Am J Otolaryngol 40 (2019) 443–444

Contents lists available at ScienceDirect

Am J Otolaryngol

journal homepage: www.elsevier.com/locate/amjoto

Purely intracranial vagal schwannoma: A case report of a rare lesion

Zachary G. Schwam[a,*], Vivian Z. Kaul[a], Raj Shrivastava[b], George B. Wanna[a,c,d,e]

[a] Icahn School of Medicine at Mount Sinai, Department of Otolaryngology-Head and Neck Surgery, United States of America
[b] Icahn School of Medicine at Mount Sinai, Department of Neurosurgery, United States of America
[c] New York Eye and Ear Infirmary of Mount Sinai, Department of Otolaryngology, United States of America
[d] Audiology, Hearing, and Balance Center, Mount Sinai Health System, United States of America
[e] Ear Institute, Mount Sinai Health System, United States of America

ARTICLE INFO

Keywords:
Vagal schwannoma
Intracranial
Jugular foramen

ABSTRACT

We present a rare intracranial vagal schwannoma along with its preoperative, intraoperative, and postoperative course.

1. Introduction

Lower cranial nerve (IX-XI) schwannomas are rare, with < 150 cases found in the literature [1,2]. Only seven reports have been published of purely intracranial vagal schwannomas [3]. Most present as jugular foramen lesions, with common symptoms including hearing loss, vertigo, hoarseness, dysphagia, ataxia, and other cranial neuropathies [1,2,4].

2. Case report

We report the case of a 59 year old female who presented with 4 years of vertigo, ataxia, and hearing loss. She had been followed for a right posterior fossa lesion with serial imaging. All cranial nerves were intact and there were no focal neurological deficits, although she had slight difficulty with tandem gait. Preoperative MRI showed an 11 mm enhancing lesion adjacent to the right jugular foramen in the paramedullary cistern. No dural tail was noted (Fig. 1). The patient was observed for approximately 18 months with serial imaging until symptoms worsened. Preoperative audiogram showed slight right-sided hearing loss.

A lateral suboccipital craniotomy was performed, and the mass was noted to be emanating from the vagus nerve (Fig. 2). Postoperative neurological exam was noted to be normal. Flexible laryngoscopy was performed and normal vocal fold motion was noted. Final pathology revealed a benign schwannoma with regions of high (Antoni-A) and low (Antoni-B) cellularity. The patient experienced no dysphagia or voice changes, and three-month follow-up MRI demonstrated complete resection of the tumor without recurrence.

3. Discussion

We describe the course of a patient with a purely intracranial vagal schwannoma who underwent uneventful resection without any postoperative cranial neuropathies or untoward events. Our patient's presentation was concordant with those in other reports, with important differences. Our patient experienced ataxia, vertigo, and audiologic complaints, but no cranial neuropathies. Patients with intracranial or jugular foramen schwannomas have had audiologic complaints that resolve with surgery; these symptoms are likely secondary to compression or from distortion of brainstem nuclei [1,2,4,5]. Others have presented with hoarseness, vocal cord immobility, and dysphagia [2,3,6] due to vagal dysfunction as well as hemodynamic instability from medullary compression [1,3].

The differential diagnosis for a mass in or near the jugular foramen includes glomus jugulare, schwannoma, meningioma, and other more uncommon lesions. Vestibular schwannomas widen and extend into the internal acoustic canal, whereas glomus jugulare tumors display bony erosion and jugular bulb invasion [2]. Meningiomas have a dural tail. Our patient had typical findings consistent with a schwannoma, namely T1 hypointensity and T2 hyperintensity on MRI with contrast enhancement [1,5,6]. In Kaye's series of 56 jugular foramen schwannomas, a classification scheme was proposed involving three types of masses depending on the amount of intracranial and bony extension [4]. Our patient had a Kaye type A mass, and in concordance with that series, those with type As had deafness, vertigo, and ataxia without

* Corresponding author at: 1 Gustave L. Levy Place, Box 1189, New York, NY 10029, United States of America.
E-mail addresses: zachary.schwam@mountsinai.org (Z.G. Schwam), Vivian.zhu@mountsinai.org (V.Z. Kaul), raj.shrivastava@mountsinai.org (R. Shrivastava), gwanna@nyee.edu (G.B. Wanna).

