Greenish Mass in the Middle Ear Cavity behind an Intact Tympanic Membrane: A Case Report and a Review of the Literature

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Abstract: The authors are presenting our experience of managing an interesting case of a 13-year-old male patient who presented to our clinic with a hearing loss on the right ear with the use of hearing aids. By otoscopy, there was a frank greenish mass in the middle ear cavity behind an intact tympanic membrane of the right side. CT of the temporal bone was needed to fully evaluate the extension of the lesion. Through a transcanal endoscopic approach, excision biopsy was possible. Histopathological examination of the mass revealed an inorganic material which has not been stained with the ordinary H&E stain. The features were suggestive of foreign body material which was the mold of the hearing aid. We discuss the clinical presentation, diagnosis, and treatment of this case as well as a review of the literature.

Keywords: Middle ear mass, greenish mass, Hearing aid mold.

INTRODUCTION

We report a rare case of a middle ear lesion with conductive hearing loss. We aim to highlight the importance of diagnosing a middle ear mass, which although rare, may have a substantial impact on ongoing patient management. It is the first such case to be reported in the worldwide literature.

CASE PRESENTATION

We present a 13 year-old-boy who presented to our clinic with a history of hearing loss on the right ear with the use of hearing aids. The patient has done myringotomy operation at the age of 3 years for persistent bilateral middle ear effusion. At the age of 11 years, he used to wear right behind the ear hearing aids for right moderate sensorineural hearing loss, and since then he has the persistent complain of decreased hearing of the right ear. There were no other significant otological symptoms.

Throughout the last 2 years, he sought medical advice in various audiology and ENT clinics. He was referred to our clinic for the management of the decreased hearing of the right side with the use of the hearing aids.

By otoscopy, there was an intact bulging right tympanic membrane and a greenish lesion could be seen within the middle ear space (Figure **1**). The left ear was normal in appearance.

Figure 1: Otoscopic view of the right tympanic membrane which appears intact with a greenish shadow posteriorly and inferiorly.

Pure tone audiometery showed a severe mixed hearing loss of the right ear. Tympanometry was normal type A on both ears.

CT of the temporal bone was done to evaluate the extent of the lesion. It revealed an isolated opacity of the floor of the middle ear related to the promontory, round window niche and the sinus tympani. It measures 5X9 mm in dimensions (Figure **2**).

TREATMENT

The differential diagnosis of the lesion was discussed in our MDT meeting, the most accepted opinion was that the lesion could be the mold of the BTE hearing aid which was trapped inside the middle ear cavity. The decision was taken to do an exploratory tympanotomy and complete removal of the lesion.

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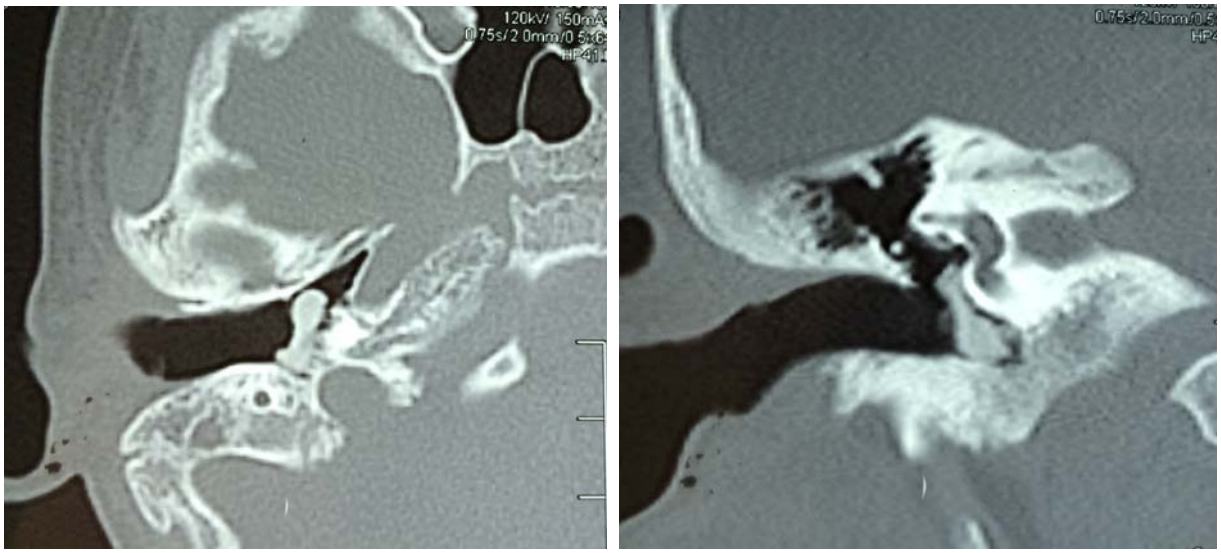

A **B**

Figure 2: CT of the temporal bone showing isolated opacity of the floor of the middle ear (**A** axial, **B** coronal cut).

