

SHORT REPORT

## Intraspinal schwannoma of the accessory nerve

M. Y. KAYNAR, M. HANCI & A. C. SARIOĞLU

Department of Neurosurgery, Istanbul University Cerrahpasa Medical Faculty, Turkey

### Abstract

The second example of a schwannoma originating from the cervical portion of the accessory nerve is reported. The tumour was diagnosed by MRI and confirmed by surgery. The tumour was small and was located entirely within the cervical subarachnoid space without causing any detectable neurological deficit.

**Key words:** *Accessory nerve, schwannoma.*

### Introduction

Spinal accessory nerve schwannomas are extremely rare lesions. A review of the literature revealed only 17 cases,<sup>1–16</sup> with only one<sup>6</sup> located in the cervical region. Clinical symptoms depend on the location and the size of the tumour. Preoperatively it is not possible to determine the exact nerve of origin even with the aid of MRI. Here, we report an additional case of accessory nerve schwannoma.

### Case report

A 50-year-old woman was admitted to our department complaining of cervicooccipital pain radiating into the right shoulder. On examination she was neurologically intact. MRI (Fig. 1) showed a round extramedullary intradural (intracisternal) mass at the level of C<sub>1</sub> abutting the right posterolateral surface of the cord. Although the mass was in contact with the dura, it did not originate from it.

In the sitting position, a right-sided C<sub>1</sub> hemilaminectomy was performed. The tumour was arising from one of the roots forming the ascending trunk of the spinal accessory nerve. Total macroscopic removal of the tumour was accomplished. Histologically it showed the appearances of a typical schwannoma. The patient was discharged without any detectable neurological deficit.

### Conclusions

These extremely rare lesions were divided according to their location into intrajugular and intracisternal

schwannomas by Julow.<sup>5</sup> The spinal accessory nerve arises in a group of cells in the ventrolateral part of the anterior horn of segments C<sub>1</sub> to C<sub>4</sub>.<sup>17</sup> The fibres exit from the lateral side of the cord both at the level of the origin and after ascending a segment or two in the region of the lateral horn: the two segments leave the spinal cord as separate roots. These roots unite with roots from successively higher cervical segments to form a common ascending trunk, which enters the intracranial cavity through the foramen magnum. The cervical portion of the nerve lies within the cervical subarachnoid space. The intracranial portion passes through the cisterna magna and then courses within the lateral cerebellomedullary cistern and leaves the intracranial cavity through the jugular foramen.

This brief anatomy of the accessory nerve shows clearly that classifying schwannomas of the accessory nerve according to their location may be more appropriate, as follows: (1) intrajugular; (2) intracisternal or intracranial; (3) cervical.

Intrajugular schwannomas cause various combinations of fifth to twelfth cranial nerve palsies, cerebellar signs and myelopathy.<sup>3,4,8,9,12–14</sup> The clinical symptoms caused by intracisternal schwannomas consist of an eleventh cranial nerve palsy, cerebellar signs and a myelopathy.<sup>1,2,5,7,10</sup> Hydrocephalus has been reported in some cases of intracisternal schwannomas.<sup>2,7</sup> In the case of a cervical schwannoma of the spinal accessory nerve, symptoms consist of an eleventh cranial nerve palsy and myelopathy.<sup>6</sup> Our patient did not show any neurological deficit probably because of involvement of only a single root before forming the ascending trunk.

