



## Adenotonsillectomy Operation in Children is Effective to Improve Otitis Media with Effusion

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### Abstract

**Background:** OME usually present because of the associated hearing impairment, defective speech and sometimes with a preceding history of fever and otalgia consequent on an episode of acute otitis media. **Objective:** The aim of the study was to evaluate adenotonsillectomy operation in children is effective to improve otitis media with effusion. **Material & Methods:** This was a clinical study done in the otolaryngology department of medical college for women and hospital, Uttara, Dhaka from January 2003 to December 2005 for three years. Children with 4 to 15 years of age admitted with chronic tonsillitis and enlarged adenoid having otitis media with effusion were included in the study. Statistical analysis of the results was obtained by using window-based computer software devised with Statistical Packages for Social Sciences (SPSS-22). **Results:** All of these patients underwent adenotonsillectomy operation and were followed up for up to six months. The overall success rate of resolution of middle ear effusion was 81% at six months post operatively. **Conclusions:** Our findings demonstrated that adenotonsillectomy operation is effective for the treatment of persistent otitis media with effusion due to chronic tonsillitis with enlarged adenoid.

**Keywords:-** Adenoids; adenoidectomy; tonsillectomy, otitis media with effusion.

## INTRODUCTION

The prevalence of recurrent tonsillitis with enlarged adenoids, which causes otitis media with effusion (OME) peaks between the ages of 4 to 10 years. Enlarged adenoids in children cause otitis media with effusion. Half of all children with enlarged adenoid aged 3 to 5 years have at least one effusion per year, and between 28 and 38% of preschool children

experience a recurrence of OME.<sup>[1,2,3]</sup> Approximately 50% of effusions resolve spontaneously within 2 months, but 5% result in a bilateral conductive hearing loss that persists for at least 1 year, and that can cause subsequent language impairments and learning difficulties.<sup>[4,5,6,7]</sup> Others have reported spontaneous resolution at 2 to 3 years in 31% of patients with untreated OME.<sup>[2,8]</sup> Among the factors that can hinder the resolution of OME



are recurrent acute infection, atopic disease and enlarged adenoids.<sup>[1,6,9]</sup> Persistent OME (glue ear) is a common cause of hearing loss in children.<sup>[10]</sup> In the United Kingdom, five of every 1,000 children require surgery for this condition at an annual cost of 30 million pounds sterling.<sup>[11]</sup> In the United States the cost of such surgery reaches 2 billion US dollar per year.<sup>[11]</sup> Children with persistent bilateral OME are more likely to experience language impairments, which can lead to learning and behavioral problems. These problems can continue to affect the academic performance and development of these children well into the future.<sup>[12]</sup> There is controversy regarding the treatment of OME. Treatment options range from medical therapies to different types of surgical procedures. Although combination of antibiotics, decongestants and corticosteroids clear effusions, the recurrence rate is high once treatment is discontinued. Several surgical procedures reduce OME induced hearing loss but they do not always cure persistent bilateral effusion.<sup>[13]</sup>

In our study, we attempted to determine the effectiveness of adenotonsillectomy operation in a group of children with persistent otitis media with effusion who had failed medical treatment and who had no history of ear surgery.

## MATERIAL AND METHODS

This was a clinical study done in the otolaryngology department of medical college for women and hospital, Uttara, Dhaka from January 2003 to December 2005 for three years. Children with 4 to 15 years of age admitted with chronic tonsillitis and enlarged adenoid having otitis media with effusion were

included in the study. Cases with OME improved with medical treatment and patients had history of ear surgery were excluded from the study. Audiological tests were performed in all the cases. Diagnosis was confirmed from history, clinical examination and investigations. All the patients underwent adenotonsillectomy operations and were followed up for six months. The effect of adenotonsillectomy operations for the treatment of OME were observed and discussed in this study. Statistical analysis of the results was obtained by using window-based computer software devised with Statistical Packages for Social Sciences (SPSS-22).

