

Effectiveness of Myringotomy in Serous Otitis Media

Muhammad Iqbal,^{*} Noor Alam Ansari^{**}

ABSTRACT

Objective: To evaluate the importance of Myringotomy for aeration of Middle ear to Prevent hearing loss in school going children.

Study Design: Observational.

Place & Duration: Department of Otorhinolaryngology and Head & Neck Surgery Peoples Medical College Hospital Nawabshah, during March 2007 to Feb 2009.

Material & Methods: This study include 100 patients suffering from chronic, secretary otitis media, patients aged 5 years to 13 years were included. History examination & hearing tests were performed in all the patients. Pure tone audiometry & tympanometry was done pre and post operatively in all the patients.

Result: Total of 100 patients were operated 70% were Male. Majority of patients 62% were between 5 to 8 years of age. Average age was 7 years. Distribution was done area wise and on economic status, 64% were related to poor class 28% middle class & only 8% belongs to upper class. In this study majority of the patients 60% had chronic, secretary otitis media with thin serous fluid and 40% with thick glue like effusion. In 60% of patients satisfactory results were obtained. Hearing was very much improved according to PTA results post operatively. Regarding complications recurrence was seen in 40% of cases while 15% had scar (Keloid), 10% infection, 8% perforation, 4% sclerosis, 3% bleeding.

Conclusion: We conclude that myringotomy should be the preferred surgical option of otitis media with effusion.

Key word: Hearing loss, Serous otitis media, Myringotomy.

INTRODUCTION:

Otitis media with effusion is one of the commonest cause of hearing loss in Children. It is a condition known by variety of synonyms in the literature i.e Chronic Secretary Otitis Media, Middle Ear Catarrh and Glue Ear^{1,2}.

The exact aetiolsy of the disease is not known. It results from changes in the

Mucocilliary system within the middle ear cleft where serous and mucoid fluid accumulate in association with negative pressure³. This negative pressure is due to malfunction of eustachion tube. Otitismedia with effusion is characterized by mild to moderate hearing loss. Infants and younger children are not able to perceive it, they do not complain of any hearing problem In such children, the disease manifest it self as speech, language or hearing delay⁴. If the disease remains undiagnosed or not treated it manifest into hearing impairment, delay in effective speech and language development. Mild form of otitis media with effusion resolve spontaneously and these cases require close observation^{5,6}. Some patients require medical treatment, special education facilities and

* Assistant Professor,
ENT Department, PUMHS Nawabshah.
** Professor & Chairman
ENT Department, PUMHS Nawabshah.

Correspondence to:

Dr. Muhammad Iqbal
Assistant Professor,
ENT Department, PUMHS Nawabshah.
Cell: 0333-2910768

individual attention at home, in class room and school. If disease becomes chronic and bilateral, then surgical treatment is the main stay of treatment^{7,8}. This study presents our experience regarding surgical treatment of chronic secretory otitis media in children at PMC Hospital Nawabshah.

To evaluate the importance of Myringotomy for aeration of middle ear, to prevent hearing loss in school going children, to improve the hearing in cases of serous otitis media.

MATERIAL & METHODS:

This study includes 100 patients suffering from chronic / secretory otitis media who did not respond conservative treatment, and were managed surgically in the department of Otorhinolaryngology and Head and Neck surgery, Peoples Medical College Hospital Nawabshah during the period of March 2007 to Feb 2009. All these 100 cases were suffering from bilateral otitis media with effusion except two patients who had chronic suppurative otitis media in one ear and otitis media with effusion in other ear. Patients were properly evaluated, after taking history and the thorough clinical examination with special attention to examination of ear, nose throat and, nasopharynx. Clinical tests for hearing were performed including voice tests, audiometry tests and tuning fork tests depending upon the age of the patient.

Siegal speculum was used for the assessment of tympanic membrane & mobility and its magnified views. Pure tone audiometry for patients more than five years of age and tympanometry for most of the patient were done. Radiological and laboratory investigations based on clinical finding were done in most of the cases. All these patients were educated to do ventilatory exercise like Valsalva maneuver. Post operative PTA & tympanometry was done after one month of surgery to evaluate the improvement in the hearing.

