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Silent Secretory Otitis Media in Cases with Adenoid Hypertrophy

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ABSTRACT

Objective: to determine the cases brought to the Otolaryngology Department with adenoidal hyperplasia.
Study Design: Cross-sectional study.
Place and Duration of Study: ENT Department, Combined Military Hospital, Multan Pakistan from Jan to May 2022.
Methodology: The study was conducted on children of age more than 2.5 years having adenoid hypertrophy that was confirmed by an X-Ray lateral view of the nasopharynx for adenoids. Their tympanogram was obtained.
Results: The study showed that 2(2%) cases had a Type-B curve in a single ear, and 14(14.3%) had a Type-B curve in both ears. PTA was normal in 32(32.7%) cases. Up to 25 decibels (dB) of hearing loss was seen in 6(6.1%) cases. In 8(8.2%) cases, hearing loss, was more than 25Db.
Conclusion: The tympanometry test is an objective test which is very easy to carry out and can very easily detect patients having glued ears which can be managed, and possible complications of the disease can be avoided.

Keywords: Adenoid hypertrophy, Otitis media, Secretory otitis media, Tympanometry.

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INTRODUCTION

Secretory otitis media (SOM) is fluid accumulation in the middle ear cleft without evidence of active ear infection.[1] Main cause of the disease is either hypertrophy of adenoid tissue or nasopharyngeal tumours, which block the Eustachian tube, resulting in absorption of air in the middle ear cleft leading to the development of negative pressure and eventually developing effusion in middle ear cleft.[2] SOM is a commonly seen intractable illness in otolaryngology departments which substantially impacts patient's quality of life.[3]

SOM prevalence and persistence are mostly seen in the pediatric age group, which is the major cause of deafness and damage to the tympanic membrane. Ultimately, these children suffer from delayed speech development, learning disabilities and behavioural disorders. Often, the disease remains asymptomatic and is easily missed, leading to the development of all potential complications.[4-6]

SOM is diagnosed clinically by pneumatic otoscopy and by impedance audiometry.[7] Main treatment option is the insertion of grommets after myringotomy. Adjuvant adenoidectomy can be done in cases with a significant nasal blockade.[8] However, simultaneous tympanostomy tube insertion with adenoidectomy has been more efficacious in treating SOM. It is recommended that grommets should be retained for at least a year to get better results and cure.[9] In the cases of resistant SOM, intratympanic injection of dexamethasone has been found much more efficacious than conventional medical management. This therapy is not only very effective but safe as well.[10]

The main aim was to detect the incidence of silent cases of SOM in patients presenting with adenoidal hypertrophy. Therefore, early therapy can be started to avoid all potential complications.

METHODOLOGY

The cross-sectional study was carried out at the ENT Department, CMH Multan Pakistan from January to May 2022. Permission from the Hospital Ethical Review Committee was obtained (Letter no20/2022). The sample size was calculated using the WHO sample size calculator, taking the reported prevalence of SOM was 6.8%.[11] Non-probability consecutive sampling technique was used.

Inclusion Criteria: Patients of either gender, aged 2.5 to 12 years presenting in the ENT Outpatient department having medium to large size adenoids with intact Tympanic membranes were included in the study.

Exclusion Criteria: Patients with complaints of recent ear discharges, perforated tympanic membranes and those with congenital hearing loss were excluded from the study.

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Cases included in this study were those who presented with symptoms of adenoidal hypertrophy without any active complaints of hearing loss and ear discharge. A plain digital x-ray nose for adenoids (nasopharynx) was carried out. Its size was graded into small (if it covered 25% of the nasopharynx), medium (if it covered 50%), and large (if it took more than 75% of the space of the nasopharynx).[12] Only cases with medium and large-sized adenoids were included in the study. In all these cases, impedance audiometry was done, and the finding of the Type B curve in the tympanogram was considered the final diagnosis of SOM. In all cases, otoscopy was done to rule out tympanic membrane perforation

RESULTS

Ninety-eight cases of medium and largesized adenoids were included in the study. 50(51%) patients were males, and 48(49%) cases were females. The mean age was 5.80±2.12 years. The maximum number of patients with adenoid hypertrophy was between 3-5 years, where pure tone audiometry (PTA) was impossible to perform. Therefore, PTA was only performed in patients aged six years and more. Nasal obstruction was seen in 64(65.3%) patients. Nasal obstruction with snoring was found in 24(24.5%) (Table-I).

