



Adenotonsillar Hypertrophy with Adenoid Facies Leading to Symptomatic Otitis Media with Effusion

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Abstract

The Palatine tonsils are areas of lymphoid tissue located in the tonsillar fossa. The adenoids or Luschka's Tonsils are also lymphoid tissue which are located in the nasopharynx and are normally present in all children. These lymphoid structures are vulnerable to frequent infections, resulting in enlarged adenoids which cause obstruction in nasal breathing. As the adenoids lie in close proximity to Eustachian tube, their enlargement or infection may contribute to recurring diseases which includes acute or chronic otitis media, Eustachian tube catarrh, serous otitis media etc. OME is defined as the presence of fluid in the middle ear cleft in the absence acute middle ear infections which may lead to hearing loss or long-term sequel and has a negative impact on speech development and behaviour of the child. Here we discuss a case of 9yr old male child who presented to ENT OPD with chief complaint of recurrent throat pain, fever, snoring and decreased hearing. The patient was managed conservatively for 2 weeks followed by surgical management (Adenotonsillectomy under GA with grommet insertion). The main aim was to see if tonsil size is related to recurrent otitis media with effusion (OME) in paediatric patient and to compare the relationship between the size of adenoid and tonsil with eustachian tube block and middle ear effusion.

Keywords: Lymphoid Structures; ENT; Adenotonsillar Hypertrophy

Introduction

Tonsils and adenoids are lymphoid tissue which has a role in helping the body fight infection. The tonsils are two areas

of lymphoid tissue located in the throat within the tonsillar fossa. The adenoids, also lymphoid tissue, are located higher and further back in the nasopharynx. The adenoids are not visible on oral cavity examination. As the adenoids are close

to the Eustachian tube, their enlargement or infection may lead to recurring diseases which includes acute or chronic otitis media, Eustachian tube dysfunction, otitis media with effusion (OME) etc. Otitis media with effusion (OME)

is defined as accumulation of mucus in the middle ear and sometimes it may also involve the mastoid air cell system. Inflammation and infection of the adenoid is one of the most common causes of OME in children (Figure 1).

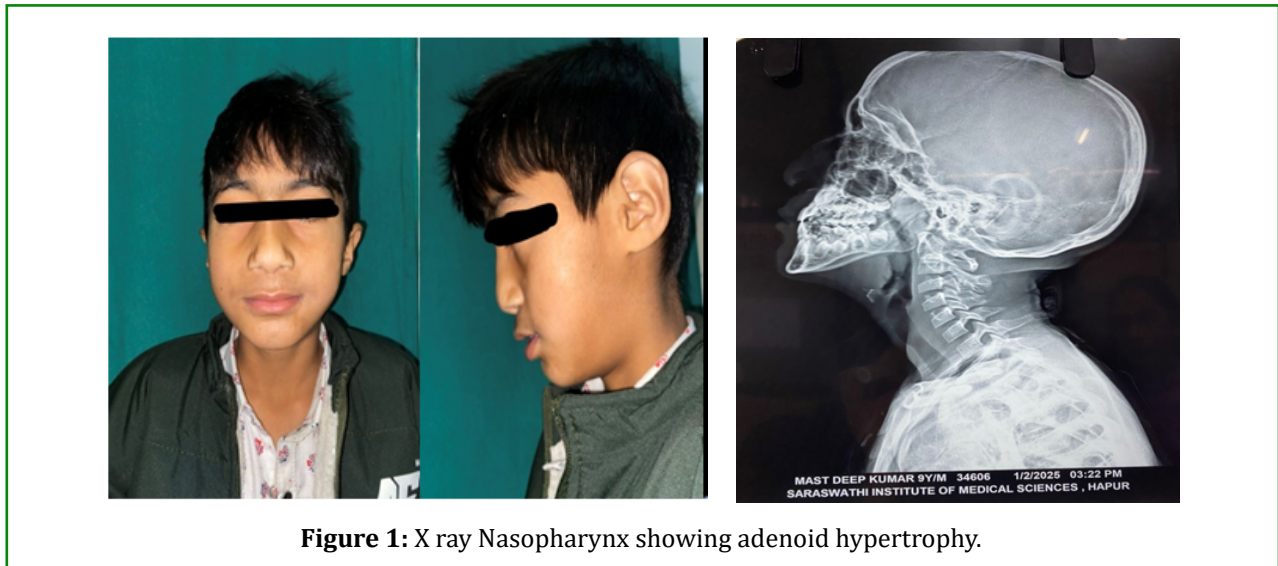


Figure 1: X ray Nasopharynx showing adenoid hypertrophy.