RESULTS:

Our study showed a total 100 patients who were operated for myringotomy. Seventy were male while 30 were female (Table1) majority of the patients were between 5 to 8 years and average age was 7 years (Table2). The area wise distribution was done as shown in (Table3). The maximum number of patients 36 were from Nawabshah followed by 14, from Sanghar and 10 from Khairpur. The remaining patients were from other areas of Sindh province. All patients who were included in our study were divided into three different groups on the basis of economical status of patient parents monthly income. Majority of the patients, 64% were from poor class 28% middle class and 8% were from upper class (Table 4). The most common aetiological factor was idiopathic 42 patients & 32 patients were having the history of upper respiratory tract infection & 16 patients with the history of lower respiratory tract infection and 10 patients were suffering from nasal allergy (Table 5).

PTA before surgery showed mild to moderate hearing loss. The tympanometry showed types-C graph in all the patients indicating fluid in middle ear. After surgery PTA results were evaluated after one month 100% recovery was shown on PTA post operatively. Impedance audiometry showed A-type graph in all 100% cases 60% of patients were having thin effusion and 40% were having very thick effusion (Table 6). Regarding complications the most common one was recurrence which was observed in 40% of cases followed by scar (Keloid) formation (Table-7).

Table 1
Sex wise Distribution

Sex of Patient	No of Patient	Percentage
Male	70	70
Female	30	30

Table 2
Age wise Distribution

Age of Patient	No of Patient	Percentage
1 to 4 years	10	10
5 to 8 years	62	62
9 to 10 years	20	20
11 to 13 years	8	8
Total	100	100

Table 3
Area wise distribution

Name of Area	No. of Patient	Percentage
Nawabshah	36	36
Sanghar	14	14
Khairpur	10	10
Nosheroferoz	8	8
Moro	6	6
Tando Adam	6	6
Khipro	4	4
Sakrand	4	4
Shahdadpur	4	4
Qazi Ahmed	2	2
Khado	2	2
Sinjhor	2	2
Shahpur Chakar	2	2

Table 4
Social-E Status

Socio Economic	No. of Cases	Percentage
Lower Class	64	64
Middle Class	28	28
Upper Class	8	8

Table 5
Aetiological Causes

Problem aetiology	No. of Patient	Percentage
Idiopathic	42	42
Upper Respiratory Infection	32	32
Lower Respiratory Infection	16	16
Nasal Allergy	10	10

Table 6
Type of effusion

Type of effusion	No. of Patients	Percentage
Serous	60	60
Very thick	40	40

Table 7
Complications

Complication	Percentage
Recurrence	40
Scar (Keloid)	15
Infection	10
Perforation	8
Sclerosis	4
Bleeding	3

DISCUSSION:

Secretory otitis media is one of the common disease in the child hood. If the condition is not treated properly or neglected then the language and speech development and education of the child is affected⁹. One of the main difficulty in secretory otitis media is that the symptoms are very few in many patients, the only presenting symptom is mild hearing loss. This hearing loss will not be complained by young children. So this disease can easily be missed by the doctors. The other difficulty in secretory otitis media is that most of the cases resolve spontaneously and the hearing loss will be mild and fluctuant and therefore missed^{10,11}.

The gender distribution of the disease is different in various centers of the world. In our study the male patients were predominant, this difference may be due to many reason. In our set up, due to decrease literacy rate in society, patients give more importance to male child in comparison to female child. Older male children can visit the hospital and consult doctors by themselves while female observe paradah and so can not avail such facilities. The other cause of male dominance may be that male children are exposed more to upper respiratory tract infection than the female children as they remain out of home most of the time. The majority of patients in our study were from Nawabshah, Sanghar, Khairpur districts while from other areas the cases were less. The reason may be the peoples of these areas are educated and have more awareness about their disease as well as the health facility in these area are more sophisticated due to the availability of teaching hospital.