https://doi.org/10.1016/j.amjoto.2019.02.011
Received 5 February 2019

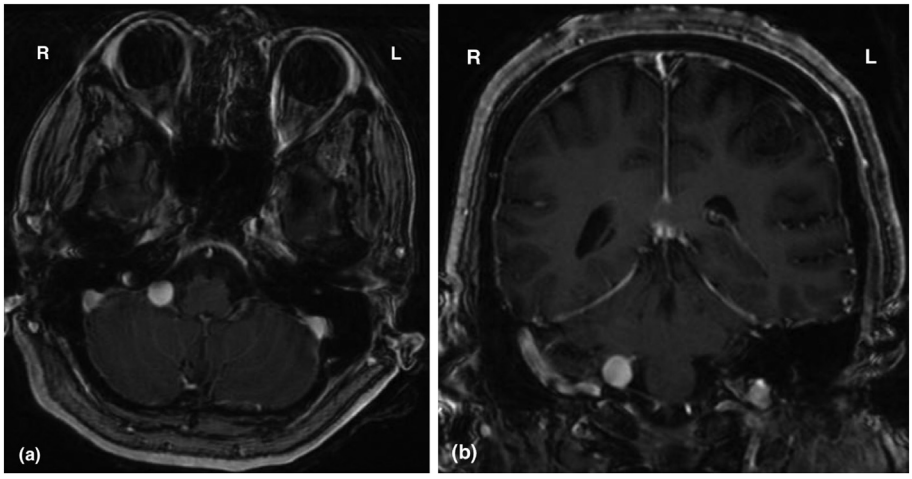

Fig. 1. (a). Axial T1-weighted, post-contrast MRI of right paramedullary cistern lesion. (b) Coronal T1-weighted post-contrast MRI of the same lesion [R]-Right, [L]-Left.

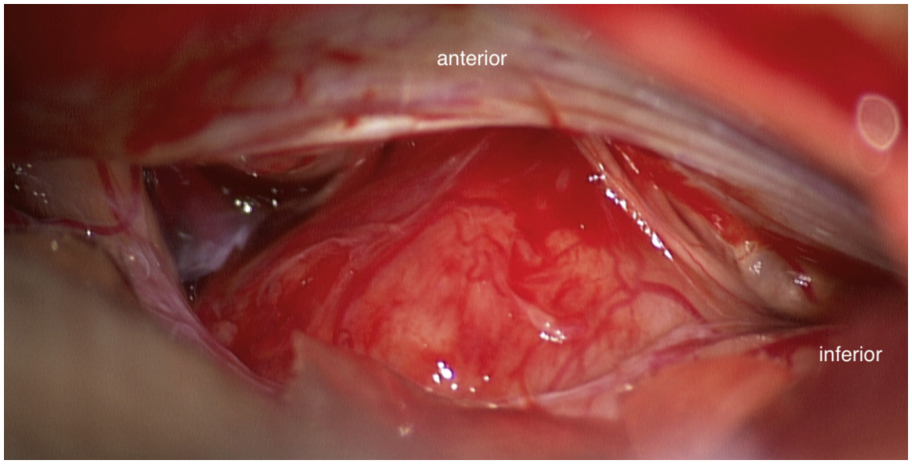

Fig. 2. Intraoperative photo showing vagal schwannoma adherent to nerve rootlets.

jugular foramen cranial neuropathies [4]. Yoo, however, noted no difference in presentation by tumor type in their series [2].

Treatment for jugular foramen schwannomas is typically surgical resection. In Kaye's series he describes complete resection in all cases using a translabyrinthine, transcochlear, or infralabyrinthine approach. Nearly all patients had cranial neuropathies or hoarseness postoperatively [4]. In Yoo's case series of 12 patients, six achieved gross total resection, five had cranial neuropathies, three aspirated, and one required thyroplasty [2]. Other approaches have been described with varying degrees of success. In our patient, a lateral suboccipital craniectomy was chosen as the patient had near-normal hearing and it was thought to provide adequate exposure while putting critical structures at minimal risk. No cranial neuropathies were evident postoperatively.

4. Conclusion

We present the rare case of a purely intracranial vagal schwannoma that underwent definitive resection without postoperative cranial neuropathies. The authors advocate for total resection when possible and coordination with a multidisciplinary team to manage potential changes in vocal quality and dysphagia.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Conflicts of interest

None.

Meeting information

Not applicable.

Acknowledgements

None.

References

[1] Sharma RR, Pawar SJ, Dev E, Chackochan EK, Suri N. Vagal schwannoma of the cerebello-medullary cistern presenting with hoarseness and intractable tinnitus: a rare case of intra-operative bradycardia and cardiac asystole. J Clin Neurosci 2001;8:577–80.
[2] Yoo H, Jung HW, Yang HJ. Jugular foramen schwannomas: surgical approaches and outcome of treatment. Skull Base Surg 1999;9:243–52.
[3] Gazzeri R, Galarza M, Costanzo de B, Carotenuto V, D'Angelo V. Large pure intracranial vagal schwannoma. J Clin Neurosci 2009;16:565–7.
[4] Kaye AH, Han JF, Kinney SE, Hardy Jr. RW, Bay JW. Jugular foramen schwannomas. J Neurosurg 1984;60:1045–53.
[5] Kamiguchi H, Ohira T, Kabayashi M, Ogino M, Shiobara R, Toya S. Unusual location of intracranial vagus neurinoma. Neurol Med Chir (Tokyo) 1995;35:667–70.
[6] Noonan PT, Choi IS. Diagnostic imaging, angiography, and interventional techniques for jugular foramen tumors. Oper Tech Neurosurg 2005(1):13–8.