CONSERVATIVE AND SURGICAL MANAGEMENT OF OTITIS MEDIA WITH EFFUSION IN PEDIATRIC POPULATION

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ABSTRACT

OBJECTIVES: The study was aimed to compare results of medical and surgical treatment of otitis media with effusion in terms of hearing improvement, determine recurrence of MEE and decide when to offer surgical treatment.

STUDY DESIGN: A descriptive study.

PLACE AND DURATION: The study was conducted from June 2008 to December 2011 in ENT department of Khyber Teaching Hospital, Peshawar.

METHODOLOGY: Sixty seven patients were selected for study. Every child with difficulty in hearing was examined with pneumatic otoscope for fluid level and tympanic membrane mobility. These children were investigated with tympanometry to confirm the middle ear effusion and pure tone audiometry for hearing threshold. X-Ray nasopharynx lateral view was performed to confirm the mass of adenoids. All of the patients were treated conservatively in the first phase. Those cases not responding to conservative treatment were treated with myringotomy and or adenoidectomy with and without ventilation tubes. Patients were followed for recurrence of MEE for 36 months.

RESULTS: Conservative treatment was tried in all patients. Middle ear effusion cleared in 71.5% (n.86) out of 120 ears. MEE showed no improvement in 28.5% (n. 34) ears. The failure was much less with ventilation tubes (5.0%). The hearing level improved by 10 to 15 dB with ventilation tubes.

KEYWORDS: Otitis media with effusion, myringotomy, adenoids, rhinosinusitis, tympanometry

INTRODUCTION

Otitis media is infection of middle ear space, behind tympanic membrane. It is characterized by pain, dizziness and partial hearing loss. OME is the accumulation of fluid in middle ear with intact tympanic membrane, without signs of acute inflammation. The middle ear fluid causes hearing loss in children. The hearing loss results in delayed speech development, learning difficulty and poor performance in school. Fifty percent of ears with MEE resolve spontaneously within 3 months and only 5% persist for more than 12 months. Any condition that interferes with mucociliary function of middle ear may predispose to development of middle ear effusion. Acute otitis media (AOM) may result in persistence of middle ear fluid, resulting in deafness, tinnitus and delayed speech development. Enlarged adenoids, adenoiditis or allergic rhinitis, which interferes with the proper functioning of the mucociliary system of the upper respiratory tract, may lead to otitis media with effusion.

METHODOLOGY

The study was prospective in nature and patients were randomly selected. It was conducted from June 2008 to December 2011. Initially eighty five patients were selected. Eighteen patients dropped out as they did not come for follow up and 67 children with 120 ears affected were included in the study. Children of 2 to 12 years were recruited. Patients presenting with hearing difficulty for more than 3 months were included. Every child having hearing difficulty was examined with pneumatic otoscope for MEE and tympanic membrane mobility. These children were investigated with tympanometry to confirm the middle ear effusion and pure tone audiometry for hearing threshold. X-Ray nasopharynx lateral view was performed to confirm the mass of adenoids. All of the patients were treated conservatively in the first phase. Those cases not responding to conservative treatment were treated with myringotomy and or adenoidectomy with and without ventilation tubes. Patients were followed for recurrence of MEE for 36 months.

RESULTS: Conservative treatment was tried in all patients. Middle ear effusion cleared in 71.5% (n.86) out of 120 ears. MEE showed no improvement in 28.5% (n. 34) ears. The failure was much less with ventilation tubes (5.0%). The hearing level improved by 10 to 15 dB with ventilation tubes.

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in 19 (28.4%) children having recurrent sore throat or nasal obstruction. The most common sign was dull appearance of tympanic membrane found in 97 ears (81%). The restricted mobility of TM was in 60 ears (50%). Fluid level was noticed in 24 (20%) ears. Thirty four (51.5%) patients had enlarged adenoids and 15 (22.3) of these patients had also recurrent tonsillitis. Posterior nasal drip alone or along with mucus in nasal fossae was found in 41 patients (61%). Ten (14.9%) patients presented with symptoms of allergic rhinitis. Skin test was positive for allergy in 7 (8.5%) patients. Pure tone audiometry showed conductive hearing loss in 59 (49.5%) ears. It varied from 20 dB to 40 dB. Mixed hearing loss was noted in 10 ears (8.3%), with conductive element of about 20 dB. Tympanometry showed type B curve in 75 (62.5%) ears, curve was absent in 32 (26.5%) ears and type A curve in 13 (11%) ears. We used medical treatment as first line of strategy in all patients of OME. Hearing improved in 86 (71.5%) out of 120 ears. Otitis media with effusion cleared in 71 (59%) and 34 (28.5%) ears with Otitis media is a common disease in young children. Otitis media with OME. Hearing improved in 86 (71.5%) out of 120 ears. We carried out adenoidectomy and tonsillectomy to relieve recurrent infection and adenoid mass to resolve persistent ear obstruction. The most common sign was dull appearance of tympanic membrane found in 97 ears (81%). The restricted mobility of TM was in 60 ears (50%). Fluid level was noticed in 24 (20%) ears. Thirty four (51.5%) patients had enlarged adenoids and 15 (22.3) of these patients had also recurrent tonsillitis. Posterior nasal drip alone or along with mucus in nasal fossae was found in 41 patients (61%). Ten (14.9%) patients presented with symptoms of allergic rhinitis. Skin test was positive for allergy in 7 (8.5%) patients. Pure tone audiometry showed conductive hearing loss in 59 (49.5%) ears. It varied from 20 dB to 40 dB. Mixed hearing loss was noted in 10 ears (8.3%), with conductive element of about 20 dB. Tympanometry showed type B curve in 75 (62.5%) ears, curve was absent in 32 (26.5%) ears and type A curve in 13 (11%) ears. We used medical treatment as first line of strategy in all patients of OME. Hearing improved in 86 (71.5%) out of 120 ears. Otitis media with effusion cleared in 71 (59%) and 34 (28.5%) ears with OME had no improvement of hearing and MEE. (Table – I) Middle ear effusion cleared in 71 (59%) and 34 (28.5%) ears with Otitis media is a common disease in young children. Otitis media with OME. Hearing improved in 86 (71.5%) out of 120 ears. Otitis media with effusion cleared in 71 (59%) and 34 (28.5%) ears with OME had no improvement of hearing and MEE. (Table – I) Following the medical treatment there was improvement in hearing in 100 ears (83.3%). No improvement was noted in 25 ears (20%), which smoothened and faded in 4 to 6 months. It varied from 20 dB to 40 dB. 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We performed antral wash out in 4 patients with sinusitis, not responding to medical treatment. Antral wash out was combined with myringotomy and VT in 5 ears. Thus ventilation tubes were put in total of 40 ears. PTA showed improvement of 10 to 15 dB in children above 5 years. We assessed hearing improvement by the patients' response and audiometry in children above 5 years. Patients having myringotomy for OME had recurrence of MEE after 3 months, 6 months and 12 months in 4, 3 and 2 ears respectively. Medical treatment relieved MEE in 5 ears and VT were put in 4 ears, raising the total ears with VT to 44. MEE recurred in 6 years with VT after 4 to 6 months when tubes were blocked with secretions, which were treated with topical betnesol ear drops and suction of debris in ear. MEE recurred in 8 ears (18%) after 12 months; 4 ears improved with medical treatment and 3 ears required reinserterion of VT. Otorrhea occurred in 7 (16%) ears with VT that was treated conservatively. one ear developed persistent dry perforation. Prominent scar developed in 4 (9%) ears, which smoothened and faded in 4 to 6 months. Tympanosclerosis was noted in 3 (7%) ears in our study.

