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Management of Otitis Media with Effusion in Children Suffering from Allergic Rhinitis

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ABSTRACT

Otitis media with effusion is a pathological condition of the middle ear in which sterile effusion is presented behind the non perforated Tympanic Membrane. This prospective study was conducted during period from July 2007 to June 2011. One hundred and sixty children of age group between one to ten years were included in study. After starting the treatment for Allergic Rhinitis they were followed up at the intervals of 1, 2, 4, 12 weeks, 6 month and one year. Detailed ENT examination along with tunning fork tests, pure tone Audiometry and Tympanometry were performed on every visit. In suspected cases of having effusion we performed Myringotomy and Grommet insertion for confirmation of diagnosis and to resolve the effusion. We found that allergic rhinitis leading to upper respiratory tract infection was a prime factor as the cause for Otitis media with effusion. myringotomy and Grommet insertion causes aeration and drying of fluid.

INTRODUCTION

Normal hearing is very important for a healthy human being[1]. Even slight hearing loss of 10-15 dB may be sufficient to impair speech and language acquisition. More than 30 dB hearing loss in children may lead to educational retardation and poor development in vocabulary level[2]. The commonest cause of hearing loss in children is Otitis media with effusion[3] commonly known as glue ear.

Otitis media with effusion (also called serous otitis media or "Glue ear") encompasses one of the two categories of chronic otitis media. The other category includes chronic complications of otitis media, including persistent perforation of the tympanic membrane and chronic suppurative otitis media[4].

Otitis media with effusion (OME) is defined as the presence of middle-ear effusion (MEE) in the absence of acute signs of infection. OME most often arises following a recognized or unrecognized acute otitis media (AOM); less commonly, it may occur in association with eustachian tube obstruction without prior clinical infection. Because of the frequency of episodes of AOM during the first years of life, a young child may spend a significant proportion of those years with middle ear effusion and associated conductive hearing loss. Hearing impairment over prolonged periods of time during the first and formative years of life may affect development of speech and language [4].

OME, an accumulation of non purulent fluid in middle ear cleft[5] usually results from alteration of mucocilliary system. Its pathogenesis starts from Eustachian dysfunctions and development of negative middle ear pressure. The term, Glue Ear was introduced by Jordan (1949).

Commonest causes of Otitis media with effusion are hypertrophied adenoid[6,7,8] allergic rhinitis, recurrent infections in Adenoid and Tonsils. Rare causes are cleft Palate and Kartagners syndrome.

OME results from alteration of muco-cilliary clearance system. This condition remains undetected for long time, it damages middle ear contents but hearing loss may be delayed.. Many studies have been performed and proved the association of OME and other middle ear conditions to chronic Tonsillitis and Hypertrophy of Adenoids and

recurrent upper respiratory tract infections.

Tuning Fork tests, Pure tone Audiometery and Tympanometry are simple non invasive tests, making it reliable for diagnosis of OME.

MATERIAL AND METHODS

This prospective study was conducted during the period of July 2007 to June 2011. The patient selected were ranging age between 2 to 10 years. Children presented with complaints of sneezing, Rhinorrhoea , nasal obstruction were included in study.

Initially 250 patients were collected for the study but 90 patients could not visit properly in follow up period, so they were excluded from study.

160 patients remained in follow up for 1, 2, 4, 12 weeks, 6 month and one year follow up.

All the patients were evaluated for complete Ear, Nose and Throat examination. We looked for evidence OME clinically by the appearance of Tympanic Membrane, Tympanometery and Pure Tone Audiometry.

Only the type B Tympanogram was considered as diagnostic for OME in the study. All the children with intact Tympanic Membrane were included and there disease causing hearing loss as well as those with deflected nasal septum and recurrent infections in Adenoid and Tonsils or hypertrophied Adenoids were excluded from this study.

RESULTS

Initially 250 patients were collected from ENT and Pediatric OPD for this study and they were made to perform follow up at intervals of 1, 2, 4, 12 weeks, 6 month and one year. After the diagnosis of Allergic Rhinitis was established they were examined more keenly. Ninety patients were excluded due to poor follow up.

Diagnosis of OME was made of 56 patients out of these 160 patients. All of them were treated for Allergic Rhinits with the help of oral Anti Histamines, Antibiotics, topical steroids.

Eighteen patients out of 56 relieved their effusion. On the other hand 8 patients of other group who were not having any features of effusion before had developed OME, probably it was spontaneous remission.

The result obtained were compliant with the established appearance of Tympanic Membrane.