Majority of our patients were from poor class family, and of 5 to 8 years of age. The average age was 7 years. Blue stone 1990 reported that middle ear effusion is more common in children 1-5 years of age than in children age 7 years and above¹². In our society parents and even doctors are unaware of this disease they do not give proper attention to this problem and this is the main reason that age for management of this disease in our study is higher. The other reason is the non availability of the qualified doctors in this field in the rural areas. The aetiology is still controversial, many predisposing factors have been identified which leads to development of otitis media

with effusion. In our study majority of patients were having no evident cause followed by upper respiratory tract infection followed by lower respiratory tract infection and nasal allergy as an etiological factor. In some patients more than one aetiological factors were involved in the pathogenesis of chronic secretory otitis media but in many cases no aetiological factor could be found. So no single aetiological factor can be blamed for the aetiology of middle ear effusion¹³. Recommended treatment options are conservative, myringotomy, and grommet. In our study only myringotomy was done no grommet was inserted and the post operative results obtained were excellent and comparable with other study¹³.

CONCLUSION:

It is concluded from the results that the myringotomy is most successful method of treatment for serous otitis media where the fluid in the middle ear is thin and serous in nature.

REFERENCES:

01. A Richard Maw. Otitis media with effusion. In scott brown otolaryngology paediatric volume 6th edition by David A. Adams, Butter Worth London. 1997;1-16.
02. Wallace IF, Berkman ND, Lohr KN, Harrison MF, Kimple AJ, Steiner MJ. Surgical treatments for otitis media with effusion: a systematic review. *Pediatrics*. 2014;133(2):296-311.
03. Yue V, chi Tai, Tong M, van Hasselt CA. Screeing for otitis media with effusion in Chinese school children. *Rev Laryngol Otol Rhinol (Bord)*. 1997;118(3):151-3.
04. Miura M, Takahashi H, Honjo I, Hasebe S, Tanabe M. Influence of the upper respiratory tract infection on tubal compliance in children with otitis media with effusion. *Acta Otolaryngol*. 1997;117:574-7.
05. Scadding GK, Martin JAM, Alles RS, Hawk LJ, Darby Y. Allergy and otitis media with effusion in children. *Litter British Medial Journal*. 1993;28(5):591-6.

06. Lack G, Caulfield H, Penagos M. The link between otitis media with effusion and allergy: a potential role for intranasal corticosteroids. *Pediatric Allergy Immunol.* 2011;22:258-66.
07. MRC Multicentre Otitis Media Study Group. Adjuvant adenoidectomy in persistent bilateral otitis media with effusion: hearing and revision surgery outcomes through 2 years in the TARGET randomized trial. *Clin Otolaryngol.* 2012;37(2):107-16.
08. Kiroglu MM, Ozibgin K, Aydogan B, Kiroglu F. Tap- Adenoids and otitis media with effusion a morphological study. *Ann Otolaryngol.* 1988;19(4):244-50.
09. Jero J, Karma P. Bacteriological findings and persistence of middle ear effusion in otitis media with effusion. *Acta Otolaryngol.* 1997;529:22-6.
10. Terris MH, Magit AE, Davidson TM. Otitis media with effusion in infants and children. Primary care concern addressed from an otolaryngologist; *Perspective Post Graduate Med.* 1995;(1):137-88, 413-44.
11. Kaueko Y, Takasaka T, Sakuma M, Kambayashi J, Okitsu T. Middle ear inflammation as a treatment for secretory otitis media in children. *Acta Otolaryngol (Stockh).* 1997;117(14):564-8.
12. Bluestone CD; Klein Jo; otitis Media in infants and children. 2nd ed, Philadelphia, WB Saunder Co, 1994.
13. Mandel EM, Rockette HE, Bluestone C, Paradise JL, Nozza RJ. Efficacy of myringotomy with and without tympanotomy tubes for chronic otitis media with effusion. *Paediatr Infect Dis J.* 1992;11(4):270-7.