DISCUSSION

Otitis media is a common disease in young children. Otitis media with effusion is a major cause of partial hearing loss in children and 20% of children older than two years may develop persistent middle ear effusion that is four weeks or more. Eustachian tube dysfunction is a leading cause of otitis media with effusion. Enlarged adenoids and adenoiditis are the major cause of eustachian tube dysfunction. Cleft palate also lead to eustachian tube dysfunction. In this study the most common predisposing factors found were enlarged adenoids followed by rhinosinusitis. In one study, 43% of 166 children who underwent myringotomy and VT insertion had radiographic evidence of maxillary sinusitis. Another study shows that controlling sinus infection, either medically or with surgical intervention, usually improves eustachian tube function and otitis media. We found that nasal allergy is also an important factor in causing otitis media with effusion. One study showed that children with AOM may result in persistence of middle ear fluid and OME. The major complaint was difficulty in hearing noted by parents and teachers in majority of patients. The common sign was dull tympanic membrane. Tympanometry showed type B curve as the common finding. Pure tone audiometry was performed showing conduct-hearing loss of 20 dB to 40 dB. X-Ray nasopharynx showed increased soft tissue mass of adenoids. We used medical treatment in all patients of otitis media with effusion (OME). We used local nasal decongestants, sympathomimetics and steroids, mucolytics and antibiotics. The procedure of auto inflation with valasva manure and balloon inflation was tried in older children but results could not be well documented because of poor compliance. Antihistamines were used in children with allergic disease and persistent rhinorhea. Medical treatment is economical and also free of risks and complications of surgical options. Children with otitis media with effusion had a period of watchful waiting before surgical treatment. We did not describe oral steroids in the medical management. Patients receiving oral mucolytics benefited two times more often by reverting to normal tympanogram. Topical intranasal steroids alone or in combination with an antibiotic resulted in quick resolution of OME in the short term but there is no evidence of long term benefit. Medical treatment relieved MEE in 70% of patients, though the relief was short term and the recurrence is high (75%) but still the patients had 60 to 90 days of fluid free ears and improved hearing. We carried out adenoidectomy and tonsillectomy to relieve recurrent infection and adenoid mass to resolve persistent ear effusion in children. Candidates for surgery included children with persistent or recurrent hearing loss and MEE. Though, some studies recommend surgery as first line of treatment in children with OME for 4 months, in older children with hearing level of 25 dB and in children at risk e.g. Children in...
day care, in camps or in large poor families. Laser myringotomy could be a quick and safe alternative to VT in OME but we had no facility. Recurrence was noted more common with myringotomy alone than with ventilation tubes. The mean hearing level improved with ventilation tubes by 10–15 dB after first 3 months. We used topical ciprofloxacin, ofloxacine, and ciprofloxacin/dexamethasone in 3 ears with complicated otorrhea. Tymanosclerosis was noted in 2 ears with ventilation tubes. One ear with persistent perforation after extrusion of VT was treated by cigarette paper method. Patients were followed as 30 days interval for 12 to 36 months. Treatment effect was assessed by the duration without effusion, improvement in hearing loss, time of first recurrence of fluid after medical treatment and time of recurrence of MEE after surgical treatment.

CONCLUSION
OME is mostly neglected rather ignored in primary health care. It results in deafness, delayed speech development, poor learning in school in young children. It may result in adhesive otitis. All children with OME should be treated conservatively as it is cost effective and relieves MEE in 70% of patients, though the recurrence is high. The ears with OME that fails to resolve or recur should be managed with adenoidectomy and myringotomy with or without VT insertion.

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REFERENCES