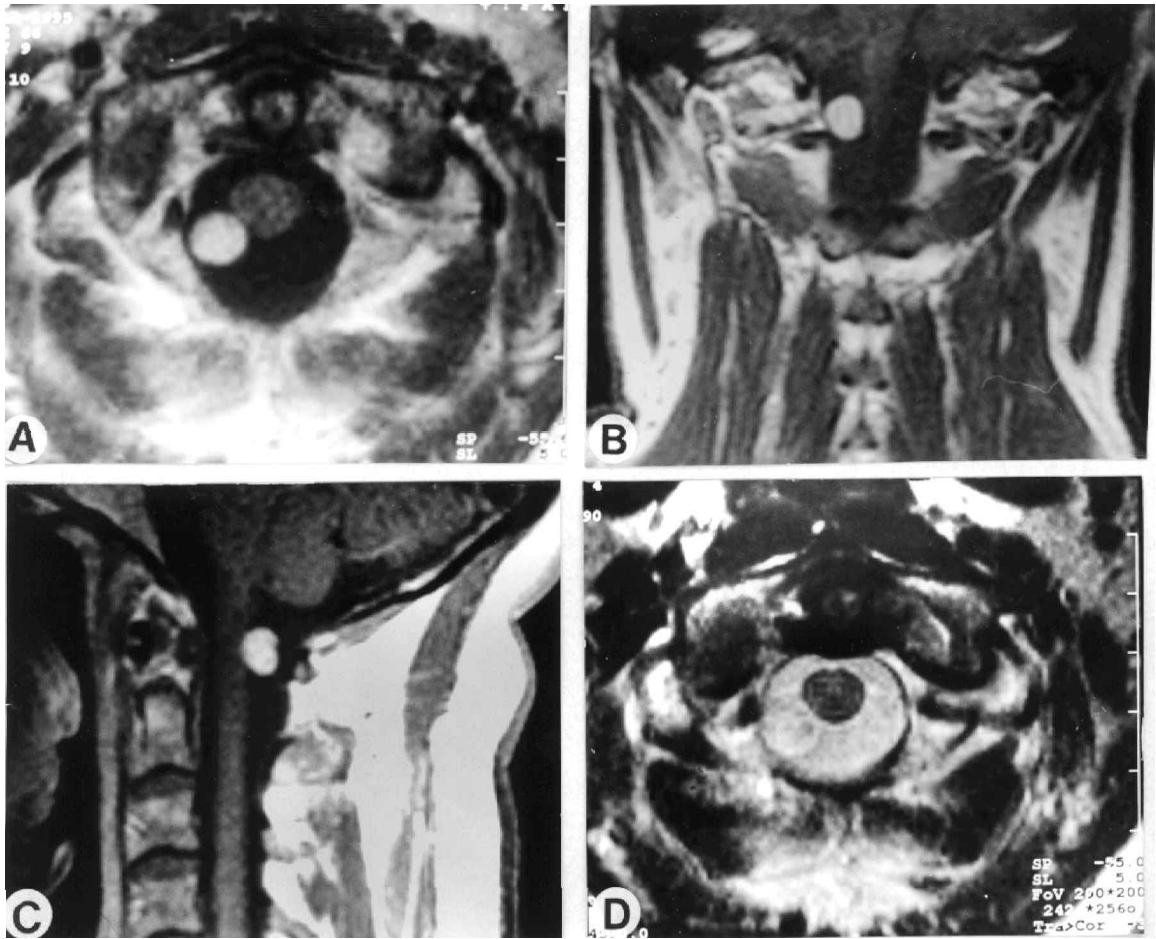


FIG. 1. Contrast enhanced axial, coronal and sagittal images (A,B,C) at the level of C<sub>1</sub> show a round intracisternal tumour posterolateral to the right of the cord. At T2W images (D), the lesion is hyperintense.

In accessory nerve schwannomas MRI serves to locate the tumour and also gives an indication of the probable pathology of the tumour. However it is not possible to identify the nerve of origin. A definite diagnosis can be made only at operation. In large tumours it is not generally possible to identify the exact nerve of origin even under operating microscope.

In our review of the literature we found only 17 cases of undoubted accessory nerve schwannomas of which only one was located in the cervical region.

#### Acknowledgments

The assistance of Linda Mikilauskas in the preparation of this paper is gratefully acknowledged.

#### References

- Christoferson LA, Leech RW, Grossman M. Intracranial neurilemoma of the spinal accessory nerve. *Surg Neurol* 1982;18:18-20.
- Fransen P, Dooms G, Mathurin P, Thauvoy C, Stroobandt G. Neurinome juxtabulbaire du nerf spinal. *Neurochirurgie* 1978;38:173-8.
- Gerhardt C. Zur diagnostik multipuler neurombildung. *Deutsch Arch Klin Med* 1878;21:268-9.
- Iwasaki K, Kondo A. Accessory nerve neurinoma manifesting with typical jugular foramen syndrome. *Neurosurgery* 1991;29:455-9.
- Julow J. Neurinoma of spinal accessory nerve. Report of two cases. *Acta Neurochir (Wien)* 1983;69:219-224.
- Kawaguchi S, Ohnishi H, Yuasa T, Hashimoto H. Spinal accessory nerve neurinoma in the C2 spinal canal. Case report. *Neurol Med Chir (Tokyo)* 1987;27:1190-4.
- Lanotte M, Massaro F, Scienza R, Faccani G. Intracisternal schwannoma of the spinal accessory nerve presenting as a normal pressure hydrocephalus syndrome. Case report and review of the literature. *Neurosurg Rev* 1994;17:225-7.
- Matsushima T, Fukui M, Matsunaga M, Kitamura K, Hasuo K. Accessory nerve neurinoma mimicking a brain stem tumor on angiography. Report of a case. *Neurosurgery* 1985;16:839-42.
- Nakashima T, Tomita K, Uemura T, Matsushima T, Fukui M. Accessory nerve schwannoma extending extracranially to the second cervical level of vertebra. *J Laryngol Otol* 1988;102:959-61.
- Nishiura I, Koyama T. Neurinoma of the spinal accessory nerve. A case report. *Neurochir* 1984;27:154-7.
- Ortiz O, Reed L. Spinal accessory nerve schwannoma involving the jugular foramen. *Am J Neuroradiol* 1995;16:986-9.
- Pluchino F, Crivelli G, Vaghi MA. Intacanal neurinomas of the nerves of the jugular foramen. *Acta Neurochir (Wien)* 1975;31:201-21.
- Pou-serradell A, Llovet-tapiés J, Galito E, Pascual C. Neurinome intracranien du nerf spinal. *Rev Neurol (Paris)* 1978;134:803-5.
- Ruberti R, Gertari A. Neurinomi del forame lacero posteriore. *G Psychiatr Neuropat* 1961;89:1099-128.
- Soo SJ, Irie K, Fujiwara T, Kuyama H, Nagao S. A case

- of accessory nerve neurinoma presenting an intracranial tumor. *No Shinkei Geka (Japan)* 1995;23:723-6.
- 16 Tsukamoto H, Hikita T, Takaki T. Cerebellopontine angle meningioma associated with cranial accessory nerve neurinoma. Case report. *Neurol Med Chir (Tokyo)* 1994;34:225-9.
- 17 Pearson AA, Santer RW, Herrin GR. The accessory nerve and its relation to the upper spinal nerves. *Am J Anat* 1964;114:371-92.