Olfactory Groove Schwannoma: A Case Report

Stylianos Pikis¹ Yakov Fellig² Emil Margolin³

¹ Department of Neurosurgery, "Korgialenio-Benakio," The Red Cross Hospital, Athens, Greece

² Departments of Neurosurgery, Hadassah—Hebrew University Medical Center, Jerusalem, Israel

³ Departments of Neurosurgery, Hadassah—Hebrew University Medical Center, Jerusalem, Israel

Address for correspondence Emil Margolin, MD, PhD, Department of Neurosurgery, Hadassah—Hebrew University Medical Center, P.O. Box 12000, Jerusalem 91120, Israel (e-mail: EmilM@hadassah.org.il).

Indian J Neurosurg 2017;6:153–154.

We would like to report a case of a 71-year-old woman who presented to the neurosurgery clinic due to an incidentally discovered olfactory groove schwannoma. Magnetic resonance image of the brain was obtained (→Fig. 1A–C). Due to the

patient's advanced age and the benign imaging features of the lesion, monitoring was decided upon. However, growth of the lesion was noted on follow-up and gross total resection was done (→Fig. 1D). Histopathology revealed schwannoma

Fig. 1 Coronal (A), sagittal (B), and axial (C) T1-weighted, gadolinium-enhanced, brain MR image demonstrating a well-circumscribed, homogeneously enhancing, extra-axial, anterior cranial fossa lesion eroding the ethmoid bone. Coronal (D) T1-weighted, gadolinium-enhanced, brain MR image showing gross total resection of the tumor.

received
March 5, 2017
accepted
May 25, 2017
published online
August 29, 2017

DOI <https://doi.org/10.1055/s-0037-1606308>.
ISSN 2277-954X.

© 2017 Neurological Surgeons' Society
of India

License terms

Fig. 2 Histopathologic examination revealed paucicellular and more cellular regions (A) composed of spindle cells, without marked nuclear atypia or increased mitotic activity, with ill-formed nuclear palisading (B), diffusely immune-positive for S-100 (C).

(→Fig. 2). At the 1-year follow-up, the patient had right-sided anosmia.

Olfactory groove schwannomas are rare, extra-axial, benign tumors. In contrast to other intracranial schwannomas, they frequently affect young males.^{1,2} Moreover, since the olfactory bulb is devoid of Schwann cells,^{1,3} their pathogenesis is unclear with several theories proposed: The developmental theories suggest mesenchymal pial cell transformation into Schwann cell or aberrant neural crest cell migration.^{1,2,4} The nondevelopmental theory suggests origin from Schwann cells present in adjacent structures.^{1,2,4} Finally, reactive Schwann cell formation from multipotential mesenchymal cells has also been proposed.¹

Histopathologic findings pathognomonic for schwannoma include densely packed elongated cells with palisading nuclei (Antoni A pattern) alternating with less cellular regions (Antoni B pattern).³ On immunohistochemistry, schwannomas stain was positive for S-100³ and CD-57 (Leu-7)^{2,4} and negative for smooth muscle α -actin.⁴ Management should be individualized, and includes observation, surgical resection, and radiosurgery.³

In conclusion, the pathogenesis of olfactory groove schwannomas remains unclear. They should be included in the differential diagnosis of anterior cranial fossa neoplasms.

Funding

None.

Conflict of Interest

None.

References

- 1 Choi YS, Sung KS, Song YJ, Kim HD. Olfactory schwannoma—case report. *J Korean Neurosurg Soc* 2009;45(02):103–106
- 2 Mirone G, Natale M, Scuotto A, Rotondo M. Solitary olfactory groove schwannoma. *J Clin Neurosci* 2009;16(03):454–456
- 3 Carron JD, Singh RVP, Karakla DW, Silverberg M. Solitary schwannoma of the olfactory groove: case report and review of the literature. *Skull Base* 2002;12(03):163–166
- 4 Gangadharan J, Mahadevan A, Ramalingaiah AH, Ramesh A, Devi BI. Clinical, radiological, surgical, and pathological determinants of olfactory groove schwannoma. *Indian J Neurosurg* 2014;3(02):86