

## Grommet in Otitis Media with Effusion

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## ABSTRACT

**Objective:** Importance of Grommet in otitis media with effusion to improve the hearing in children.

**Study Design:** Observational.

**Place & Duration:** Department of Otorhinolaryngology and Head, Neck Surgery Peoples University of Medical & Health Sciences, Hospital Nawabshah during June 2011 to July 2013.

**Material & Methods:** This study includes 100 patients suffering from chronic otitis media with effusion. Patients aging 5 years to 13 years were included. History, examination, and hearing test were performed in all patients pure tone audiometry and tympanometry was done pre and post operatively in all the patients.

**Results:** Total 100 patients were operated 75% were male, majority of patients 60% were between 5 to 8 years of age. Average age was 7 years, distribution was done area wise and on economic status 60% belongs to poor class 30% middle class and 10% belong to upper class. In this study majority of the patients 60% had chronic otitis media with thick effusion and 40% with thin fluid. In 65% of patient satisfactory result obtained, hearing was very much improved according to PTA result post operatively.

**Complication:** Recurrence was seen in 35% cases. While 12% develop keloid, 9% infection, 8% perforation, 3% sclerosis & 3% bleeding.

**Conclusion:** We conclude that Grommet should be the preferred surgical option in chronic otitis media with effusion of thick fluid.

**Key words:** Otitis media with effusion, Grommet, Hearing loss.

## INTRODUCTION

Otitis media with effusion is one of the commonest cause of hearing loss in children. It is a condition known by variety of synonym in the literature i-e chronic secretory otitis media, middle ear catarrh and glue ear<sup>1,2</sup>.

The exact aetiology of the disease is not

known. It results from changes in the mucocilliary system within the middle ear cleft where serous and mucoid fluid accumulates in association with negative pressure<sup>3</sup>. This negative pressure is due to malfunction of eustachion tube. The otitis media with effusion is characterized by mild to moderate hearing loss. Infants and younger children miss it. They do not complain of any hearing problem in such children, the disease manifest it self as speech, language or hearing delay<sup>4</sup>.

If the disease remains undiagnosed or not treated it results into hearing impairment defective speech and language development. Mild form of otitis media with effusion resolve spontaneously and these cases require close observation<sup>5,6</sup>. Some patients require medical treatment, special education facilities and individual attention at Home, in class room & school. If disease becomes chronic & bilateral, then surgical treatment is the main stay of treatment<sup>7,8</sup>.

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This study presents our experience regarding surgical treatment of chronic otitis media with effusion in children at PMC Hospital Nawabshah. The importance of Grommet in otitis media with effusion to improve the hearing in children.

### MATERIAL & METHODS:

The current study includes 100 patients suffering from chronic otitis media with effusion who were managed in the department of otorhinolaryngology and Head, Neck Surgery Peoples University of Medical and Health Sciences, Hospital Nawabshah, during the period of June 2011 to July 2013. All the patients were properly evaluated, after taking history and the thorough clinical examination with special attention to examination of ear, nose and throat, nasopharynx. Clinical tests for hearing were performed including voice tests, audiometry tests & tuning fork tests depending upon the age of the patient.

Siegel speculum was used for the assessment of tympanic membrane & mobility and its magnified views. Pure tone audiometry for patient more than five years of age and tympanometry for most of the patient were done. Radiological and laboratory investigations based on clinical findings were done for most of the cases. All these patients were told to do ventilatory exercise like Valsalva maneuver. 100 patients who did not respond conservative treatment were selected for myringotomy Post operative PTA & tympanometry was done after one month of surgery for the evaluation of improvement in the hearing loss. Those who improved with conservative treatment or those who dropped out from follow up were excluded from the study. 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.

### RESULTS:

Our study showed a total 100 patients who were operated for Grommet. 75 were male while 25 were female (table1) majority of the patients were between 5 to 8 years of age average age was 7 years (table2). The district wise distribution was

done as shown in (table3). The maximum numbers of patients 40 were from Nawabshah followed by 15 from Sanghar & 9 from Khairpur. The remaining patients were from other areas of Sindh province. All patients who were included in our study were divided into three groups on the basis of patient's monthly income. Majority of patients, 60% were from poor class 30% middle class and 10% were from upper class (table 4).

Most common aetiological factor among 42 patients was having the history of upper respiratory tract infection, 30% patients having history of lower respiratory tract infection and in 16% patients no aetiological factor identified & 10% was suffering from nasal allergy (table-5).

PTA before surgery showed mild to moderate hearing loss. The tympanometry showed type-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 thick effusion and 40% were having very thin effusion (table-6).

Regarding complication the most common was recurrence which was observed in 12% of cases followed by scar keloid formation (table-7).

**Table-1.** Sex wise distribution

Sex of Patient	No. of Patient	Percentage
Male	75	75%
Female	25	25%

**Table-2.** Age wise distribution

Age of Patients	No. of Patient	Percentage
1 to 4 years	08	8%
5 to 8 years	60	60%
9 to 10 years	22	22%
11 to 13 years	10	10%
Total	100	100

**Table-3.** Area Wise Distribution

Name of Area / Dist	No. of Patient	Percentage
Sanghar	15	15%
Nawabshah	10	10%
Khairpur	9	9%
Noshehroferoz	8	8%
Moro	6	6%
Qazi Ahmed	5	5%
Sakrand	4	4%
Shahdadpur	4	4%
Tando Adam	3	3%
Khadro	2	2%
Sinjhor	2	2%
Shahpur Chakar	1	1%
Khipro	1	1%

**Table-4.** Socio Economic Status

Socio Economic	No. of Cases	Percentage
Lower Class	60	60%
Middle Class	30	30%
Upper Class	10	10%

**Table-5.** Aetiological Causes

Aetiology	No. of Cases	%
Upper respiratory infection	42	42
Lower respiratory infection	32	32
Idiopathic	16	16
Nasal Allergy	10	10

**Table-6.** Type of Effusion

Type of Effusion	No. of Patient	Percentage
Thick	60	60%
Thin	40	40%

**Table-7.** Complication

Complication	Percentage
Recurrence	35%
Scar (Keloid)	12%
Infection	9%
Perforation	8%
Sclerosis	3%
Bleeding	3%

**DISCUSSION:**

Otitis media with effusion is one of the common diseases 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 affected<sup>9</sup>. One of the main difficulties 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 others 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<sup>10,11</sup>. When disease may become chronic with constant hearing loss of mild to moderate degree<sup>7</sup>.

The sex wise 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 reasons. In our set up, due to decrease literacy rate in our society, parents give more importance to male child in contrary to female child. Older male children can visit the hospital and consult doctors by themselves while female observe pardah 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 the home for more of the time. The majority of patients in our study were from of Nawabshah, Sanghar, Khairpur districts, from rest of the 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. In our country majority of the population is poor. Most of the patients were of younger age group i.e 5 to 8 years. 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 above<sup>12</sup>. 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 the common aetiological factor was upper respiratory tract infection followed by lower respiratory tract infection, idiopathic and nasal allergy. In some patients more than one aetiological factor were involved in the pathogenesis of chronic otitis media with effusion but in many cases no aetiological factor could be found. So no single aetiological factor can be blamed for the aetiology of middle ear effusion. All recommended treatment options are conservative, myringotomy & Grommet. In our study only Grommet was done. Results obtained were excellent and comparable with other study<sup>13</sup>.

### CONCLUSION:

It is concluded from the results that the Grommet is most successful method of treatment for otitis media with effusion of thick fluid.

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