## RESULTS

We studied 100 children aged 4 to 15 years, who had recurrent tonsillitis, enlarged adenoids, persistent bilateral middle ear effusion and bilateral conductive hearing loss of 2 to 12 months duration and a history of snoring at night.

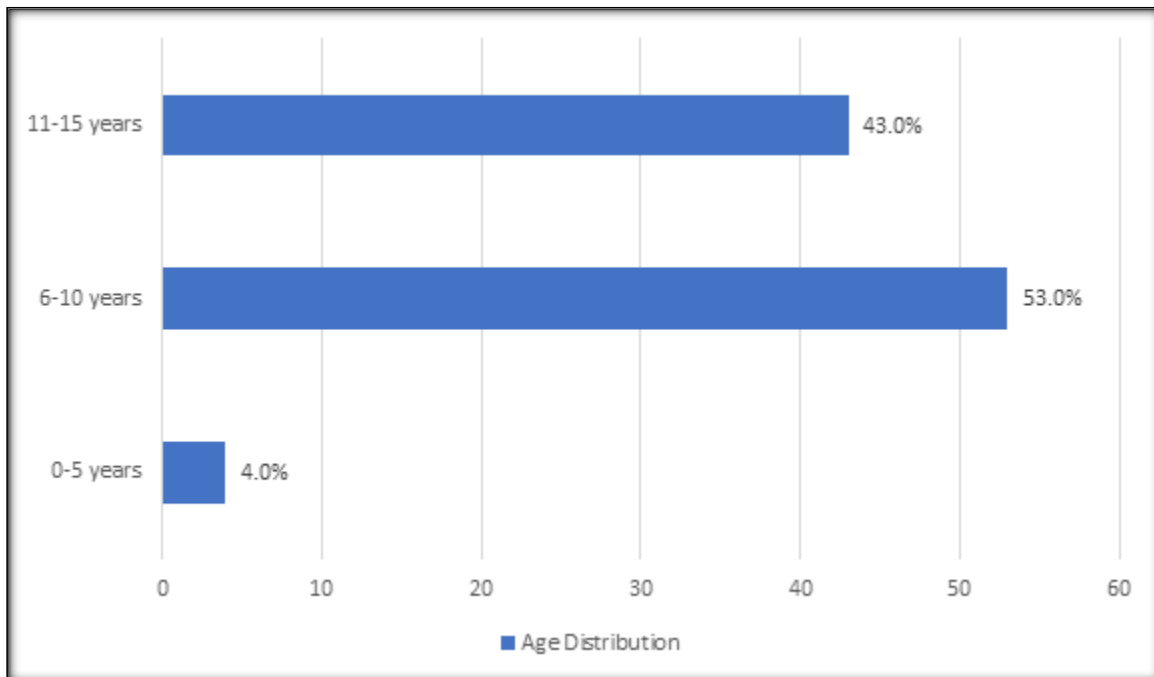
Patients were diagnosed and selected for surgery on the basis of their history, otoscopic examination, audiometry and tympanometry results, x-ray nasopharynx lateral view and their failure to respond to at least three months of medical treatment. Otoscopically the tympanic membrane was dull and immobile in all patients but four patient & in two of these patients, the tympanic membranes were difficult to see, and in the other two, the membranes were retracted, x-ray nasopharynx lateral view revealed that all patients had a narrowing of the nasopharyngeal airway as a result of an enlargement of the adenoids. Audiograms showed that there was significant

air-bone gap that are conductive hearing loss in all patients. Tympanograms were fiat type B in all patients [Figure 1].

All the patients underwent adenotonsillectomy under general anesthesia. Postoperative follow up were performed for up to six months post-operatively. Criteria for success included a subjective improvement in hearing; findings on otoscopic examination, and closure of the air-

bone gap within three months of surgery [Figure 2].

It was observed that 81 children out of 100 cases had improvement in their middle ear effusion & hearing loss. The rest 19 cases, 5 patients were lost from follow up and 12 cases were not improved and needed myringotomy operation.