Case Report

A 9yr old male child presented to ENT OPD with his parents with chief complaint of recurrent throat pain with current episode from last 5 days, there was history of fever from last 4days. On further history taking there was also history of mouth breathing and snoring in the child along with decreased hearing (Figure 2).

Child was having elongated face with pinched up nose. On examination of oral cavity there was GRADE-4 tonsillar hypertrophy with congestion of anterior tonsillar pillars. There was crowding of upper incisors as well. On otoscopic examination both tympanic membrane were intact and dull with presence of bubble behind intact membrane in right ear (Figure 3).

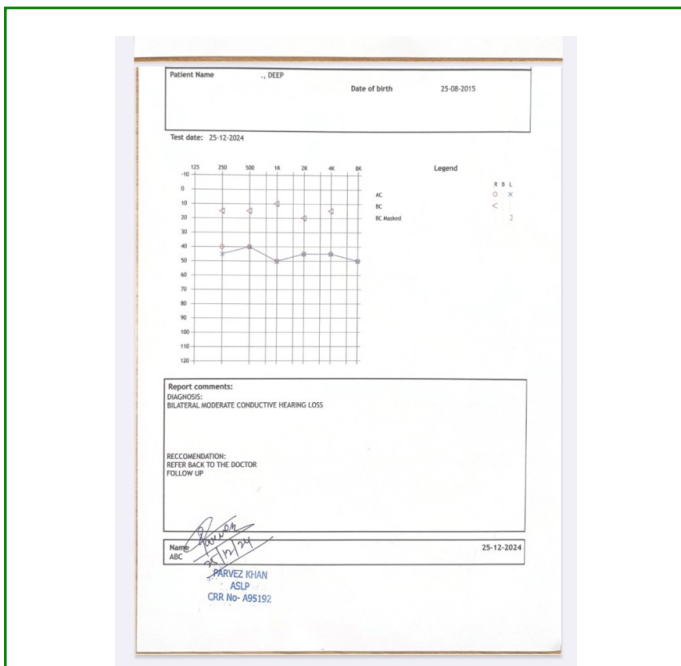


Figure 2: Preoperatively showing bilateral moderate conductive hearing loss.

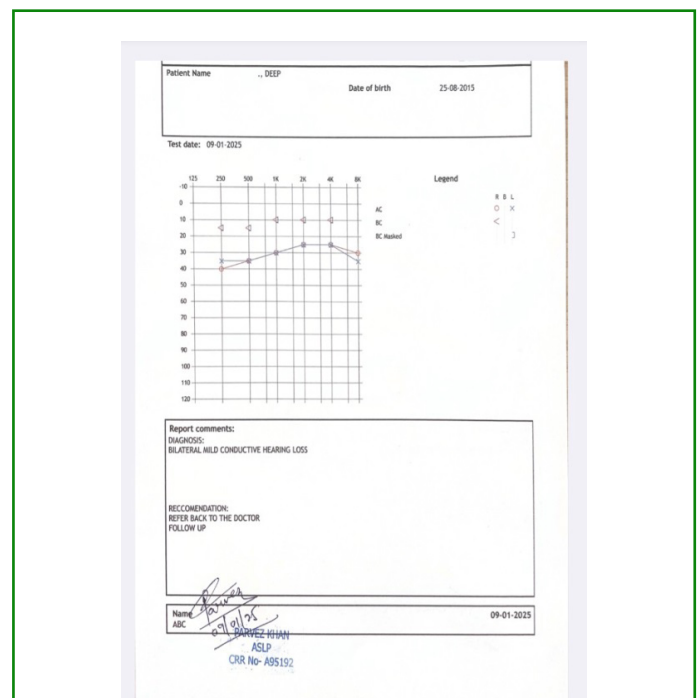


Figure 3: Postoperatively showing bilateral mild conductive hearing loss.

X-ray nasopharynx was advised which was suggestive of GRADE-4 adenoid hypertrophy PTA indicated Bilateral moderate conductive hearing loss Impedance was suggestive of type-B tympanogram. We gave conservative management to the patient for 2weeks which included steroid nasal spray, antibiotic, anti-pyretic, painkiller and mouth gargles. After 2weeks adenotonsillectomy with grommet insertion under GA was planned after pre-anesthetic check-up. Post op PTA was suggestive of bilateral mild conductive hearing loss.

