Journal of Clinical Cases and Reports

ISSN: 2582-0435 Case Report | Vol 4 Iss 3

A Case of Glomus Tympanicum during Stapedotomy Surgery for Otosclerosis

Leonardo Ordoñez-Ordoñez[1*], Fabio Leon[2] and Juanita Beltran[1]

[1]*Department of Otolaryngology, Hospital Militar Central, Bogota, Colombia*

[2]*Department of Pathology, Clinica Universitaria Colombia, Bogota, Colombia*

Correspondence should be addressed to Leonardo Ordoñez-Ordoñez, otoleor@gmail.com

Received: May 02, 2020; Accepted: May 12, 2020; Published: May 20, 2020

ABSTRACT

Glomus tympanicum is a tumor classified in the group of paragangliomas. We report a case of a 66-years-old female with two middle ear pathologies: An incidental finding of a glomus tympanicum during stapedotomy surgery for otosclerosis.

KEYWORDS

Glomus tympanicum; Otosclerosis; Paraganglioma; Stapedotomy

1. INTRODUCTION

Paragangliomas are benign tumors of neural crest origin arising from paraganglia (glomus body) cells and occur most often in the temporal bone and neck. They are referred to according to their site of origin in the glomus jugular, tympanicum, carotid body, or vagale. Glomus tympanicum is highly vascular tumor and arises from the paraganglia of the middle ear usually originating along the tympanic (Jacobson's) or auricular (Arnold's) nerves. Glomus that arise from the Jacobson nerve originate at the cochlear promontory and surgical treatment is the treatment of choice. It is the most common primary neoplasm of the middle ear, and the second most common tumor of the temporal bone [1].

Early stage paragangliomas present with symptoms related to the involvement of the middle ear cleft. Unilateral pulsatile tinnitus and conductive hearing loss due to its highly vascular nature and mass effect in the middle ear are usually present. Glomus tympanicum is seen as a retro tympanic red mass on the promontory [2].

On high resolution computed tomography of the temporal bone, it is seen as a soft tissue mass confined to the middle ear cleft centered either over the promontory or the hypotympanum or both, and there may be bony destruction and erosion. MRI is usually better than CT for delineating tumor edges and intracranial extent [3].

Their management poses a particular challenge because of their hyper vascular nature. The therapeutic goal is to control the disease with minimal resulting morbility [2].

2. CASE REPORT

A 66-year-old female patient presented to us with a history of progressive, diminished, left-sided hearing of

Citation: Leonardo Ordoñez-Ordoñez, A Case of Glomus Tympanicum during Stapedotomy Surgery for Otosclerosis. J Clin Cases Rep 4(4): 82-85.

2582-0435/© 2021 The Authors. Published by TRIDHA Scholars.

more than 20 years duration. There was no history of ear discharge, ear pain, or any other symptoms.

Clinical examination revealed a normal external ear canal and healthy tympanic membrane bilaterally. Turning fork test revealed a conductive hearing loss of the left ear. Pure tone audiometry revealed a mild to severe mixed hearing loss pattern mainly conductive, in the left ear (Figure 1).

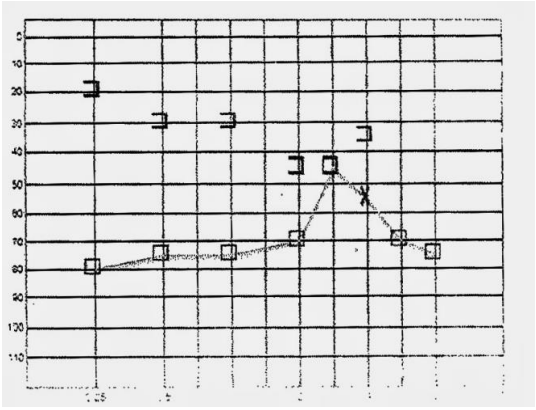

Figure 1: Pure tone audiometry. Mild to severe mixed hearing loss.

The patient was sent for CT of the temporal bone in which initially no abnormalities where found. The original diagnostic that was made was otosclerosis versus osicular chain disruption based upon history and pure tone audiometry and was subjected to stapedotomy.

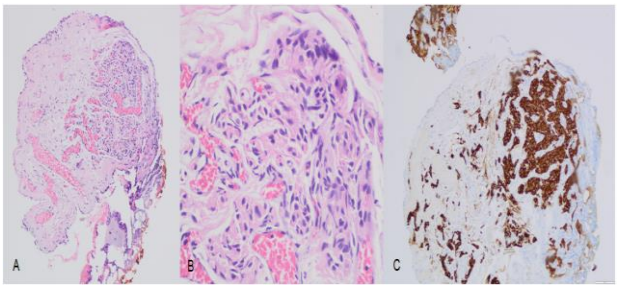

Figure 2: Tumor composed of cuboidal cells with minimal salt and pepper chromatid atypia. The tumor nests are separated by thin wall blood vessels. The chief cells are small with basophilic cytoplasm and have round, granular nuclei. A and B: hematoxylin eosin stain 10x and 40x respectively, C: chromogranin 40x.

