

Transcanal endoscopic excision of glomus tympanicum: A case report

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SUMMARY

Glomus tympanicum is a highly vascular tumour traditionally treated surgically via a post-auricular approach. We present here the first published case in Malaysia where total excision was achieved transcanal endoscopically. The procedure was safe, quick and effective due to the better visualisation of the surgical field with the endoscope. Haemostasis was achieved with a modified suction catheter that performed as a functioning suction diathermy.

INTRODUCTION

Glomus tympanicum (GT) is a tumour originating from paraganglionic tissue of the middle ear with stations present throughout the mesotympanum. While GT may be extensive, it does not involve the jugular bulb.^{1,2}

Even though the incidence of GT is 1 in 1.3 million people per year, it is one of the most common benign neoplasm in the tympanic cavity. This highly vascular tumour presents itself early with pulsatile tinnitus and a red mass behind the tympanic membrane. It progresses with hearing loss, dizziness and even cranial nerve palsies. GT may be benign but its vascularity makes its excision challenging.^{3,4}

CASE REPORT

We report here the case of a 53-year-old woman complaining of left pulsatile tinnitus with aural fullness for two months. There was no vertigo, reduced hearing or ear discharge.

Otосcopy showed a left red pulsatile mass behind an intact tympanic membrane (Figure 1a). The right ear was normal. Examination of the nose and throat was normal including the rigid endoscopy of the nasopharynx. Hearing test showed a right mild sensorineural hearing loss and left mild to moderate mixed hearing loss.

Her high resolution computed tomography (HRCT) of the temporal bone only had bone settings that showed soft tissue in the middle ear. There were no bony changes in the temporal bone. Magnetic resonance imaging (MRI) revealed a T1/T2 hyperintense lesion in the left middle ear cavity lateral to the cochlear promontory measuring 0.7x0.4x0.5cm (AP x W x Ht). It was enhancing post gadolinium. Both jugular bulbs were normal.

The patient underwent an endoscopic examination and excision of grade-2 tumour under general anaesthesia (Box 1: Glasscock-Jackson Classification). The patient was supine with head turned 45 degrees to the right. The high-definition monitor and camera with Karl Storz AIDA (Germany) storage system was placed in front of the surgeon and the instrument trolley and scrub nurse were positioned at the head of the patient. Endoscopes 0° and 30° 4mm in diameter and 18cm in length were prepared. The endoscope was held in the left hand while the right hand held the instruments required. An extra hand provided intermittent irrigation and suctioning. After the patient was cleaned and draped, marcaine and adrenaline (1/100,000 dilution) was injected and tympanomeatal flap was elevated using a round knife and the pulsatile mass immediately came into view. The tumour filled the mesotympanum and hypotympanum with its base originating from a vessel at the promontory. It was completely removed with a cup forceps which led to bleeding. It was partially controlled by compressing with adrenaline cotton ball. Removal of the cotton ball led to more bleeding. Bipolar cautery was attempted but would not fit in the middle ear. We then fashioned a suction diathermy using a regular metal suction catheter sheathed with a branula as insulation (Figure 2). It worked well to keep the field dry enough and to diathermy (coagulation mode, power 15) simultaneously. The surgical site was examined with a 30° scope to ensure no tumour was left behind and the canal was packed with gelfoam. The GT was successfully removed completely in under an hour (Figure 1b).

Patient was discharged the next day and given paracetamol. She was seen in a month and the wound had healed well with no recurrence of the condition. Histopathological findings confirmed the tumour mass to be a jugulotympanic paraganglioma. Hearing test performed showed no worsening of sensorineural hearing loss indicating no further thermal injury from diathermy.

DISCUSSION

Surgical excision for GT is the primary treatment modality.² Normally the GT is performed via postauricular approach.³ The approach is determined by the location and extent of the tumour assessed with a HRCT examination.^{3,4} In this case, the HRCT was inadequate, and MRI supplemented more information.

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Box I: Glasscock-Jackson Classification System¹

Grade Definition

1. Tumour margins are completely visible on otoscopy
2. Tumour fills the middle ear
3. Tumour fills the middle ear and the mastoid
4. Tumour extends through the tympanic membrane and into the external ear canal.