**Figure 1:** Demonstrate and distribution of the study according to age.

**Table 1:** Distribution of clinical features of the study

Clinical Features	n=100	%
1. Recurrent tonsillitis with adenoid	100	100.0
2. Bilateral Middle Ear Effusion	100	100.0
3. Bilateral Conductive hearing loss	100	100.0
4. Snoring at Night	70	70.0

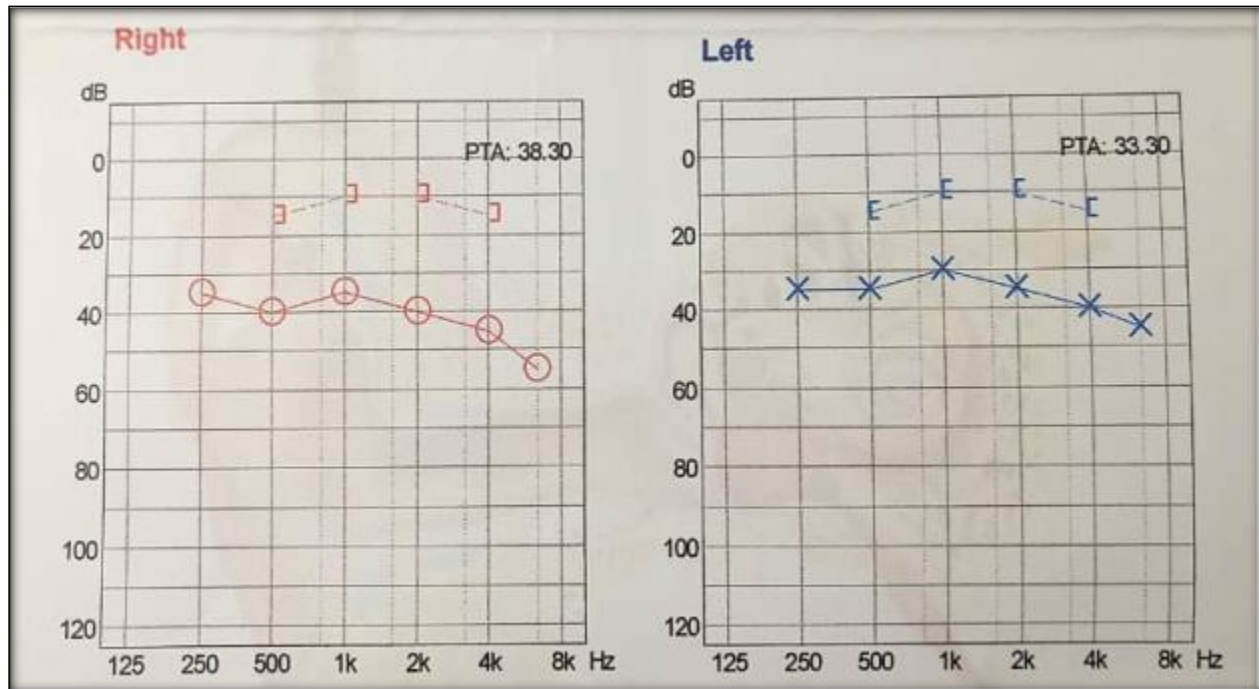


Figure 2: Pre-operative tympanogram of a patient showing type B curve.