During the procedure, we found a highly vascular mass originating from the promontory of 6 mm. The stapedotomy was paused, and we began the resection using blue laser (2.0 VAT). The mass was completely excised and was sent for histopathologic study which confirmed a glomus tympanicum (Figure 2). The initial CT scan was then revised and demonstrated a soft tissue density mass occupying the middle ear originating from the promontory (Figure 3).

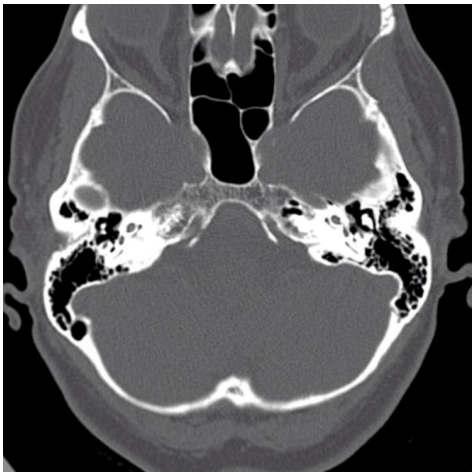

Figure 3: Temporal CT scan showing the left middle ear space partially occupied by a soft tissue density mass originating from the promontory (white arrow).

3. DISCUSSION

Paragangliomas in the head and neck can be differentiated into cervical paragangliomas an temporal bone paragangliomas. The cervical group includes carotid body tumors and glomus vagale tumors, while the jugulo tympanic comprises glomus jugulare and glomus tympanicum tumors. Glomus tympanicum tumors are more common than glomus jugulare tumors [4].

Patients present with complaints of pulsatile tinnitus (81.4%), subjective hearing loss (77.1%), and aural fullness (70.2%), otalgia is uncommon [5].

A histologic analysis of glomus tympanicum tumors reveals many similarities to paragangliomas that occur elsewhere in the body. Tumors are solid and encapsulated, and microscopically there are conglomerations of chief cells surrounded by sustentacular cells and an extensive capillary network that creates a reticular appearance. Chief cells are

characterized by a polyhedral shape, round nuclei, and eosinophilic cytoplasm that can contain granular structures [6].

Surgery remains the only option for definitive tumor management. Tumor diagnosis begins clinically with the visualization of a red mass behind the intact ear drum, but computed tomography and MRI have become essential for identifying the tumor origin and defining the extent of the disease [7].

Neurosecretory function in glomus tympanicum tumors is rare, but screening for functional tumors remains an important part of tumor management [8]. Despite being prone to locally aggressive behavior, they are benign histologically. Malignancy is identified in 5% of temporal bone paragangliomas [9]. The evident association of some glomus tumors to a genetic origin may also have implications on its malignant potential [10].

The surgical approach should be chosen according to the extension to surrounding structures and the size of the glomus [10]. Surgery has side effects and risks like changes in taste, dizziness, and tinnitus. Stereotactic radiation has also been described as a palliative measure for GT tumors [7].

Cases of two middle ear pathologies in one symptomatic patient are not common. Even though in this particular case, hearing loss was due to the stapes fixation, if the tumor continues growing as usual, a progressive hearing loss could have been diagnosed posteriorly, with a completely different causal pathology.

REFERENCES

1. Hinerman RW, Amdur RJ, Morris CG, et al. (2008) Definitive radiotherapy in the management of paragangliomas arising in the head and neck: A 35-year experience. Head & Neck: Journal for the Sciences and Specialties of the Head and Neck 30(11): 1431-1438.
2. Semaan MT, Megerian CA (2008) Current assessment and management of glomus tumors. Current Opinion in Otolaryngology & Head and Neck Surgery 16(5): 420-426.
3. Vogl TJ, Mack MG, Juergens M, et al. (1993) Skull base tumors: Gadodiamide injection--enhanced MR imaging--drop-out effect in the early enhancement pattern of paragangliomas versus different tumors. Radiology 188(2): 339-346.
4. O'Leary MJ, Shelton C, Giddings NA, et al. (1991) Glomus tympanicum tumors: A clinical perspective. The Laryngoscope 101(10): 1038-1043.
5. Carlson ML, Sweeney AD, Pelosi S, et al. (2015) Glomus tympanicum: A review of 115 cases over 4 decades. Otolaryngology--Head and Neck Surgery 152(1): 136-142.
6. Sennaroglu L, Sungur A (2002) Histopathology of paragangliomas. Otology & Neurotology 23(1): 104-105.
7. Sweeney A, Carlson M, Wanna G, et al. (2015) Glomus Tympanicum Tumors. Otolaryngologic Clinics of North America 48(2): 293-304.
8. Kouzaki H, Fukui J, Shimizu T (2008) Management of a catecholamine-secreting tympanicum glomus tumour: Case report. The Journal of Laryngology & Otology 122(12): 1377-1380.
9. Manolidis S, Shohet JA, Jackson CG, et al. (1999) Malignant glomus tumors. The Laryngoscope 109(1): 30-34.
10. Martin TP, Irving RM, Maher ER (2007) The genetics of paragangliomas: A review. Clinical Otolaryngology 32(1): 7-11.