

Endoscopic Excision of Glomus Tympanicum: A Case Report

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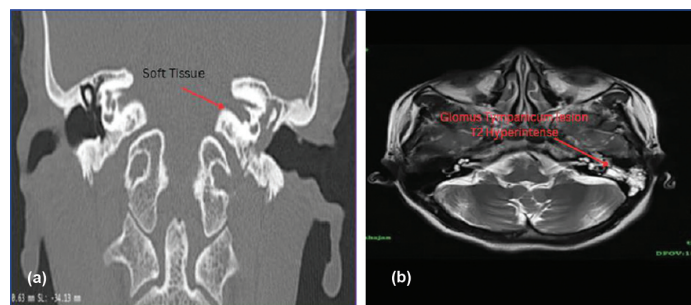
ABSTRACT

Navigating the delicate anatomy of the middle ear demands precision, especially when confronting rare vascular tumours such as glomus tympanicum. This report highlights the successful endoscopic excision of a glomus tympanicum tumour in a 44-year-old female presenting with persistent tinnitus, hearing loss, and aural fullness. Diagnostic imaging confirmed a Grade 2 glomus tympanicum tumour localised to the middle ear. The patient underwent a successful endoscopic transcanal excision, achieving complete tumour removal without compromising adjacent structures. Postoperative recovery was uneventful, with complete resolution of symptoms. This case underscores the efficacy, safety, and favourable outcomes of minimally invasive endoscopic techniques for treating localised glomus tympanicum tumours.

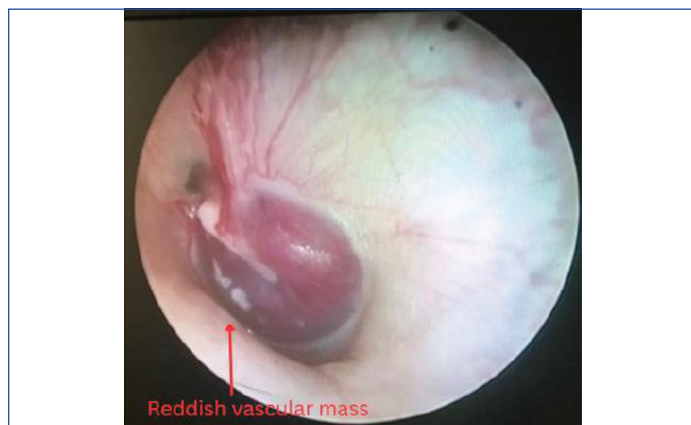
Keywords: Conductive hearing loss, Middle ear surgery, Minimally invasive surgery, Otolaryngology, Paraganglioma, Temporal bone tumour, Tinnitus, Vascular neoplasm

CASE REPORT

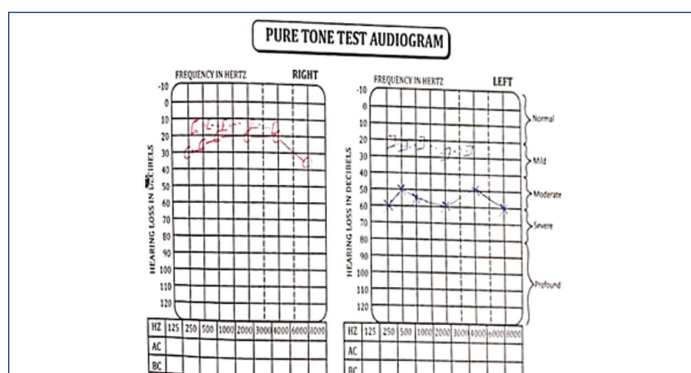
A 44-year-old female presented with left-sided tinnitus, hearing loss, and aural fullness persisting for seven months. Clinical examination and otoendoscopy revealed a reddish mass behind an intact tympanic membrane [Table/Fig-1]. The audiometric evaluation showed a conductive hearing loss of 30-35 dB in the left ear, confirmed by tuning fork tests [Table/Fig-2]. High-resolution Computed Tomography (HRCT) and Magnetic Resonance Imaging (MRI) of the temporal bone identified a well-defined enhancing soft-tissue lesion along the medial wall of the middle ear, classified as a Grade 2 glomus tympanicum tumour [Table/Fig-3]. The tumour was excised via an endoscopic transcanal approach using a 0-degree



[Table/Fig-3]: HRCT and MRI showing lesion in middle ear.



[Table/Fig-1]: Otoendoscopic view of left ear showing reddish mass behind intact tympanic membrane.

