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Neurosurgery

Hourglass Neuroma

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Abstract **Case Report**

The surgical strategy for a neuroma located in the mid or lower cervical spine is more complicated and the selection of the most appropriate approach remains controversial. this case provides clarification on the surgical decision or strategy to be taken by referring to the Asazuma classification. We report an exceptional case of intradural, extradural and paravertebral spinal neuroma of the second cervical vertebra. This is a 57-year-old woman who presents with a laterocervical mass and functional impotence of four limbs for 5 months with reduction in the perimeter of steps in whom there is a spinal syndrome and spastic tetraparesis with a pyramidal syndrome in all four limbs. The posterior approach was used. MRI is currently the main imaging examination allowing not only an early positive diagnosis but also the differential diagnosis and especially the surgical planning.

Keywords : Neuroma, vertebral, surgical, MRI.

INTRODUCTION

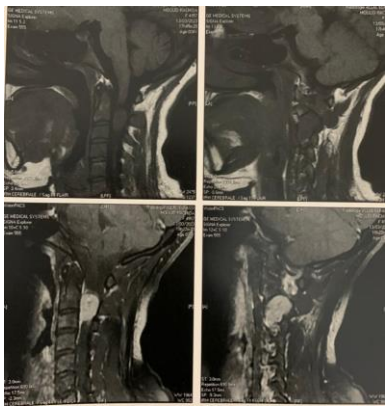
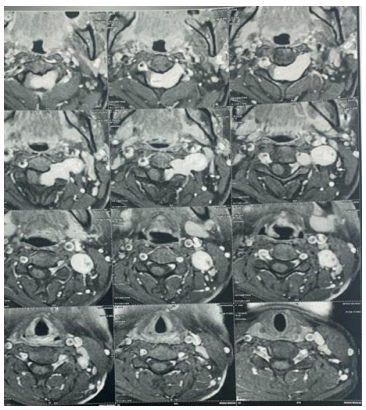
Spinal schwannomas or neuromas are benign tumors, responsible for radicular and/or spinal cord compression, which develop from the Schwann cells of the spinal roots, explaining the fact that they can develop from birth until end of these. The interest of our work is to show the importance of associating the Asazuma classification with the surgical strategy.

CASE PRESENTATION

37-year-old patient RM, with no particular pathological history, presents for functional impotence of four limbs which has been progressively established for 5 months with reduction in walking distance. On her clinical examination: she is Conscious, presenting a spinal syndrome, spastic tetraparesis with a pyramidal syndrome in the four limbs, no sensory disorders, sphincter disorders, a left latero cervical mass, without lymphadenopathy, no fever is noted, conservation of the general state, without swallowing disorder, without phonation disorder, or respiratory disorders.

On Imaging:

MRI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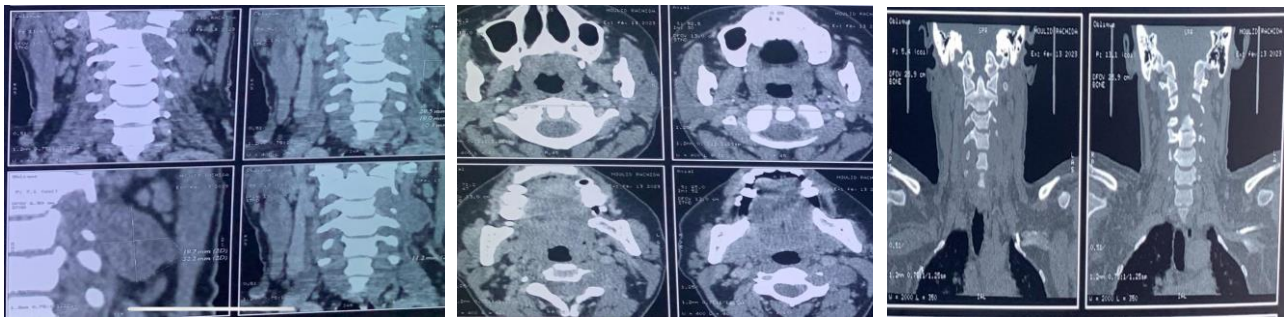
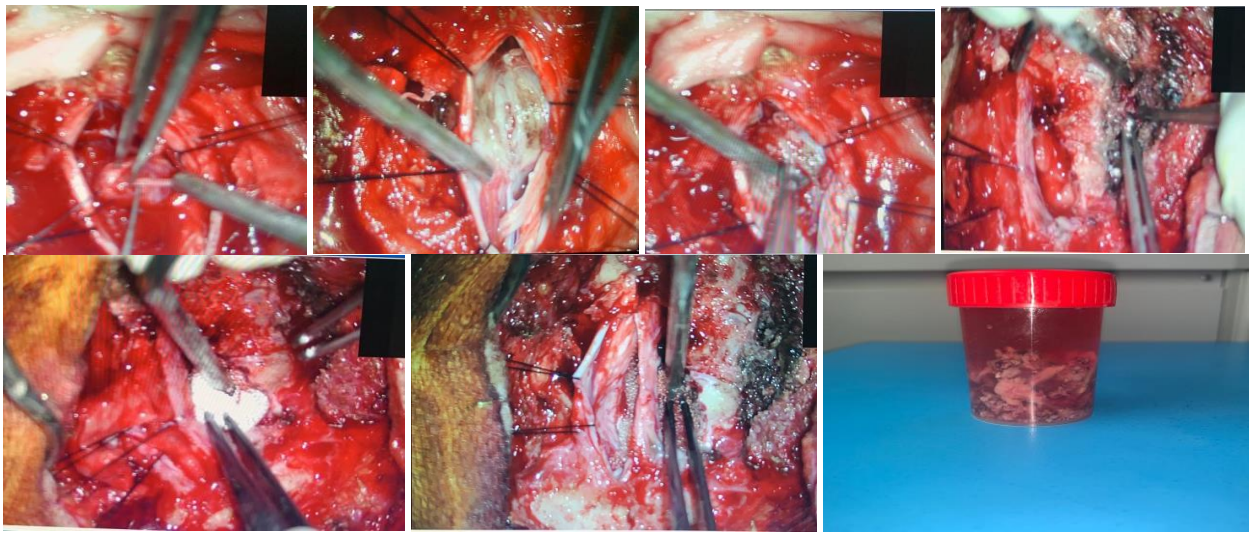


We opted for a posterior surgical approach.

We performed a posterior cervical midline incision extending from C0 to C4, performing a laminectomy from C2 to C3, we started with the intradural part for tumor excision to also decompress the marrow; Once the marrow was decompressed, we went to extradural intraspinal for excision of the tumor on either side of the articular masses without sacrificing the articular masses (also paravertebral).

The surgical specimen sent for pathology, which concluded with a morphological appearance and immunohistochemical profile consistent with a **s**chwannoma.



DISCUSSION

Schwannomas represent 25 to 30% of primary intra-spinal tumors.

Hourglass extension is common at the cervical level. MRI is currently the main imaging examination allowing not only an early positive diagnosis but also the differential diagnosis and especially the surgical planning.

When this neuroma causes neurological symptoms, a surgical indication can be retained to remove it.

There are several classifications, the most widely used of which is that of Asazuma, which is a three-dimensional classification of hourglass-shaped cervical spinal neuromas based on imaging data; proposing a surgical strategy based on this. This classification recognizes four types :

➢**Type I:** Intra and extra dural tumor located in the intracanal, the constriction takes place at the level of the dura mater.

➢ **Type II:** Epidural tumor with constriction at the level of the foramen, it has 3 subtypes a, b and c depending on the degree of extraforaminal extension.

- **Type IIa:** Extradural and foraminal tumors.
- **Type IIb:** Extradural and paravertebral tumor.
- **Type IIc:** Foraminal and paravertebral tumor.

➢ **Type III:** Tumor with double dural and foraminal constriction. Includes two subtypes.

- **Type IIIa:** Intra and extradural foraminal tumor.
- **Type IIIb:** Intra and extradural paravertebral tumor.

➢ **Type IV:** Extra dural and intervertebral tumor invading the vertebral body.

➢ **Type V:** Extradural and extralaminar tumor invading the lamina.

➢ **Type VI:** Tumor with multidirectional bone invasion.

In addition, to specify the craniocaudal extension of the tumour, this classification specifies the number of intervertebral foramina (FI) and transverse foramina (FT) affected.

➢ **Stage FI 1:** Corresponds to the achievement of a single foramen.

➢ **Stage FI 2:** Corresponds to the involvement of 2 foramina.

