

Management of Otitis Media with Effusion

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Objective: To evaluate the management of otitis media with effusion based on American Academy of Otolaryngology, clinical practice guidelines on otitis media with effusion.

Design: Prospective Clinical Study.

Setting: Professor Abdulaziz Ashoor ENT clinic.

Method: Forty-eight children with otitis media and effusion (OME) were seen in the clinic. Detailed history, clinical examinations, tympanograms with or without audiograms were taken before and after medical management. Children with upper respiratory infections (URI) were treated accordingly. The non-infected cases were treated conservatively with chewing gums, blowing balloons and observation for 3 months. Chronic cases were referred for surgery. Three children were referred for objective hearing evaluation (BERA).

Result: Between March 2007 – 2011, 29 males and 19 females with a mean age of 6 years were seen complaining of recurrent attacks of earache, URI, hearing difficulties and delayed speech. Their mean follow-up was 8.6 months. Thirty-eight had acute and 10 had chronic OME. The acute ones were having either bilateral type C, or type C, B, or type A's, B, or bilateral type B tympanograms. Among the chronic ones, 7 were having bilateral type B, 2 bilateral type C and one patient had one ear type B and the other ear type A.

After 3 months observation, the acute ones showed positive changes of their tympanograms and good to excellent hearing improvement. Five of the chronic ones were referred for surgery, 3 showed good hearing improvement and 2 did not show up for follow-up. We found a good correlation between hearing improvement and improvements in tympanograms.

Conclusion: The guidelines on the treatment of OME by the American Academy of Otolaryngology Head and Neck Surgery are safe, practical, less expensive, associated with less complications and have excellent outcomes. We recommend that these guidelines should be followed and should be available to the treating physicians in private and public health sectors.

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Otitis media with effusion (OME) is defined as the presence of middle ear effusion (MEE) in

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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. MEE is associated with conductive deafness and if it is prolonged it might lead to delayed speech and language¹.

The incidence of OME peaks during the age of two and is more prevalent in winter than summer².

Children with risk factors, such as family history of recurrent otitis media, bottle feeding, daycare center attendance, exposure to tobacco smoke and inherited abnormal middle ear and eustachian tube dysfunction are more prone to have OME^{3,4}.

Most new middle ear effusion (acute) were cleared spontaneously within 3 months; therefore, no need to support this natural process with antibiotic or other medications. In chronic cases longer than 3 months, if the hearing deteriorates or speech and language are affected, medication and surgery are indicated^{2,5}.

The aim of the study is to evaluate the management of otitis media with effusion based on the American Academy of Otolaryngology, Clinical practice guidelines on otitis media with effusion.

METHOD

Inclusion criteria: All patients who showed the signs and symptoms of OME were included in this study.

Forty-eight children diagnosed with otitis media and effusion were included in the study. Each patient had ENT examination, detailed history of ear infection, upper respiratory infection (URI), child hearing, speech and language development, performance in school and hearing difficulties in the family. A tympanogram with or without audiogram was taken at the beginning and during follow-up. Patients with URI were put on antihistamine, decongestant, mucolytic, nasal spray and observation. The non-infected ones were treated conservatively by chewing gum and/or balloon blowing, observation and were followed-up monthly for 3 months.

Thirty-nine (81%) patients were seeking second or third opinion. The chronic ones who did not recover spontaneously have been referred for ventilation tube insertion, bilateral or unilateral with or without adenoidectomy. Parents' observation notes and follow-up tympanograms were included in the final evaluation. Three children were referred for objective hearing evaluation and Brainstem Evoked Response Audiometry (BERA).

RESULT

During 4 years, from March 2007-March 2011, 48 children were seen in ENT clinic complaining of hearing difficulties, recurrent attacks of earache, delayed speech and URI. Males were 29 and 19 were females. The age ranged from 1-16 years, a mean of 6 years. Forty-two were Saudis and 6 were non-Saudis. Their follow-up ranged between 1-32 months, a mean of 8.6 months.

Thirty-eight had acute effusion and 10 had chronic OME. Possible etiologies were adenoids hypertrophy, recurrent upper respiratory infection (RURI), AOM, recurrent tonsillitis, sinusitis, nasal polyps, septal deviation, reflux and idiopathic.

The acute ones (38) were having their effusion within 3 months. All of them were having either bilateral type C or type C, B or type As, B or bilateral type B tympanograms. The ten chronic OME were as follow: 7 were bilateral type B, 2 were bilateral type C and one patient had one ear type B and the other ear type A. Five were referred for surgery of ventilation tube insertion with or without adenoidectomy, 2 did not show up for follow-up. The remaining 3 were showing good improvement.

Six patients in the acute group did not show up for follow-up. The remaining 32 patients showed positive changes in the tympanograms (type A and C) and excellent improvement of hearing.

DISCUSSION

Otitis media with effusion (OME) is the most common cause for hearing difficulty in early childhood, which might lead to hearing difficulties and consequently to language/speech delay^{1,5}. In the United States, ventilation tube insertion is the second most common surgical procedure in childhood after circumcision⁶. The management of OME is still not well established due to lack of evidence-based clinical practice guidelines. Due to the importance of the problem, the American Academy of Otolaryngology Head & Neck Surgery provided clinical practice guidelines on diagnosing and managing OME in children^{7,8}.

The majority of our patients developed acute attacks of OME post upper respiratory infection (URI) and/or acute otitis media (AOM). Diagnosis was made based on history and clinical examination and confirmed by Tympanometry^{9,10}. Patients who still have URI, sinusitis, AOM, or Adenotonsillitis were treated accordingly, otherwise they were put under observation for 3 months because most of the new middle ear effusions clear spontaneously within that period¹¹.

No evidence to support the immediate use of antibiotic for the diagnosis of a new OME. Besides that, no evidence of sustained benefit from oral or topical steroid, decongestants or antihistamine was found^{12,14}. Parents were advised to observe child's hearing, speech and language development. The child is advised to blow balloons and use chewing gum and to attend the follow-up monthly^{15,16}. The parents were advised to talk face to face with their children a bit louder to facilitate lip-reading as advised by Roberts et al⁵. We found a positive correlation between the hearing improvement and the improvement in tympanograms during the follow-up¹⁷. The chronic ears, which did not show recovery or improvement, and started to cause speech/language deterioration have been referred for ventilation tube insertion with or without adenoidectomy¹⁸.

Tympanostomy tube reduces the mean time with effusion by 31% over the next year and improves hearing particularly during the first 6 months after surgery. Despite these clear short-term benefits, the long-term effect of Tympanostomy tube in well children with mild hearing impairment (<30dB) on speech, language, cognition and school performance are disappointing¹⁹. The benefits of tubing need to be balanced against the risks, which include the risks associated with anesthesia, tympanosclerosis, persistent perforation and chronic ear discharge. Chronic perforation occurs in 2% of children after short-term tube insertion and up

to 17% of children with long-term tubes^{20,21}. To reduce recurrency and improve outcome, more emphasis should be given to environment control counseling (smoking, day care attendance and breastfeeding)²². Also pneumococcal vaccination has been shown to reduce the rates of otitis media and the need for tympanostomy tube insertion²³.

CONCLUSION

The guidelines on the treatment of OME given by the American Academy of Otolaryngology Head and Neck Surgery are safe, practical, less expensive, associated with less complications and have excellent outcomes.

We advise our colleagues in the private sectors not to rush to the surgical treatment, and to follow the American Academy guidelines.

Potential conflicts of interest: None.

Competing interest: None. **Sponsorship:** None.

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Ethical approval: Approved by the clinic's local ethical committee.

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