Discussion

The adenoids are a part of Waldeyer's ring of lymphatic tissue and are prominent in children but they get atrophied after puberty [1]. As the adenoid are close to the eustachian tube they can cause spread of infection from nasopharynx to middle ear. Enlarged adenoids can also cause mechanical obstruction to the eustachian tube [2].

The eustachian tube provides an anatomical connection between the nasopharynx and the middle ear [3]. The Eustachian tube is lined by ciliated, pseudostratified columnar epithelium. The mucosa contains both goblet cells and mucus-secreting glands [4]. Normally there is intermittent opening of the eustachian tube which maintains the pressure of the middle ear [5]. Blockage of the eustachian tube opening within the nasopharynx by enlarged adenoids, leads to a high negative pressure in the middle ear [6].

This persistent eustachian tube block with poor ventilation of the middle ear, leads to prolonged inflammation of the middle ear mucosa causing cell differentiation and increase in the number of mucus cells and production of a serous or mucus effusion in the ear [7].

Mucus trapped in the eustachian tube leads to pressure drop in the middle ear, which in turn prevents the mucus from being drained resulting in a 'glue ear'. Adenoid enlargement should always be suspected in children with nasal obstruction, snoring, mouth breathing, recurrent nasal discharge and daytime sleepiness. Adenoids and tonsil also act as predisposing factors for otitis media with effusion.

Adenoids cause tubal dysfunction by:

- Acting as reservoir for pathogenic organisms.
- Mechanical obstruction of the tubal opening.
- Mast cells of the adenoid tissue release inflammatory mediators in case of allergy which cause tubal blockage.

Enlarged palatine tonsils cause mechanical obstruction to the movements of soft palate and interfere with physiological opening of eustachian tube. Early diagnosis and treatment of OME is very important to prevent significant hearing loss with speech and auditory disorders (Figure 4).

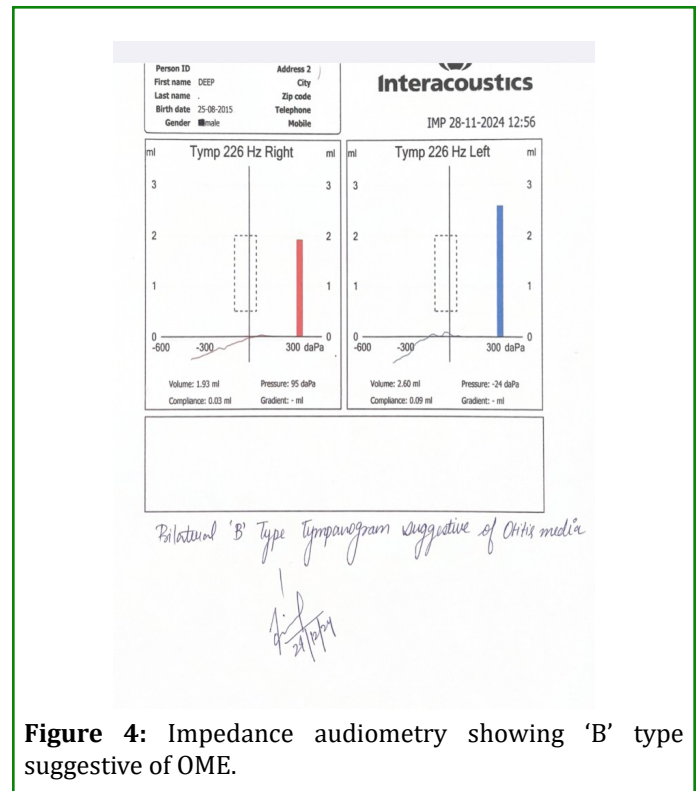


Figure 4: Impedance audiometry showing 'B' type suggestive of OME.

Hearing assessment in children who are more than 5 years is done by Pure Tone Audiometry (PTA) and in younger children the hearing threshold is noted by Brain Stem Evoked Response Audiometry or by Visual Response Audiometry. Impedance audiometry, is an additional objective test for middle ear assessment. If not managed the condition may lead to language, educational and behavioural problems in children. OME is the main indication for insertion of grommets these are ventilation tubes which correct the Eustachian tube dysfunction by allowing air entry into the middle ear.

Conclusion

Otitis media with effusion (OME) is one of the commonest ear conditions of early childhood. Larger tonsils (grade 3/4) may lead to increased risk of recurrent OME in paediatric population. Surgical treatment of the adenoids, tonsils ear and sinuses is frequently used and the condition constitutes as one of the main indication for adenoidectomy

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