Through a transcanal endoscopic approach, elevation of tympanomeatal flap and the lesion could be seen filling the middle ear cavity. The lesion was separated gently from the ossicles and the promontory (Figure **3**). Total excision of the lesion was possible which appeared soft and firm elastic (rubbery) in consistency (Figure **4**). The lesion was sent for histopathological examination. Assessment of the ossicles was possible which appeared mobile and normal. The tympanomeatal flap was returned (Figure **5**) and was supported using gelfoam.

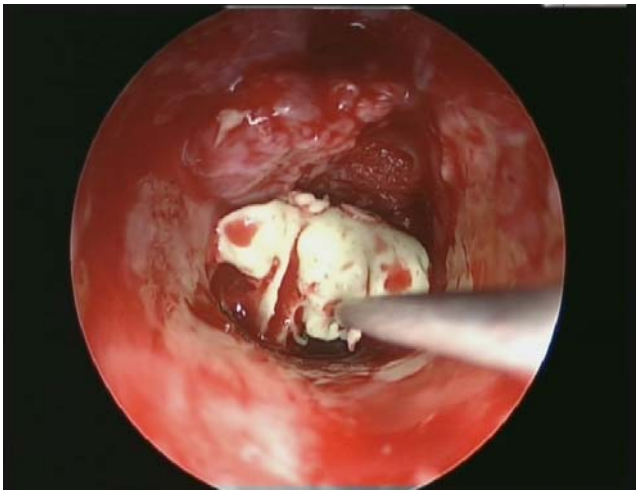

Figure 3: Endoscopic transcanal removal of the lesion.

The patient underwent uneventful recovery. He was discharged in the second postoperative day. Histopathological examination of the mass revealed an inorganic material which has not been stained with the ordinary H & E stain. The features were suggestive of foreign body material which was the mold of the hearing aid.

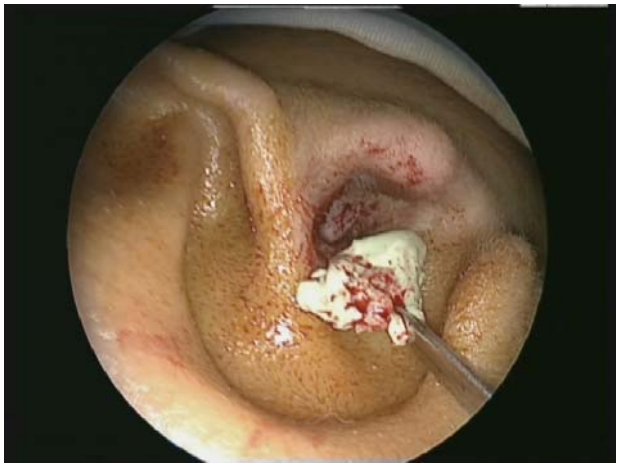

Figure 4: The lesion being removed.

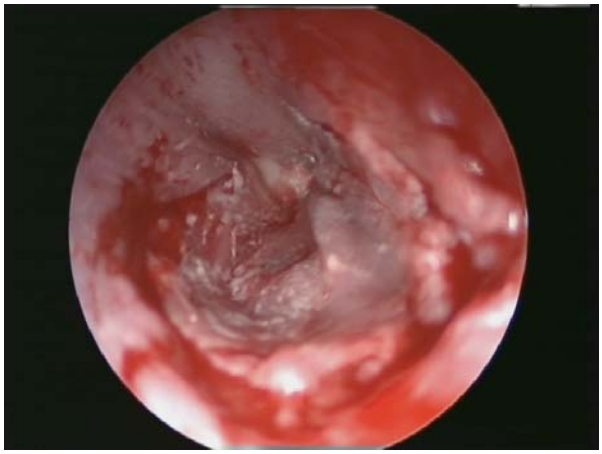

Figure 5: The tympanomeatal flap returned back.