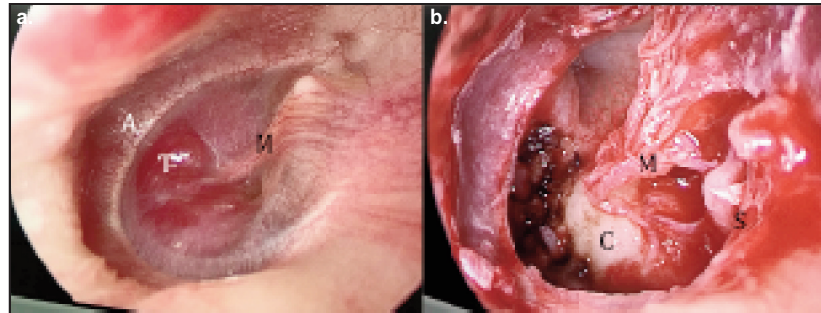


Fig. 1: (a) The reddish tumour (T) is seen behind the intact retracted drum (b) Post excision shows charred area where the tumour was based. A – annulus of tympanic membrane, M - Handle of Malleus, C – Cochlea promontory , S – Stapes suprastructure.

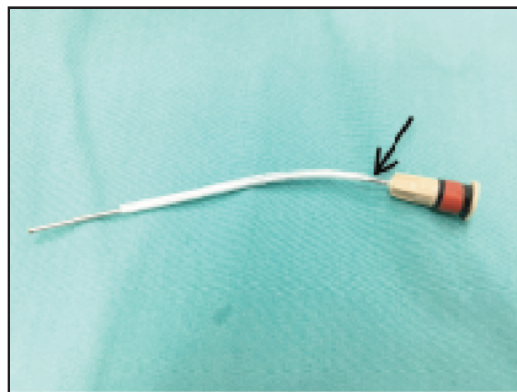


Fig. 2: Suction catheter sheathed with a branula to create a suction diathermy. Arrow shows area diathermy is applied where it is not insulated.

Cohen’s Endoscopic Ear Surgery (EES) Class 3 was performed.⁵ Limitations initially encountered with an endoscopic approach was during the haemostasis stage. A third hand was required to hold the scope (as compared to the two-handed microscope approached) while the main surgeon had one-hand holding cup-forceps, one-hand holding the suction. An inconvenience we also faced was having to frequently clean the tip of the scope when smudged. However, the time taken to clean the scope was negligible compared to having to do a postauricular approach. The third challenge in haemostasis was not having the right instruments such as the bipolar cautery, laser or Stammberger bipolar suction. Instead, we modified what was available simply by insulating a suction catheter with a branula. Cautious monopolar diathermy at the proximal unsheathed area of the suction catheter allowed suctioning and diathermy at the same time. Post-operative hearing test was not complicated by any sensorineural hearing loss from the diathermy.

The endoscope has enhanced our visualization while reducing the need for postauricular incision which results in unnecessary bony destruction just for access with its associated morbidity.^{3,4} Post operatively, our patient did not require frequent appointments to have wound inspection nor

for removal of stitch. This has saved the patient cost and time away from work as well as additional outpatient clinic workload.

CONCLUSION

We found that a total endoscopic excision for a Glasscock-Jackson Grade 2 glomus tumour to be a safe, quick and effective without the post-operative inconvenience to the patient.

REFERENCES

1. Daneshi A, Asghari A, Mohenni S, Farhadi M, Farahani F, Mohseni M. Total endoscopic approach in glomus tympanicum surgery. *Iranian J Otorhinolaryngol* 2017; 92(6): 305-11.
2. El-Begermy MA, Mansour OI, Adly A, Ibrahim SA, El-Beltagy M. Role of Otoendoscopy in the management of glomus tympanicum. *Egyptian Journal of ENT and Allied Science* 2008; 10(1): 11-8.
3. Pollak N. Endoscopic and minimally-invasive ear surgery: A path to better outcomes. *World J Otorhinolaryngol Head Neck Surg* 2017; 3(3): 129-35.
4. Marchioni D, Alicandri-Ciufelli M, Gioacchini FM, Bonali M, Presutti L. Transcanal endoscopic treatment of benign middle ear neoplasms. *Eur Arch Otorhinolaryngol* 2013; 270: 2997-3004.
5. Cohen MS, Basonbul RA, Barber SR, Kozin ED, Rivas AC, Lee DJ. Development and validation of an endoscopic ear surgery classification system. *Laryngoscope* 2018; 128(4): 967-70.