In diagnosed cases of OME there were variation in appearance of Tympanic Membrane like retracted Tympanic Membrane, dull appearance, opaque, oil drop, air bubble appearance.

All of these 46 patients underwent Myringotomy and Grommet insertion (Table 1).

Table 1: Surgical intervention of suspected Glu ear (n=46).

	No.	%
Bilateral negative fluid	5	3.12
Unilateral thin fluid	5	3.12
Bilateral thin fluid	29	18.2
Glue ear	7	4.37
Total otitis media with effusion	46	26.62

DISCUSSION

OME is common in children, as the age increases the prevalence of OME falls.

We performed this study to correlate the incidence of OME with Allergic Rhinitis. We did not take the study to find out treatment modalities of OME.

Antihistamines and decongestants have little effect on OME and are not recommended [9,10]. Two randomized, double-blind trials in 553 and 518 infants and children found that antihistamines plus decongestants did not improve the resolution of effusions [11,12]. These studies included patients with both unilateral and bilateral effusions. Those with unilateral effusions were more likely to resolve whether treatment or placebo was administered.

Patients receiving antihistamines and decongestants may have symptomatic improvement of nasal congestion but also may have more side effects than those receiving placebo. In addition, the use of antihistamines may prolong the duration of middle ear effusion[10,13].

Otolaryngologists should be consulted about children with recurrent and severe AOM or persistent OME, those who may require myringotomy and placement of ventilating tubes,

and those with structural abnormalities of the tympanic membrane or middle ear. The final decision regarding surgery should involve the ORL, parent(s) or caregiver(s), and the primary care provider.

The duration and laterality of the effusion. Results of hearing tests or tympanometry Child's history of AOM Whether the child has suspected or diagnosed speech and language problems, or any risks for hearing, language, or learning problems. Specific reason for referral (*e.g*, evaluation, surgery). The primary care clinician will usually be responsible for the follow-up care of the patient in consultation with the ENT specialist.

The most successful technique for ridding the middle ear of fluid, restoring the health of the middle-ear mucosa, improving hearing loss, and maintaining an air-filled middle-ear space is myringotomy and placement of tympanostomy tubes (also called ventilation tubes or grommets).

A systematic review evaluated the use of tympanostomy tubes for hearing loss associated with OME compared with myringotomy or nonsurgical treatment [14]. Although children who received tympanostomy tubes spent less time with effusion during the first postoperative year, improvements in hearing loss diminished over time, as illustrated below:

These results are inconsistent with the parental and clinical observation that the effects of tympanostomy tubes are beneficial and often dramatic, with a rapid increase in speech following insertion[14], as well as improvements in the quality of life for these children.

We carried out established technique of Myringotomy and Grommet (shepared) insertion. Operation was very helpful to detect and resolve otitis media with effusion.

Studies have already been performed on correlation between Tonsillitis[15-17] and Adenoiditis with OME. We also found that URTI was a prime feature as the cause of OME. Myringotomy and Grommet insertion is very good procedure. It ventilates the middle ear and ultimately dries the secretion and keeps normal hearing restoration.

It is better to go for surgery directly after confirmation of diagnosis and to follow up the patient at regular intervals.

Treatment for Allergic Rhinitis was continued even after performing Grommet insertion and Myringotomy. The most frequent long term complication of Grommet insertion is Tympanosclerosis.

CONCLUSION

Otitis media with effusion (OME) is defined as the presence of middle ear effusion (MEE) in the absence of acute signs and symptoms of infection. OME may arise after a recognized or unrecognized episode of acute otitis media. MEE is accompanied by conductive hearing loss (25 dB). Prolonged hearing impairment during the first years of life may affect development of speech and language.

Clinical signs of acute illness are, by definition, absent in patients with OME. Associated complaints may include sleep disturbance (most common), hearing loss.

The diagnosis of OME is usually made with pneumatic otoscopy that demonstrates reduced mobility or immobility of the tympanic membrane with positive pressure in the absence of acute signs of inflammation. Tympanometry and Pure tone Audiometry are adjunctive diagnostic tests

Hearing evaluation should be performed at the time of diagnosis of OME in children in whom language delay, learning problems, or a significant hearing loss is suspected. Hearing evaluation also should be performed in children without such problems in whom OME has persisted for at least three months.

The management of children with OME depends upon whether the child has structural damage to the tympanic membrane or middle ear or speech, language, or learning problems, and on the severity of the accompanying hearing loss.

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