

ORIGINAL RESEARCH

Assessment of effects of adenoidectomy in cases of secretory otitis media in children

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ABSTRACT

Background: The commonest cause of hearing loss in children is secretory otitis media. The present study was conducted to assess the effects of adenoidectomy in cases of secretory otitis media in children.

Materials & Methods: 65 children age ranged 4-12 years with history of SOM of both genders were assessed for Otoscopic findings. Pure tone audiometry (PTA) was performed for assessment of hearing threshold in both ears.

Results: Out of 65 patients, boys were 35 and girls were 30. Common symptoms were nasal discharge in 53, nasal obstruction in 58, sore throat in 32, fullness of ear in 26 and hard of hearing in 46. Tympanic membrane appearance was retraction in 5, air bubbles in 15, dull, lustreless, amber coloured in 45. Hearing loss (dB) was 16-25 (minimal) in 40, 26-40 (mild) in 25. Impedance audiometry showed peak in 10 and no peak in 55. Morbidity was sinusitis in 6 and tonsillitis in 12. The difference was significant ($P < 0.05$). The mean AG gap pre-operatively was 24.6 dB, at 1 month was 10.9, at 3 months was 10.4 and at 6 months was 11.7. The difference was significant ($P < 0.05$).

Conclusion: Secretory otitis media is one of the common causes of hearing loss in children. Tympanic membrane appearance was retraction, air bubbles, dull, lustreless, amber coloured. Morbidity was sinusitis and tonsillitis.

Key words: Hearing loss, Children, Secretory otitis media

INTRODUCTION

Children with hearing loss of more than 30db are significantly retarded in vocabulary level and are placed below their normal grade in school.¹ The commonest cause of hearing loss in children is secretory otitis media which is commonly known as glue ear. The prevalence of secretory otitis media (SOM) has increased in last few years due to widespread but inadequate use of antibiotics for the treatment of acute otitis media.² It is the common reason for prescribing antibiotics and the most frequent reason that children undergo surgery. There are many challenges in the management of an otitis-prone child. Increasing antibiotic consumption has been shown to be related to the emerging phenomenon of antimicrobial resistance.³

Adenoidectomy is being increasingly used for the treatment of SOM. The removal of adenoids in children with SOM is necessary due to enlargement causing nasal obstruction and mouth breathing. The other classic rationale for removal is improvement in ET function.⁴

Screening for secretory otitis media may be done using various methods. The more widely used pure tone audiometry can easily identify the conductive hearing loss in secretory otitis media but it miserably fails in detecting the underlying cause.⁵The present study was conducted to assess the effects of adenoidectomy in cases of secretory otitis media in children.

MATERIALS & METHODS

The present study comprised of 65 children age ranged 4-12 years with history of SOM of both genders. Parents gave their written consent for the participation in the study.

Data such as name, age, gender etc. was recorded. A thorough ear, nose, throat and systemic examination were performed. Symptoms like nasal obstruction, snoring, nasal discharge, hard of hearing fullness in ear and sore throat were recorded. Otoscopic findings were recorded. Pure tone audiometry (PTA) was performed for assessment of hearing threshold in both ears. Hearing impairment was classified as per Clark's classification. Tympanometry was also done.

Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

RESULTS

Table I: Distribution of patients

Total- 65		
Gender	Boys	Girls
Number	35	30

Table I shows that out of 65 patients, boys were 35 and girls were 30.

Table II: Assessment of parameters

Parameters	Variables	Number	P value
Symptoms	Nasal discharge	53	0.05
	Nasal obstruction	58	
	Sore throat	32	
	Fullness of ear	26	
	Hard of hearing	46	
Tympanic membrane appearance	Retraction	5	0.02
	Air bubbles	15	
	Dull, lustreless, amber coloured	45	
Hearing loss (dB)	16-25(minimal)	40	0.01
	26-40(mild)	25	
	41-55(moderate)	0	
Impedance Audiometry	Peak	10	0.04
	No peak	55	
Morbidity	Sinusitis	6	0.03
	Tonsillitis	12	

Table II, graph I shows that common symptoms were nasal discharge in 53, nasal obstruction in 58, sore throat in 32, fullness of ear in 26 and hard of hearing in 46. Tympanic membrane appearance was retraction in 5, air bubbles in 15, dull, lustreless, amber coloured in 45. Hearing loss (dB) was 16-25 (minimal) in 40, 26-40 (mild) in 25. Impedance audiometry showed peak in 10 and no peak in 55. Morbidity was sinusitis in 6 and tonsillitis in 12. The difference was significant (P < 0.05).

