Bilateral glomus tympanicum tumors: Human temporalbone study

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Abstract

To describe human temporal bones with bilateral glomus tympanicum tumors. Patient is 83-year-old black female who no pulsatile tinnitus. The histopathologic characteristics of human temporal bones after death were setting Department of Otolaryngology of University of Minnesota in USA. Histopathologic observation of temporal bones showed bilateral small glomus tympanicum tumors limited to the promontory. Although there was bilateral tinnitus, there was no pulsatile tinnitus, no conductive hearing loss and both of the tympanic membranes were intact. Histopathologic observation of temporal bones after death showed bilateral glomus tympanicum tumors. To our knowledge, this is the first reported case of bilateral glomus tympanicum tumors.

Introduction

Glomus tumors are benign neoplasms, arising from non-chromaffin paraganglion chemoreceptor cells. Glomus bodies in the ear are branchomeric members of the diffuse chemoreceptor neuroendocrine system associated with nerves and blood vessels. They may arise at any one of the locations where paraganglia are found, such as the carotid artery, jugular vein, vagus nerve and other locations. Multiple paragangliomas of the head and neck are rare. To our knowledge, bilateral glomus tympanicum tumors have never been reported. We present a case with bilateral glomus tympanicum tumors, diagnosed after death.

Case Report

An 83-year-old black female who had a 14 month history of tinnitus died from adenocarcinoma of the duodenum metastatic to the liver and bilateral lungs. Although there was bilateral tinnitus, there was no pulsatile tinnitus. An audiogram from 10 years previous showed sensorineural hearing loss of the high frequencies in both ears. On examination both tympanic membranes were intact. The histopathologic characteristics of human temporal bones after death were setting Department of Otolaryngology of University of Minnesota in USA.

Histopathologic observation of temporal bones shows neoplastic masses on the bilateral promontory of the cochlea in close association with the tympanic (Jacobson's) nerve and the branch of the glossopharyngeal nerve (Figure 1). These masses are covered with healthy-appearing tympanic mucous membrane. There is no bony destruction. The tumors are composed of nets of chief cells that have small central hypercromatic nuclei and clear cytoplasm. The nets, described as Zellballen,[1] are separated by reticulin fiberovasucular strands (Figure 2). These findings are consistent with a diagnosis of glomus tympanicum tumors. Tumors of both sides were Type I glomus tympanicum tumors, according to the glomus tumor classification.of Glasscock-Jackson.[2]

Discussion

Glomus tumors of the temporal bone are subdivided by their location. Glomus jugulare, which arises in the jugular bulb adventitia is the most common type of glomus tumor in the temporal bone. Glomus tympanicum tumors arise along the tympanic branch of the glossopharyngeal nerve (Jacobson's nerve), or rarely, the auricular branch of the vagal nerve (Arnold's nerve). The jugulotympanic glomus tumor is four to six times more common in females than males.[1,3] Patients generally present for evaluation during the fifth decade of life.[1,3] In the head and neck region, the overall incidence of multiple glomus tumors is approximately 10 per cent of the total patients with glomus tumor.[4] However, the tendency for multicentricity is exaggerated in the familial glomus tumors of which 25% to 50% of cases manifest multiple synchronous tumors.[3] The most common combination of

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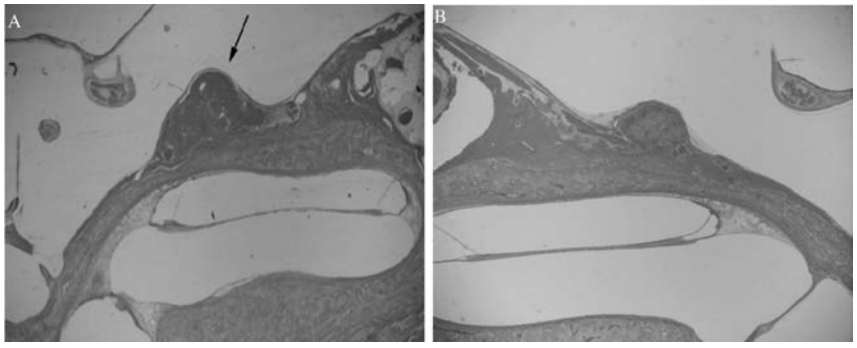

Figure 1. A) Left; B) Right (Hematoxylin and eosin, original magnification X10). There is a neoplastic mass (arrow) on the promontory of the cochlea in close association with Jacobson's nerve. The mass is covered with healthy-appearing tympanic mucous membrane. Also seen is the lesser superficial nerve (arrow head).

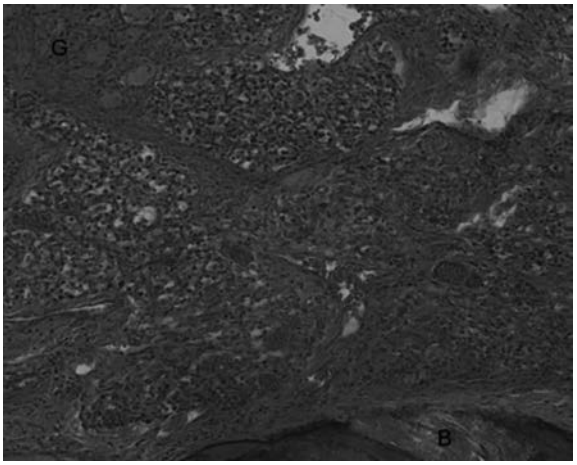

Figure 2. This photograph is a high power magnification of Figure 1A. There is no bony destruction. Nets of chief cells (Zellballen) are separated by reticulin fiberovascucular strands. G indicates ganglion cells; B bone. (Hematoxylin and eosin, original magnification X40).

multiple glomus tumors of the head and neck region is bilateral carotid bodies tumors or a carotid body tumor and a glomus jugulotympanicum tumor.[4] Glomus tympanicum tumors arising in the middle ear are small and present with early symptoms of conductive hearing loss and pulsatile tinnitus. A mass can be seen behind an intact eardrum, and the tumors can perforate the drum as aural polyps protruding into the external canal.[1] O'Leary *et al*.[1] reported that the primary presenting symptoms in 73 patients with glomus tympanicum tumors were: pulsatile tinnitus (50%); hearing loss (30%); and, less commonly, otalgia (7%) and otorrhea (3%). Hearing loss was most frequently conductive. Sismanis reported that 17 (12%) of 145 patients with pulsatile tinnitus, had glomus tumor.[5,6] In our case, there was no pulsatile tinnitus, no conductive hearing loss and both of the tympanic membranes were intact.

Conclusions

Histopathologic observation of temporal bones after death showed bilateral small glomus tympanicum tumors limited to the promontory. To our knowledge, this is the first report of bilateral glomus tympanicum tumors.

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