

Foramen Magnum Meningiomas: Resection with Reduced Lateral Suboccipital Approach

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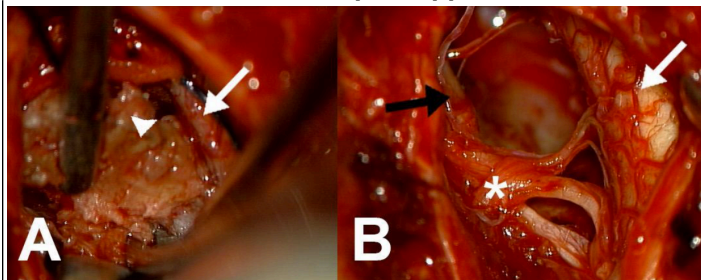
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Introduction

Meningiomas of the foramen magnum occupy between 1.8-3.2% of all intracranial meningiomas. The surgical approach of choice for these tumors remains controversial. The aim of this study is to present our surgical experience with the medial suboccipital approach with reduced lateral suboccipital minicraniectomy with resection of the posterior arch of C1, and C2 hemilaminectomy according to the distal extent of the tumor as a possible management of foramen magnum meningiomas.

Intraoperative microscopic images of the resection of a foramen magnum meningioma through a reduced lateral suboccipital approach.



(A) A meningioma (white arrowhead) supported by the alligator forceps is observed while dissecting the spinal cord (white arrow) with Penfield number 4 dissector. (B) Images of the surgical field after resection of the meningioma. The left vertebral artery (black arrow), the lower part of the rootlets of the lower cranial nerves (asterisk), as well as the medullary junction released towards the midline are shown (arrow white).

Methods

We reviewed a series of 6 cases of patients with meningiomas of the foramen magnum taken to resection with a reduced lateral suboccipital approach between 2015 and 2016 at the National Cancer Institute, Bogotá D.C., Colombia. Demographic, clinical, radiological and surgical variables are described.

Results

Four of them were female; the mean age was 63y (56-67y). The main symptom was occipito-cervical pain. The antero-lateral location to foramen magnum was the most frequent (4 cases). Partial resection of the posterior hemiarcoïd of C1 was performed in 5 patients. A resection of the posterior arch of C1 and an hemilaminectomy of C2 with complete resection of the tumor was performed in the other patient. The histopathological diagnoses were 5 meningothelial meningiomas and 1 transitional meningioma. There was resolution of the symptomatology, with complete resections of the lesions, without requirement of complementary management, nor tumor recurrence at 1 year of follow-up.

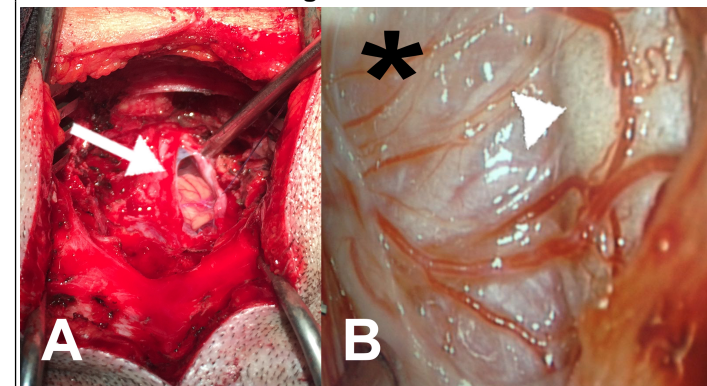
Conclusions

Reduced lateral suboccipital resection can adequately be used for successful resection foramen magnum meningiomas.

Learning Objectives

Describe a reduced lateral suboccipital approach for resection of foramen mangum meningioma.

Intraoperative images of foramen magnum meningioma resection.



(A) A middle line approach is denoted, with a suboccipital approach with lateral and inferior exposure of the left cerebellar hemisphere (arrow). (B) Through the same approach, a microscopic view of the meningioma (asterisk) is shown, as well as its relationship with the upper cervical spinal cord (arrowhead).

References

1. Bruneau M, George B. Foramen magnum meningiomas: detailed surgical approaches and technical aspects at Lariboisière Hospital and review of the

literature. *Neurosurg Rev* [Internet]. 2008 Jan [cited 2015 Nov 5];31(1):19–32; discussion 32–3. Available from:

<http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=2077911&tool=pmcentrez&rendertype=abstract>

2. George B, Lot G, Boissonnet H. Meningioma of the foramen magnum: a series of 40 cases. *Surg Neurol* [Internet]. 1997 Apr [cited 2015 Nov 5];47(4):371– 9. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/9122842>