Graph I: Assessment of parameters

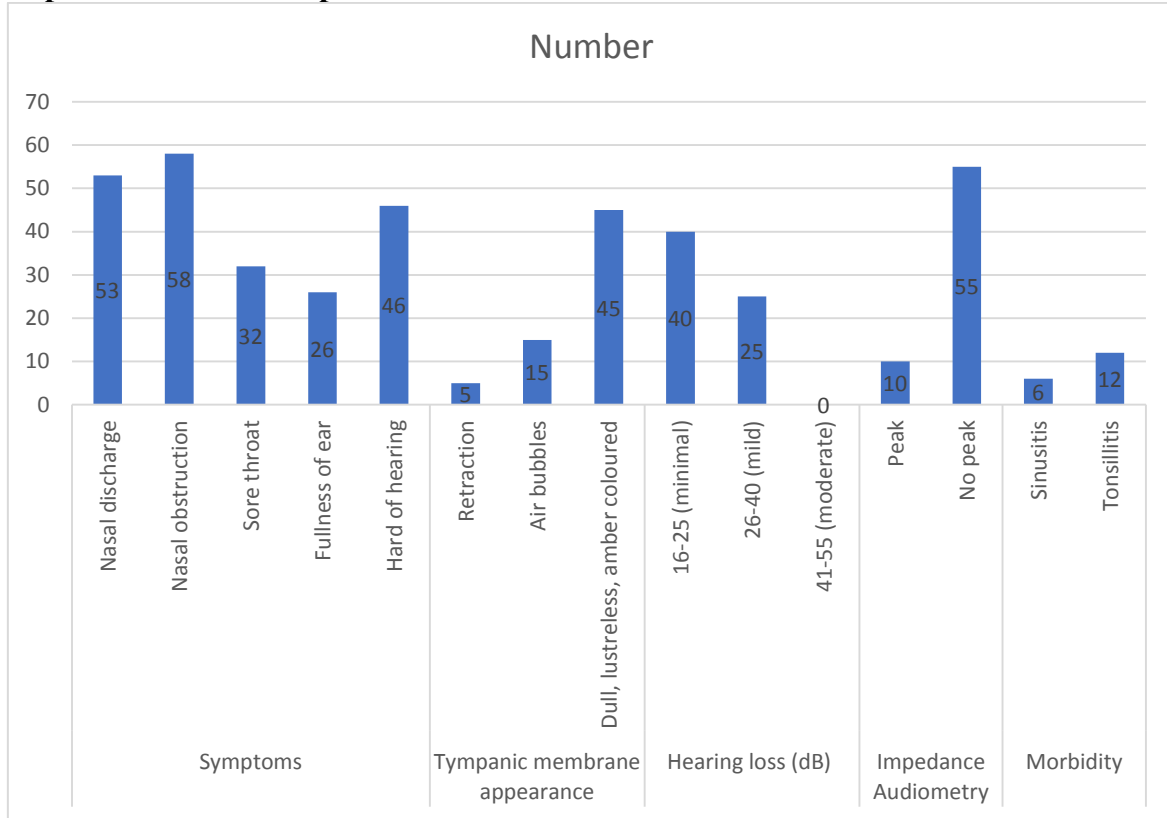


Table III: Assessment of AG gap

Time period	Mean (dB)	P value
Pre- operative	24.6	0.01
1 month	10.9	
3 months	10.4	
6 months	11.7	

Table III shows that mean AG gap pre- operatively was 24.6 dB, at 1 month was 10.9, at 3 months was 10.4 and at 6 months was 11.7. The difference was significant ($P < 0.05$).

DISCUSSION

Intact hearing is very essential for a healthy human being. The relation between hearing loss and the impairment in the cognitive, linguistic and emotional development of children has been well established.⁶ Even slight hearing loss, in the order of 10-15 db may be sufficient to impair speech and language acquisition in infants and young children and may lead to a generalized educational retardation.⁷ The hearing loss may be latent or overt with the child rarely complaining of it. Secretory otitis media (SOM) is one of the most common complaints in childhood.⁸ The present study was conducted to assess the effects of adenoidectomy in cases of secretory otitis media in school going children.

We found that out of 65 patients, boys were 35 and girls were 30. Nath et al⁹ assessed the effects of adenoidectomy in cases of secretory otitis media in 40 cases aged 5-12 years. The maximum number (50%) of cases belonged to 5-7 years age group, with slight male preponderance (55%) when compared to females (45%). All patients had nasal obstruction and snoring and 82.5% had nasal discharge. Hard of hearing was common symptom of ear seen in 67.5% of cases with fullness in 25%. Tonsillitis and sinusitis were seen in 37.5% and 17.5% respectively. On otoscopy, dull, lustreless and amber coloured TM was seen most commonly in 75%, retraction in 50% and air bubbles in 12.5%. On pure tone audiometry

60% had 16-25dB and 30% had 26-40 dB hearing loss and average being 23.95dB. On impedance only 10% had peak preoperatively. Postoperatively, no peak/peak conversion was seen in 41.25 % of cases and mean A-B gap improvement at 1st, 3rd and 6th month was 12dB, 12.2dB and 11.7dB respectively.

