Basrah Journal of Surgery

Bas J Surg, March, 9, 2003

OTITIS MEDIA WITH EFFUSION IN CONGENITAL NASOLACRIMAL DUCT OBSTRUCTION

Mohd AL-Hashki [*] Mousa Al-Madani[@] Suhair Al-Hurani[#]

[*] MD, [@] MD, [#] SN, Department of Ophthalmology, King Hussein Medical Centre, Amman; JORDAN.

Summary

Forty three patients with congenital nasolacrimal duct obstruction were examined by an E.N.T. specialist in Prince Ali Hospital for presence or absence of otitis media with effusion to investigate the association, if any, between otitis media with effusion and congenital nasolacrimal duct obstruction along with its impact on prognosis. Otitis media with effusion were detected in 17 patients (39.5%). A favourable response to treatment was less likely in the presence of otitis media with effusion. It is concluded that otitis media with effusion has significant association with congenital nasolacrimal duct obstruction and affects its response to medical treatment unfavourably.

Introduction

Chronic otitis media with effusion (OME) has been observed in 10 to 20% of children following acute, symptomatic otitis media[1]. Predictors for chronic OME were bilateral OME; duration of effusion for greater than two weeks of enrollment and day care attendance[1].

On the other hand, congenital nasolacrimal duct obstruction (CNLDO) is the most common abnormality of the lacrimal system in childhood. Abnormality in the normal embryological development of the lacrimal system may be responsible for the clinical disease. Being common treatable conditions in childhood, we investigated the association between otitis media with effusion and congenital nasolacrimal duct obstruction and its effect on prognosis.

Correspondence to:
Dr. Mohd Al-Hashki
Department of Ophthalmplogy, King Hussein Medical Centre, Amman; JORDAN.

Patients and Methods

Between October 2001 and April 2002, 43 consecutive patients with congenital nasolacrimal duct obstruction were referred to an ENT specialist in Prince Ali Hospital to rule out presence of otitis media with effusion by an otoscopic examination and tympanometry in cooperative patients. Tympanometric screening was conducted using an Interacustic Impedence Audiometer. Tympanograms were classified as normal or type A (pressures between 0

and -100mm H_2O), type B (flat with –400 mmHg pressure) which was consistent with middle ear effusion, or type C (negative middle ear pressure of 100-400 mm H2O). Type A and C were considered a "pass" and type B was considered a "fail"[2], so patients with type B tympangorams were considered to have otitis media with effusion (OME).

The treatment policy was massage for all children less than one year of age and the use of antibiotics if necessary. Children older than one year of age were probed under general anesthesia after four weeks of unsuccessful medical treatment. All patients were reevaluated after six weeks.

Results

Otitis media with effusion (OME) was seen in 17 patients (39.5%) and bilateral in 12 patients (27.9% of the total number of patients). Response to treatment was better in patients without otitis media, 19 patients (73.1%) showed improvement with medial treatment. On the other had 5 patients (29.4%) showed improvement in the presence of otitis media with effusion.

Discussion

Congenital nasolacrimal duct obstruction is a physiological phenomena that can be cured with high success rate by medical treatment especially in children less than one year of age. Congenital nasolacrimal duct obstruction is usually the result of failure of canalization of the distal end of the nasolacrimal duct. The most common outcome is spontaneous resolution, but some children require surgical treatment by probing[3]. Both OME and CNLDO may be considered as physiological abnormalities up to a certain age and at least 80% of patients with CNLDO can be cured by conservative management up to the age of 12-13 months[4]. The real problem lies in identifying the other 20% who will need further treatment[4]. OME has been reported to occur in about 80% of all children at sometime from birth to three years of age[5]. The primary cause of effusion is eustachian tube dysfunction. It is generally accepted that the development of the tubotympanium has a significant bearing on the susceptibility to ear infection. The critical period of tubal insufficiency extends from birth to about seven years of age.

Kitajiri et al. suggest that the greatest development in the mid cartilaginous and pharyngeal portions of the eustachian tube may be related to growth of the anterior part of the face, including the maxilla[6]. Patients with OME have been shown to have a deviated facial pattern in the craniofacial skeleton. This pattern is described as cessation in displacement of the nasomaxillary complex[7]. Vertical vector of nasomaxillary growth is a major feature of human facial development[8]. Anatomical abnormalities in the tubal structures may result in functional tubal obstruction[7]. Arrest of the craniofacial growth of the nasomaxillary region may lead to an incomplete nasolacrimal canal or a bony obstruction between the nasolacrimal canal and the inferior meatus. Since both OME and CNLDO have multifactorial aetiological factors, such as superimposed infections and genetic predisposition, a direct relationship between them may not appear clearly in all cases.

The success rate of treatment is age dependent. In our study there were seventeen patients less than one year of age of whom twelve were cured by medical treatment (70.6%). On the other hand, twelve patients of the twenty six patients older than one year of age (46.2%) were cured by medical treatment. In a study done by JA Katwitz and MG Welsh[4], the success rate of initial probing was found to be 97%

under 13 months of age and 54.7% over 13 months. Another study done by LR Nelson et al[9], one hundred and seven patients out of one hundred and thirteen (94.7%) were cured with local massage and topical antibiotics.

Our preliminary study shows a negative correlation between the response to medical treatment and probing and the presence of OME in patients with CNLDO. This finding may be important for identifying patients who will need more complicated treatment for CNLDO.

References

1. Daly K, Giebink GS, Le CT, et al. Determining risk for chronic otitis media with effusion. Pediatr Infect Dis J 1988; 7: 471-5.
2. Jerger J. Clinical experience with impedance audiometry. Arch Otolaryngology 1970; 92: 311-24.
3. Ma Ewen CJ, Young JDH, Barras CW, Ram B, White PS. Vlaue of nasal endoscopy and probing in the diagnosis and management of children with congenital epiphora. Br J Ophthalmol 2001; 85: 314-18.
4. Katowitz JA, Welsh MG. Timing of initial probing and irrigation in congenital nasolacrimal duct obstruction. Ophthalmology 1987; 94: 698-705.
5. Teele DW, Klein JO, Rosner B. Epidemiology of oitits media during the first seven years of life in children in greater Boston: A prospective cohort study. J Infect Dis 1989; 160: 83-94.
6. Kitajiri M, Sando I, Takahara T. Postnatal development of the eustachian tube and its surrounding structures. Ann Otorhinol Laryngol 1987; 96: 191-98.
7. Kemalogu YK, Gksu N, zbilen S, et al. Otitis media with effusion and craniofacial analysis. II: 'Mastoid-middle ear-eustachian tube system' in children with secretory otitis media. Int J Pediatr Otorhinolaryngol 1995; 32: 69-76.
8. Enlow DH. Facial growth. Philadelphia: WB Saunders, 1990.
9. Nelson LR, Cahown JH, Menduke H. Medical management of congenital nasolacrimal duct obstruction. Ophthalmology 1985; 92: 1187-90.