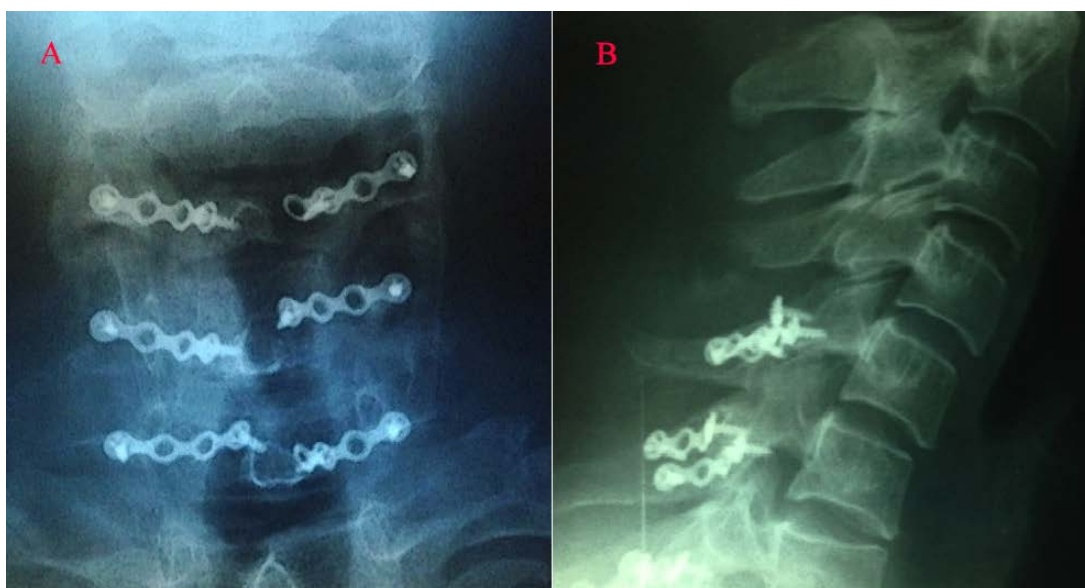


Figure 4. (A-B) Cervical x-ray taken postoperatively.

tumors are schwannomas. Also, schwannomas are benign tumors whose most common location is intradural extramedullary [5]. Intradural extramedullary schwannomas may demonstrate a cystic, solid, or mixed character. On MRI study, these lesions are visualized as hypo-/isointense on T1 images, and hyperintense on T2 sequence [5, 6]. Treatment options vary according to tumor localization, and the choice of surgery is determined by the surgeon's experience and dexterity. The preferred method may be tumor resection with laminectomy, with or without posterior stabilization. [7]. In the presented case, posterior stabilization was not preferred; instead, 3-level laminoplasty was performed, and there was no severe kyphosis on control X-ray at the end of the third postoperative month. The main advantages of minimal invasive surgery are reduced perioperative bleeding and shorter duration of postoperative hospital stay [8]. In our case, there was no need for erythrocyte replacement and the patient was discharged after two days. Another thing to consider for cervical schwannomas is that incidence of radicular dysfunction varies according to whether the tumor originates from the anterior or the posterior root. Tumor involvement in the anterior root is more likely to cause motor deficits [9]. In our case; there was no additional loss of motor and sensory function in the postoperative period.

CONCLUSION

In conclusion, giant cervical intradural extramedullary schwannoma with severe spinal cord compression is a rare entity. The presented case underwent total excision with laminoplasty, and developed no additional deficit. Also the cervical lordosis was mostly preserved without any need for stabilization. Laminoplasty is suitable in selected cases with relatively short segment involvement, especially if an appropriate cervical collar is used in the postoperative period.

Informed consent

Written informed consent was obtained from the patient for publication of this case report and any accompanying images.

Conflict of interest

The authors declared that there are no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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