

An Incarcerated Grommet within the Ear Drum

Kulak Zarı içinde Hapsedilmiş Ventilasyon Tüpü

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ABSTRACT

Myringotomy and grommet insertion is a common otorhinolaryngology procedure performed among young children. This procedure is mostly done for children with persistent otitis media with effusion (OME). A 6-year-old boy had undergone a bilateral myringotomy with grommet insertion and adenoidectomy. During follow-up, the left grommet was seen to be incarcerated within the layers of the eardrum. Later, an endoscopic guided removal of the grommet was performed. The possible mechanisms postulated for migration of a grommet into the middle ear are difficulties in inserting the tube, the development of biofilm on the tubes' medial surface and also eustachian tube dysfunction. Though a dislodged grommet into the middle ear is a well-documented complication, there are not many images of a grommet being incarcerated within the layers of the tympanic membrane available in the literature.

Key Words: Grommet; dislodged; middle ear; eardrum

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ÖZET

Miringotomi ve gromet yerleştirme, küçük çocuklarda yapılan yaygın bir kulak burun boğaz prosedürüdür. Bu prosedür çoğunlukla efüzyonlu persistan otitis media (OME) olan çocuklar için yapılır. 6 yaşındaki bir erkek çocuğa ventilasyon tüpü yerleştirme ve adenoidektomi ile bilateral miringotomi yapıldı. Takip sırasında sol tüpün kulak zarı katmanları içinde hapsediği görüldü. Daha sonra, tüpün endoskopik kılavuzluğunda çıkarılması gerçekleştirildi. Bir tüpün orta kulağa göç etmesi için varsayılan olası mekanizmalar, tüpün yerleştirilmesindeki zorluklar, tüplerin medial yüzeyinde biyofilm oluşumu ve ayrıca üstaki tüpü işlev bozukluğudur. Orta kulağa doğru yerinden çıkmış bir ventilasyon tüpü, iyi belgelenmiş bir komplikasyon olsa da, literatürde bulunan timpanik membran katmanları içinde hapsedilmiş çok sayıda tüp görüntüsü yoktur.

Anahtar Sözcükler: Ventilasyon Tüpü; yerinden çıkmak; orta kulak; kulak zarı

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INTRODUCTION

Myringotomy and grommet insertion is a common otorhinolaryngology procedure among young children diagnosed with persistent otitis media with effusion (OME). The incidence of OME occurs at least once amongst 35-70% of pre-school-aged kids. While about 17-41% of children aged 2-3 years old have OME too(1). This middle ear disease is mostly able to resolve spontaneously with medical therapy within 3 months. Nonetheless, it can be recurrent which then requires surgery. Surgical intervention is usually considered for children with persistent OME with concomitant hearing loss of more than 25dB. Any structural changes to the tympanic membrane or middle ear with the mentioned criteria are also indicative of surgery(2).

Myringotomy and grommet insertion is a relatively safe procedure which carries minimal complications. Some of the complications include persistent tympanic membrane perforation, tympanosclerosis, granulation tissue formation, peritubal drum atrophy, scarring, blockage of the tube lumen, premature extrusion, and cholesteatoma. Another significant complication is the medial migration of the tube into the middle ear space(3).

Hereby, we report our experience in managing a rather interesting and rare case of an incarcerated grommet tube within the layers of tympanic membrane post-myringotomy and grommet surgery.

CASE REPORT

A 6-year-old boy who had persistent OME had undergone a bilateral myringotomy with grommet insertion and adenoidectomy. He visited our clinic 2 weeks post-operative review about 2. On otoscopy, the left grommet appears to have been incarcerated within the layers of the ear drum (Figure 1). We proceeded with examination under anesthesia 4 weeks after his initial surgery whereby we observed that the left grommet was no longer incarcerated within the eardrum but has migrated into the middle ear (Figure 2). A tympanomeatal flap was raised 5mm away from the annulus of the tympanic membrane and endoscopic guided removal of the grommet was done. The tympanomeatal flap was then repositioned into its original position and dressing was applied. During subsequent follow-ups, the patient was well and the eardrum has healed without any complications.