After 3 month flow up, the patient has retained his hearing with intact tympanic membrane seen by otoscopy.

DISCUSSION

This case report has highlighted a very rare cause of a bulging tympanic membrane with associated conductive hearing loss. It is the first such case to be reported in the worldwide literature. The differential diagnosis to be considered with this presentation should include acute otitis media (AOM), middle ear tumours and congenital cholesteatoma.

AOM classically presents with an acute history of otalgia, conductive deafness and fever. It is a common diagnosis in children but rare in adults. Clinical examination normally reveals a red and bulging TM. If an acute history, no further investigation is usually required and treatment may consist of oral antibiotics and analgesia [1].

On the other hand, middle ear mass usually has a long-standing or progressive unilateral hearing loss, with or without accompanying otalgia, vertigo, tinnitus and headache. There is often no otorrhoea or fever. The tympanic membrane appears abnormal with increased opacity and less visible middle ear anatomy. Depending on the size and specific origin, the middle ear mass may cause the TM to bulge if mass volume is sufficiently large. The nature of the underlying mass may alter the colour of the TM. This may be blue or red in vascular lesions and whitish in soft tissue masses as cholesteatoma [2, 3]. It is the first case to be reported in the literature to change the colour of the TM into greenish.

Neoplasms that can present in the middle ear include glomus tumours and rarely schwannomas, carcinomas, melanomas and adenomas [2, 3]. Glomus tumours are benign vascular tumours also known as paragangliomas. They are subdivided into glomus jugulare, glomus vagale and glomus tympanicum depending on their location. They are more common in females during the fifth and sixth decades [2]. A key symptom of glomus tumours is pulsatile tinnitus which may be accompanied by a conductive hearing loss. Otalgia is uncommon but headache and vertigo may be present. Hoarseness and dysphagia may suggest cranial nerve involvement. Glomus tumours often present as an intact TM with a reddish or blueish mass in the middle ear space.

Congenital cholesteatoma is a rare cause of a middle ear mass. Clinical examination reveals an intact TM with a whitish middle ear mass normally towards the anterior aspect of the TM [4].

Middle ear masses require audiological investigation to establish the nature of any hearing loss. In addition, CT imaging of the temporal bone helps identify the origin and extension of the mass. This is crucial in further management and surgical planning if appropriate.

The application of endoscopic surgery for middle ear pathologies is rapidly increasing. The use of otoendoscopy allows complete removal of the lesion especially from the hidden sites of the middle ear as the sinus tympani and the facial recess. Endoscopic transcanal excision of tympanic cavity lesions represents a safe procedure, with minimal morbidity and without external incisions or mastoidectomies [5].

CONCLUSION

- The causes of bulging tympanic membrane include acute otitis media (AOM), middle ear tumours and congenital cholesteatoma. The nature of the underlying mass alters the colour of the TM. This may be blue or red in Glomus and whitish in cholesteatoma. It is the first case to be reported in the literature to change the colour of the TM into greenish.
- Middle ear masses require audiological investigation to establish the nature of any hearing loss. In addition, CT is crucial to identify the origin and extension of the mass.
- Endoscopic transcanal excision of tympanic cavity lesions represents a safe procedure, with minimal morbidity and without external incisions or mastoidectomies.

FINANCIAL DISCLOSURE

None of the authors have financial disclosure.

CONFLICT OF INTEREST

None of the authors have conflicts of interests.

REFERENCES

[1] Pichichero ME. Otitis media. Pediatr Clin North Am 2013; 60: 391-407. http://dx.doi.org/10.1016/j.pcl.2012.12.007

[2] Choi JH. Glomangioma ("true" glomus tumor) presenting as a white middle ear mass behind an intact tympanic membrane. Otol Neurotol 2012; 33: 51-2.

[3] Ebmeyer J, Gehl HB, Upile T, Sudhoff HH. Vestibular schwannoma presenting as a white middle ear mass behind an intact tympanic membrane. Otol Neurotol 2011; 32: 32-3. http://dx.doi.org/10.1097/MAO.0b013e3181f20160

[4] McGill TJ, Merchant S, Healy GB, Friedman EM. Congenital cholesteatoma of the middle ear in children: a clinical and histopathological report. Laryngoscope 1991; 101: 606-13. http://dx.doi.org/10.1288/00005537-199106000-00006

[5] 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. http://dx.doi.org/10.1007/s00405-013-2371-x

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