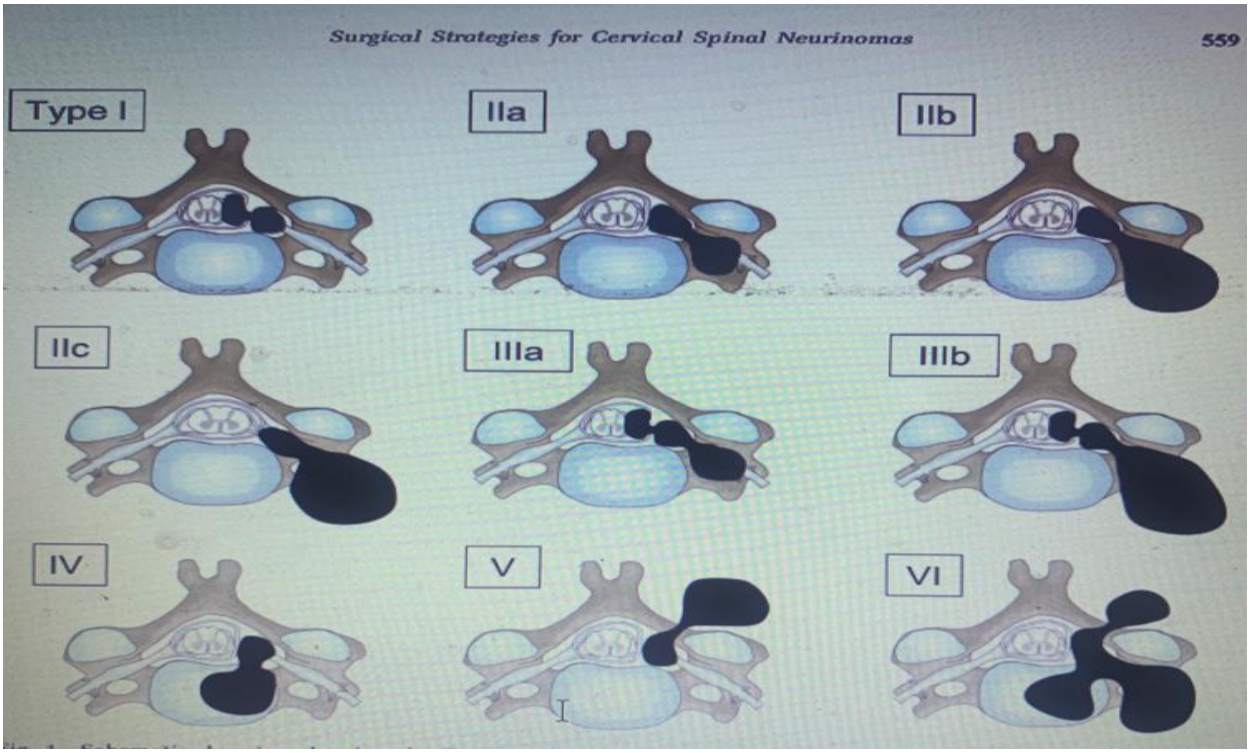
➢ **Stage FI 3:** Corresponds to the achievement of 3 or more foramina.

➢ **Stage FT 1:** No transverse foramen invasion.

➢ **Stage FT 2:** Invasion of a single transverse foramen.

➢ **Stage FT 3:** Invasion of two or more transverse foramina.

ASAZUMA



Surgical Strategy

1. **Surgical strategy for CoC2 spinal neuroma:** The approach is posterior. Posterolateral tumor growth. First, an extradural lumpectomy is performed (obtaining a sufficiently large operating field, section of the feeding artery of the tumor) then longitudinal durotomy.
2. **Surgical strategy for spinal neuroma C2 C7:** The surgical strategy for a neuroma located in the mid or lower cervical spine is more complicated and the selection of the most appropriate approach remains controversial.. Asazuma and al. reported that a combined anterior and posterior approach is used for tumors that extend beyond the intervertebral foramen: types IIb, IIc, IIIb, and VI. On the other hand, a posterior approach with partial or complete facetectomy can be used in all other tumor type classifications.

CONCLUSION

The Asazuma classification allows us to make a good decision in terms of the surgical approach in the surgical strategy.

Déclarations

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

➢ Availability of supporting data.

➢ No conflicts of interest or competing interests

➢ The work will be financed at my own expense.

➢ Contribution of the authors: scientific

➢ Acknowledgements: not applicable

➢ information on the authors see above

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