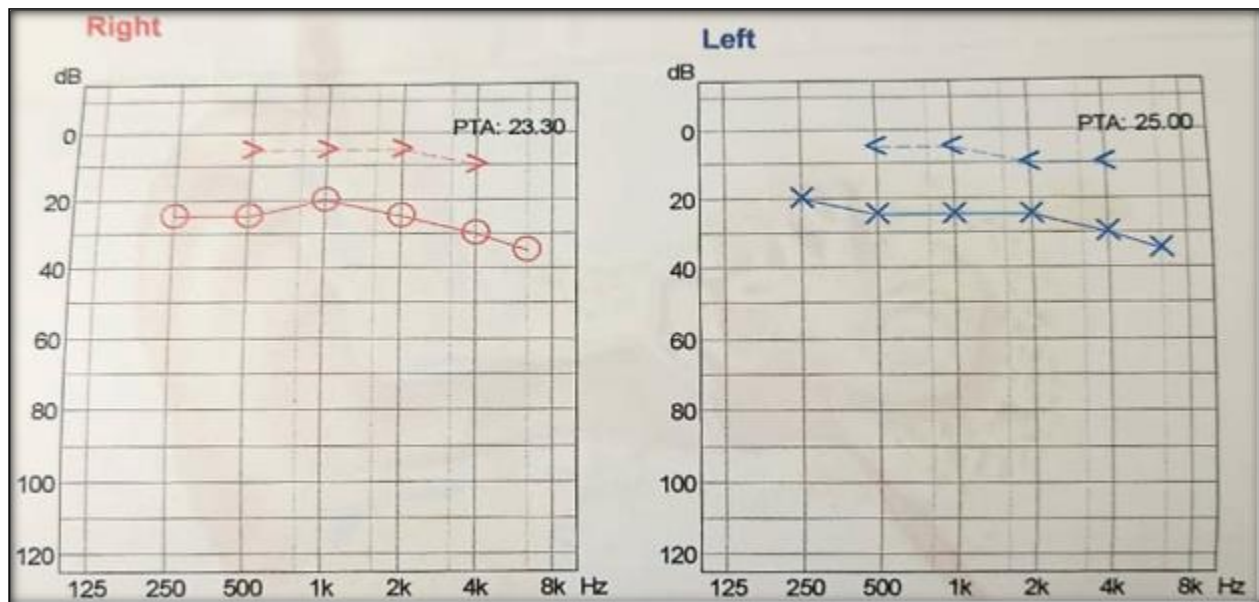


Figure 3: Post-operative impedance with improvement of OME.

## DISCUSSION

The removal of the adenoids is presumed to eliminate the mechanical obstructive effect and

or the source of nasopharyngeal infection. The failure of medical treatment to remedy chronic OME can probably be attributed to the

mechanical effect that the adenoids have on the Eustachian tube opening.<sup>[14,15]</sup> The simultaneous removal of the tonsils is considered to be a viable option when a patient with OME has concomitant recurrent tonsillitis. Our findings demonstrated that adenotonsillectomy is a useful surgical procedure for treating persistent otitis media with effusion. Our results are in accordance with those of other studies.<sup>[16,17,18]</sup> For example, Maw studied 103 children, aged 2 to 12 years who still had persistent bilateral OME after undergoing a 12-week course of antihistamine treatment. These children were randomly assigned to one of three groups: an adenoidectomy group, an adenotonsillectomy group, and a nonsurgical control group. During surgery, one ear was intubated while the other served as a further inpatient control ear to guess the degree of clearance and thus to help determine surgical success or failure. At 12 months of follow up, the combined success rate for the adenoidectomy and adenotonsillectomy groups was 71% compared with only 20% for the control group which had a highly significant difference. There was no statistically significant difference

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in success rates between the two surgical groups.

Another study of 48 children aged revealed that 2 to 14 years, who had persistent bilateral otitis media with effusion, enlarged adenoids and bilateral conductive hearing loss.<sup>[11]</sup> Half of these patients underwent adenoidectomy and the other half adenotonsillectomy. At six months post operatively, the overall success rate in terms of the resolution of middle ear effusion was 85%, in which 82.6% are in the adenoidectomy group and 87.5% are in the adenotonsillectomy group; the difference was not statistically significant.<sup>[19]</sup>

Our findings concluded that adenotonsillectomy operations are effective for the treatment of persistent otitis media with effusion in children with recurrent tonsillitis and enlarged adenoid.

## CONCLUSIONS

Our findings demonstrated that adenotonsillectomy operation is effective for the treatment of persistent otitis media with effusion due to chronic tonsillitis with enlarged adenoid.

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