Figure 1 An incarcerated grommet in the ear drum 2 weeks prior to surgery

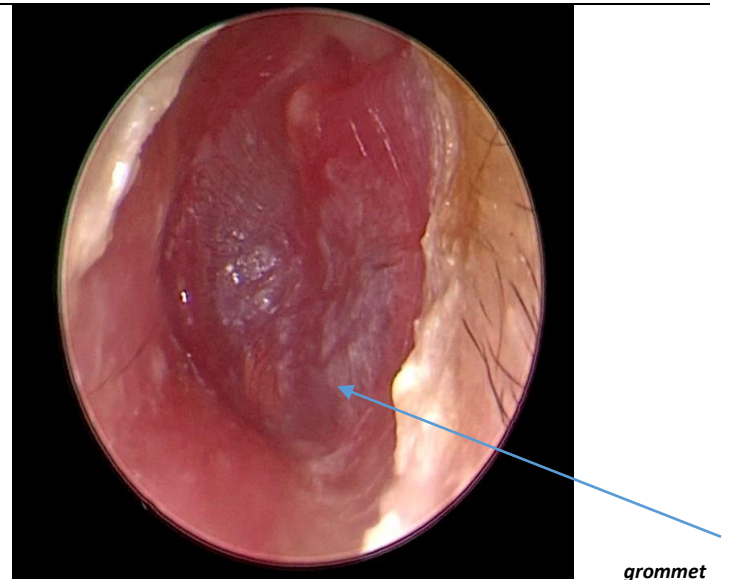


Figure 2 Dislodged left grommet into the middle ear, seen intra-operatively

DISCUSSION

Incarceration or entrapment of a grommet tube in between the layers of the tympanic membrane is uncommon. Normally, a grommet should get extruded into the external auditory canal due to the outward migration of the tympanic membrane epithelial layer. (4) Besides, incidences of incarcerated or dislodged grommet tubes are underreported in literature. This is due to the fact that it is not easily detected on routine otoscopic examinations, especially when the tympanic membrane is opaque. (3) In addition, most of the patients are asymptomatic as in our case reported.

How does a grommet tube possibly get dislodged or migrated? A meta-analysis done on the rate of medial displacement of tympanostomy tubes by Kay et al. showed a rate of 0.5%. While Groblewski et al. had reported an incident rate of 0-1.1%. The possible mechanisms postulated for migration of a grommet into the middle ear are difficulties in inserting the tube, the development of biofilm on the tubes' medial surface and also eustachian tube dysfunction(3).

According to The Journal of Laryngology & Otology in 2009, the first-ever complication of perilymphatic fistula due to a migrated tympanostomy tube was reported. This is due to gradual bony wall erosion caused by the tube which had medially migrated into the middle ear space. However, it was postulated that the patient developed the fistula probably as he had a history of radiation exposure due to nasopharyngeal carcinoma. An exploratory tympanotomy with the removal of the tube was performed subsequently(5).

Therefore, should a dislodged grommet be removed? The ideal management is still a debate among clinicians. There are two schools of thought in managing the dislodged grommet cases. One is to leave the tube in place in the middle ear, while the other is to remove it. By removing the tube, one can potentially avoid more harmful consequences such as foreign body granuloma and erosion of ossicles(3). Hence, as in our case discussed, the grommet was removed successfully and the subsequent follow-ups were uneventful.

CONCLUSION

Though a dislodged grommet into the middle ear is a well-documented complication, there are not many images of a grommet being incarcerated within the layers of the tympanic membrane available in the literature. A migrated grommet into the middle ear is an easily missed finding during a clinical examination. Thus, endoscopic or microscopic evaluation may be necessary to diagnose and remove if necessary.

Conflict of interest

No conflict of interest was declared by the authors.

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Written permission has been obtained from the patient's parent for publication of the images and article.

REFERENCES

1. Barati B, Hashemi SM, Goljanian Tabrizi A. Otolological findings ten years after myringotomy with tympanostomy tube insertion. *Iran J Otorhinolaryngol.* 2012;24(69):181–186.
2. Zulkiflee S, Sabzah SM, Philip R, Aminuddin MM. Management of otitis media with effusion in children. *Malaysian Family Physician.* 2013 May 1;8(2):32.

3. Bezdjian A, Maby A, Daniel SJ. To remove or not to remove: Review of cases of medial migration of tympanostomy tubes. *International journal of pediatric otorhinolaryngology.* 2015 Nov 1;79(11):1793-7.

4. Manab FW, Mutalib NS, Mamat H, Rahman HA. Medial migration of grommet: atrogenic foreign body. *Bangladesh Journal of Medical Science.* 2018 Jun 29;17(3):493-5.

5. Hajiioannou, J., Bathala, S., & Marnane, C. Case of perilymphatic fistula caused by medially displaced tympanostomy tube. *The Journal of Laryngology & Otology,* 2009 123(8), 928-930.