Case Report

Endoscopic Resection of a Chorda Tympani Schwannoma: A Novel Approach for an Exceedingly Rare Entity

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We present a novel approach for a rare chorda tympani schwannoma. A case report as well as special considerations in all phases of care are reviewed.

Key Words: Chorda tympani, schwannoma, middle ear mass, endoscopic ear surgery.

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INTRODUCTION

Emerging from the facial nerve within the middle ear, the chorda tympani nerve provides gustatory sensation to the anterior two-thirds of the tongue. Its course is winding, emanating from the facial nerve through the tympanic canaliculus, passing between the long process of the incus and the manubrium of the malleus to join the lingual nerve.1 Chorda tympani schwannomas are exceedingly rare, with only 10 reported cases in the English literature. Conductive hearing loss is the most common presenting symptom, whereas otorrhea, dysgeusia, and facial paresis are not routinely observed.2–10

CASE REPORT

Herein we report the case of a 59-year-old male with a pale, flesh-colored, retrotympanic mass visualized in the right middle ear after being referred for nonpulsatile tinnitus and episodic vertigo (Fig. 1). The patient’s preoperative audiogram demonstrated normal hearing bilaterally, and a shallow type A tympanogram on the ipsilateral side. Computed tomography (CT) of the temporal bone revealed a 6 × 6 × 6 mm nodular lesion abutting the scutum and cochlear promontory, inseparable from the tympanic membrane. The ossicular chain was intact without erosion and without intraluesional enhancement with administration of contrast (Fig. 2A, 2B). The left temporal bone and the remainder of the right temporal bone demonstrated normal anatomy.

The patient elected to undergo resection of the lesion using an endoscopic, transcanal approach with the senior author (G.B.W.). Once the tympanomeatal flap had been raised, the pale, well circumscribed lesion was found to be emanating from the chorda tympani (Fig. 3). It was densely adherent to the tympanic membrane and incus. It was removed en bloc (Supporting Video S1) and sent for histologic analysis. The final pathology revealed a schwannoma with well circumscribed, spindle cell proliferation with cellular (Antoni A) and less cellular (Antoni B) areas with palisading. The lesion stained positive for S100 but negative for neurofilament, chromogranin, and synaptophysin. Postoperatively, the patient experienced neither dysgeusia nor facial nerve paralysis and suffered no loss of hearing.

DISCUSSION

In this case report, we describe the clinical course of a patient presenting with a chorda tympani schwannoma and the surgical resection using a transcanal, endoscopic approach. Although many patients with such a lesion have historically presented with either a conductive or mixed hearing loss,2–4,9,10 our patient’s chief complaints were tinnitus and episodic vertigo. Our patient was also found to have normal hearing pre- and postoperatively. The appearance of the mass is consistent with those of other reports, with Chai et al. describing a similar lesion as a pale mass adjacent to an intact tympanic membrane2 and Wiet et al. describing a solid, yellow-white tumor in the anterior tympanic cavity with an air–fluid level posteriorly.4 There are also reports of chorda tympani schwannomas with more aggressive behavior, breaking through the tympanic membrane5 or eroding bony structures of the middle ear.3,4 Otorrhea is uncommon but has been
Facial nerve paralysis should prompt consideration of an alternate diagnosis, although it was observed in a patient with neurofibromatosis type II and bilateral vestibular schwannomas. Preoperative dysgeusia has not been observed in the extant literature.

The differential diagnosis of a middle ear lesion should include cholesteatoma, glomus tympanicum, schwannomas of the nervous structures traversing the middle ear (gacial, Jacobson, and Arnold nerves), middle ear adenomas, rhabdomyosarcoma, adenocarcinoma, and neoplasms extending directly from the parotid gland, external auditory canal, and nasopharynx. The most common middle ear neoplasm is the nonsecretory paraganglioma, which emanates from the tympanic branch of Jacobson nerve in the majority of cases. Pulsatile tinnitus, conductive hearing loss, and a reddish blue retrotympanic lesion are pathognomonic. Location within the retrotympanic space may give clues to the etiology of the lesion, with a vascular-appearing mass anteriorly likely to be an aberrant carotid, a pale and fleshy mass in the posterior superior quadrant likely to be a facial neuroma, and an inferior mass likely to be a glomus tumor or high-riding jugular bulb. Initial workup of the middle ear mass should include an audiogram and high-resolution, noncontrast CT of the temporal bones. Magnetic resonance imaging (MRI) or CT/MR angiography should be pursued to further define the soft tissues or if there is high clinical suspicion for a vascular etiology or intracranial involvement.

This is the first reported case of endoscopically resecting a chorda tympani schwannoma. Previous authors have described transcanal as well as transmastoid approaches, with frequent need to disarticulate the ossicles for access or due to erosion. In one case, an Argon laser was used to debulk the core of the tumor. Transcanal endoscopic ear surgery (TEES) is an established technique with rapidly expanding indications that has shown its effectiveness in the excision of chronic middle ear disease and cholesteatoma as well as middle ear paragangliomas.

This reported case of endoscopically resecting a chorda tympani schwannoma is unique.

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Fig. 1. Preoperative photo of pale, inferior, retrotympanic mass taken with the endoscope.

Fig. 2. (A) High-resolution coronal computed tomography image of a right mesotympanic mass adherent to the tympanic membrane and cochlear promontory. (B) Axial view of mass. L = left; R = right.

Fig. 3. Intraoperative photo of endoscopic resection of pale, fleshy middle ear mass found to be a chorda tympani schwannoma.
located squarely in the mesotympanum, and not associated with heavy bleeding requiring two hands to achieve hemostasis, a conversion to the microscopic technique was not required. Even in the case of suboptimal surgical conditions for TEES, a transmastoid approach would not likely provide much benefit.

CONCLUSION

We present the rare case of a chorda tympani schwannoma that was successfully managed with definitive, endoscopic resection without postoperative morbidity. The authors advocate for transcanal endoscopic resection of middle ear tumors that are amenable to a minimally invasive approach to maximize intraoperative visualization and minimize postoperative morbidity.

BIBLIOGRAPHY