Table-I: Clinical Features at the Time of Presentation (n=98)

Signs/symptoms	Frequency (%)
Nasal obstruction	64(65.3%)
Nasal obstruction with snoring	24(24.5%)
Epistaxis	10(10.2%)
Total	98(100%)

TM was Normal in 79(80.6%). It was Retracted in 12(12.2%). Tympanosclerosis was found in 5(5.1%). Air bubbles were seen in 2(2.1%) cases behind intact TM (Table-II).

Table-II: Type of Tympanic Membrane (n=98)

Type of tympanic membrane	Frequency (%)
Normal	79(80.6%)
Retracted	12(12.2%)
Tympanosclerosis	5(5.1%)
Air bubbles	2(2.1%)
Total	98(100%)

All patients underwent tympanometry. A type curve was seen in 78(79.6%). Unilateral B type curve was seen in 2(2%) cases. A b-Type bilateral curve is seen in 14(14.3%) cases. C-Type curve in 4(4.1%) patients. PTA could not be done 52(53.1%) as the age was less than six years. At rest, PTA was performed. PTA was normal in 32(32.7%) cases. Up to 25 decibels (dB) of hearing loss was seen in 6(6.1%) cases. In 8(8.2%) cases, hearing loss, was more than 25dB shown in Table-III.

Table-III: Audiometry Findings (n=98)

Audiometry findings	Frequency (%)
Normal	32(32.7%)
Upto 25 dB hearing loss	6(6.1%)
More than 25 dB hearing loss	8(8.2%)
Not performed	52(53.1%)

DISCUSSION

SOM is an important cause of hearing loss in young kids worldwide, which not only affect language development but also can cause behavioural issues. The early diagnosis of the disorder and subsequent treatment impact significantly by reducing the associated morbidity of the disease.

Nearly 13.5% of children suffer from SOM in age between 5 to 6 years in a study conducted by Saim *et al*.[13] in Malaysia. The diagnosis was based on the presence of a B-Type curve. As per our study, 16 percent had b type curve. Those kids who were bottle-fed during infancy and had higher socioeconomic status had a higher incidence of SOM.

SOM is a condition which commonly affects children. For example, it is one of the chief causes of deafness in the pediatric age group, which leads to different learning disabilities, e.g., delayed speech acquisition.[14] In a study by Sogebi *et al*., Nigeria found that 29.2% of children with adenoid hypertrophy had a co-morbidity of asymptomatic SOM.[15] This is consistent with our results, where we had either unilateral or bilateral SOM in cases of adenoid hypertrophy.

Another study by Dutta *et al*. proves that in the early stages, the disease is asymptomatic. If we diagnose the disease in this early stage, we can easily prevent disease progression by retraction pocket formation, which ultimately leads to cholesteatoma development.[16] Adenoids which come in touch with torus tubarius, are a significant cause of SOM, where adenoidectomy is useful.[17] Here in our study, we also select large adenoids that must be covering the torus tubarius.

In another study, Anwar *et al*. showed that the Type-B curve is very sensitive and specific in diagnosing SOM.[18] As per our study, we took the type B curve as a main diagnostic criterion in SOM. Persistent SOM may become the basis of longterm changes in the eardrums and tympanic cavities, causing some degree

of deafness.[19] The potential of SOM is to cause a series of consequences and complications, e.g., tympanosclerosis, adhesive otitis media, and speech and hearing impairment. This makes SOM a significant public health issue.[20]

CONCLUSION

It is worth evaluating adenoid hypertrophy for the presence of otitis media with effusion so that early intervention can be carried out for the patient's benefit to prevent lifelong disabilities.

Conflict of Interest: None

Author's Contribution

Following authors have made substantial contributions to the manuscript as under:

GH & MT: Data acquisition, data analysis, drafting the manuscript, critical review, approval of the final version to be published.

AB & SB: Conception, study design, approval of the final version to be published.

RA & HR: Data interpretation, critical review, approval of the final version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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