We found that common symptoms were nasal discharge in 53, nasal obstruction in 58, sore throat in 32, fullness of ear in 26 and hard of hearing in 46. Tympanic membrane appearance was retraction in 5, air bubbles in 15, dull, lustreless, amber coloured in 45. Hearing loss (dB) was 16-25 (minimal) in 40, 26-40 (mild) in 25. Impedance audiometry showed peak in 10 and no peak in 55. Morbidity was sinusitis in 6 and tonsillitis in 12. Yadav et al¹⁰ evaluated the prevalence of secretory otitis media in 200 school going children between the age group of 5-7 years. 100 children were taken from two different schools catering to higher and tower socio-economic strata of society. The overall prevalence of secretory otitis media came out to be 20.75%. It was 28.5% in lower socioeconomic group and, 13% in the other group. This high prevalence warrants routine screening for secretory otitis media.

We found that mean AG gap pre-operatively was 24.6 dB, at 1 month was 10.9, at 3 months was 10.4 and at 6 months was 11.7. Maw¹¹ randomly assigned 103 children from 2-12 years of age with bilateral OME to one of 3 groups: adenotonsillectomy (n=34), adenoidectomy (n=36) or neither (n=33). At surgery, one ear was randomly assigned to receive a tympanostomy tube. At 3, 6, 9 and 12 months, the clearance of effusion in unoperated ear was recorded. Myringotomy and aspiration of fluid in some studies has shown dry tap rate upto 34%. Relationships between nasopharyngeal dimensions and the presence of otitis media with effusion have been found. According to Renvall et al¹² stapedial reflex is considered too sensitive to be used as a screening test in the diagnosis of SOM.

The limitation the study is small sample size.

CONCLUSION

Authors found that secretory otitis media is one of the common causes of hearing loss in children. Tympanic membrane appearance was retraction, air bubbles, dull, lustreless, amber coloured. Morbidity was sinusitis and tonsillitis.

REFERENCES

1. Gates GA. Acute otitis media and otitis media with effusion. In. Cummings CW, Flint PW, Haughey BH, Robbins KT, Thomas JR, Harker LA, Richardson MA, Schuller DE editors. Pediatric Otolaryngology: Head and Neck Surgery, 4th ed, USA: Mosby; 2005: Pg. 4445-4468.
2. George Browning, Otitis media with effusion, Scott-Brown's Otolaryngology, 7th ed, Gleeson M. Great Britain, Arnold 2008: 3105-3125.
3. Reddy VG. Secretory otitis media. Indian journal of otology 1998; 4(4); 157-60.
4. Paradise et al. OM in 2253 Pittsburgh-area infants: Prevalence and risk factors during the first 2 years of life. Pediatrics 1997; 99: 318.
5. Fria TJ, Cantekin EI and Eichler JA. Hearing acuity of children with otitis media with effusion. Arch Otolaryngol 1985; 111 (1): 10-6.
6. Schilder AG et al. The otological profile of a cohort of Dutch 7.5-8 year olds. Clinical Otolaryngology, 1993; 18: 48-54.
7. Dempster JH et al. Tympanometry in detection of hearing impairments associated with OME. Clin Otolaryngol 1991; 16: 157-159.
8. Teele DW, Klein JO, Rosner B, Bratton L, Fisch GR, Mathieu OR, Porter PJ, Starobin SG, Tarlin LD and Younes RP. Middle ear disease and the practice of pediatrics. Burden during the first five years of life. JAMA. 1983; 249 (8): 1026-9.

9. Nath Majhi B, Kumar S. The effects of adenoidectomy in cases of secretory otitis media in school going children. *International Journal of Health and Clinical Research*, 2020;3(6):73-78.
10. Yadav SP, Saxena S, Sharma H, Singh I, Singh J. Secretory otitis media: A school health survey. *Indian Journal of Otolaryngology and Head and Neck Surgery*. 2006 Jul;58(3):250-2.
11. Maw AR et al. Lateral cephalometric analysis of children with OME: A comparison with age and sex matched controls. *J Laryngol Otol* 1991; 105: 71-77.
12. Renvall U, Holmquist J. Tympanometry revealing middle ear pathology. *Ann Otol Rhinol Laryngol* 1979; 88: 209-215.