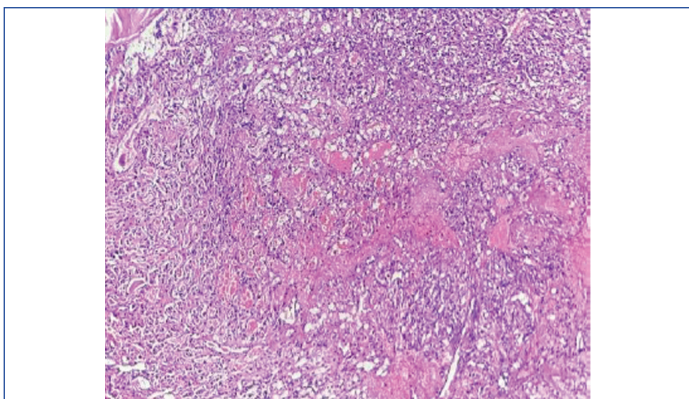


[Table/Fig-2]: Audiometry showing conductive hearing loss.

endoscope. A tympanomeatal flap was elevated, exposing the vascular mass at the cochlear promontory [Table/Fig-4]. The tumour was meticulously dissected and removed with complete preservation of the ossicular chain, cochlea, semicircular canals, and facial nerve. Histopathological examination showed tissue bits composed of lobules of capillary-sized vascular channels lined by endothelial cells, confirming the diagnosis of a glomus tumour [Table/Fig-5]. Postoperatively, the patient exhibited complete resolution of tinnitus and aural fullness, along with significant improvement in hearing. A follow-up pure-tone audiogram conducted six weeks post-surgery showed improved air-conduction thresholds in the left ear, confirming recovery from the preoperative conductive hearing loss. No complications were noted during the postoperative period.



[Table/Fig-4]: Endoscopic view of tumour post tympanomeatal flap elevation at the cochlear promontory.



[Table/Fig-5]: Histopathology tissue bits composed of lobules of capillary sized vascular channels lined by endothelial cells suggestive of glomus tumour (H&E,X100).

DISCUSSION

Glomus tympanicum tumours are rare, benign paragangliomas arising from the middle ear. Despite their non malignant nature, they are locally invasive and can cause significant morbidity [1,2]. Glomus tympanicum tumours typically present with pulsatile tinnitus, conductive hearing loss, and aural fullness, consistent with index patient's symptoms [1-3]. Due to their vascular nature, precise preoperative planning and meticulous intraoperative haemostasis are crucial. Advanced imaging modalities such as HRCT and MRI play essential roles in diagnosis, classification, and surgical planning [2,3]. Imaging findings are typically characterised by a soft-tissue mass lateral to the promontory with the potential salt-and-pepper appearance on MRI [4]. In present case, imaging localisation the lesion to the medial wall of the middle ear without mastoid extension, confirming a Glasscock-Jackson type II tumour [5].

In this case, the endoscopic transcanal approach allowed enhanced visualisation of the middle ear structures, enabling precise tumour excision while preserving the ossicles and facial nerve. Comparative studies have demonstrated that endoscopic techniques provide comparable tumour clearance rates with fewer complications and better postoperative hearing outcomes than traditional microscopic approaches [6-8]. The literature suggests the endoscopic approach is particularly advantageous for Glasscock-Jackson type I-II and Fisch-Mattox classification A1-B1 tumours confined to the middle ear cavity [1,2]. However, larger tumours extending into the mastoid or carotid canal may necessitate hybrid or open surgical techniques [9].

Intraoperative bleeding remains a significant challenge due to tumour vascularity. Techniques such as bipolar cautery, argon plasma coagulation, laser-assisted coagulation, and staged embolisation for larger tumours effectively manage haemostasis

[1,3]. Postoperative outcomes after endoscopic excision of glomus tympanicum tumours have been consistently favourable. Studies report low recurrence rates and significant improvements in tinnitus and hearing outcomes [1,2]. In present case, patient's favourable postoperative course aligns with these findings. Her complete symptom resolution and improved hearing threshold further support the effectiveness of endoscopic management in selected cases. However, long-term follow-up is essential to monitor for recurrence and to assess sustained functional outcomes.

CONCLUSION(S)

Endoscopic transcanal excision of glomus tympanicum tumours is a safe, effective, and minimally invasive technique providing excellent visualisation, reduced morbidity, and superior functional outcomes. This approach is particularly beneficial for small-to-medium-sized tumours confined to the middle ear. Continued advancements in endoscopic technology are anticipated to further enhance surgical precision and patient outcomes. Long-term follow-up studies remain crucial to assess recurrence rates and optimise treatment strategies.

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