

ORIGINAL RESEARCH**A comparison of grommet insertion compared with topical intranasal steroids in otitis media with effusion patients****¹Dr Sarvesh Bisaria, ²Dr Aishwarya Bisaria, Dr Bharat Sharma³**¹Senior Specialist, ²MBBS, M G Hospital Banswara, Rajasthan, India³MBBSIntern, NIMSMedical College Jaipur, Rajasthan, India**Correspondence:**

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Abstract

Background:Otitis media with effusion (OME) or glue ear is very common in children, especially between the age of 1 and 3 years. The present study was conducted to assess the effectiveness of grommet insertion compared with topical intranasal steroids in otitis media with effusion patients.

Materials & Methods:58 patients of otitis media with effusion of both genders were classified into 2 groups of 29 each. Group I patients 1 spray (50 microgram of mometasone furoate in each spray) for 4 weeks and group II patients underwent surgical myringotomy with grommet insertion. Clinical symptoms, mean duration of disease and hearing loss was recorded.

Results: Group I had 14 males and 15 females and group II had 12 males and 17 females. Fullness of ear was seen in 45% in group I and 62% in group II, otalgia in 55% in group I and 48% in group II and hearing impairment in 26% in group I and 25% in group II. The difference was non- significant ($P > 0.05$). Patients in group I and group II showed improvement in 62% and 75%, complications in 14% and 5% and failure rate in 17% and 6% respectively. The difference was significant ($P < 0.05$).

Conclusion: Grommet insertion compared with topical intranasal steroids in otitis media with effusion patients found to be superior.

Key words: Grommet insertion, otitis media, intranasal steroids

Introduction

Otitis media with effusion (OME) or glue ear is very common in children, especially between the age of 1 and 3 years with the prevalence of 10%–30% and a cumulative incidence of 80% at the age of 4 years but always shows incidence in various age groups.¹ OME is defined as middle ear effusion without signs or symptoms of an acute infection; OME is the chronic accumulation of mucus within the middle ear and sometimes the mastoid air cell system.²

The pathology is thought to be initiated by inflammatory and immune reactions against rhinopharyngeal infections.³ The inflammation leads to cytokine production and the secretion of an exudate rich in protein and inflammatory mediators.⁴ The associated vasodilatation is responsible for increased gaseous exchanges in the middle ear, which induces an endotympanic pressure drop. This pressure drop affects a cavity whose walls are fixed, with the exception of the tympanic membrane.⁵ Since the pars flaccida is the most fragile area (given its lack of a fibrous layer), retraction most frequently starts at this site. If the pressure drop is not corrected, tympanic atelectasis progresses at the expense of the pars tensa, and may lead to complete atelectasis of the tympanic membrane. Medical management includes topical intranasal steroids by mometasone furoate.⁶ The present study was conducted to assess

the effectiveness of grommet insertion compared with topical intranasal steroids in otitis media with effusion patients.

Materials & Methods

The present study comprised of 58 patients of otitis media with effusion of both genders. The consent was obtained from all enrolled patients.

Data such as name, age, gender etc. was recorded. A thorough clinical examination was carried. Patients were classified into 2 groups of 29 each. Group I patients 1 spray (50 microgram of mometasone furoate in each spray) for 4 weeks and group II patients underwent surgical myringotomy with grommet insertion. Clinical symptoms, mean duration of disease and hearing loss was recorded. Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

Results

Table I Distribution of patients

Groups	Group I	Group II
Method	Intranasal steroid	myringotomy with grommet insertion
M:F	14:15	12:17

Table I shows that group I had 14 males and 15 females and group II had 12 males and 17 females.

Table II Assessment of clinical features

Clinical symptoms	Group I	Group II	P value
Fullness of ear	45%	62%	0.82
Otalgia	55%	48%	
hearing impairment	26%	25%	

Table II, graph I shows that fullness of ear was seen in 45% in group I and 62% in group II, otalgia in 55% in group I and 48% in group II and hearing impairment in 26% in group I and 25% in group II. The difference was non-significant (P> 0.05).

Graph I Assessment of clinical features

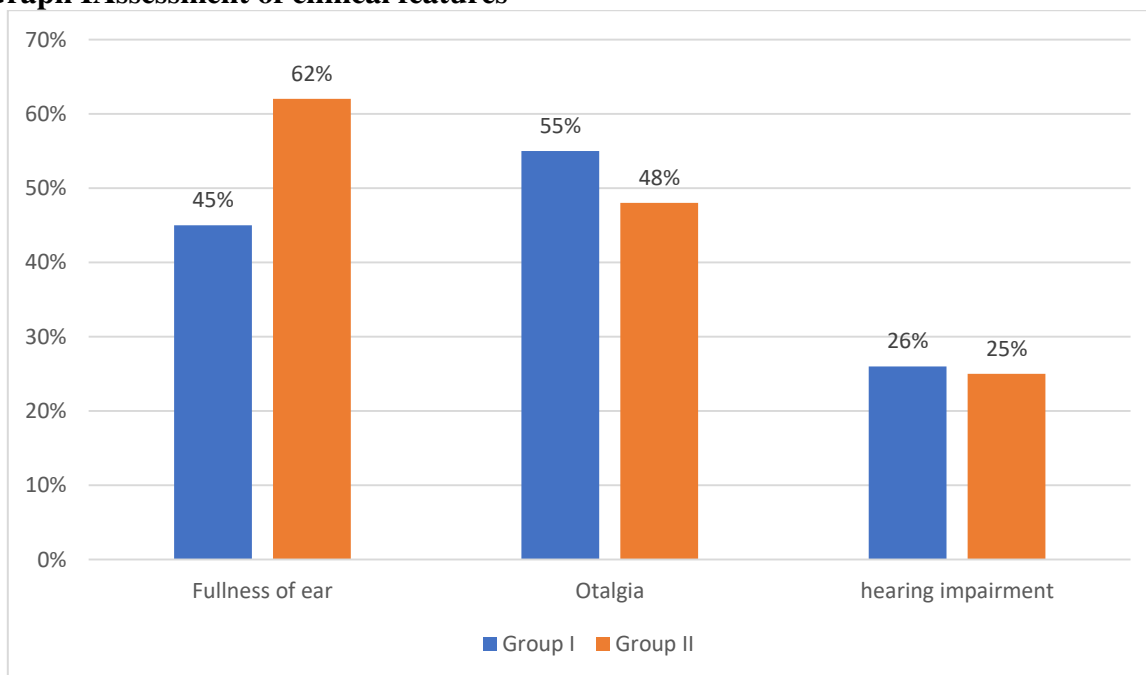
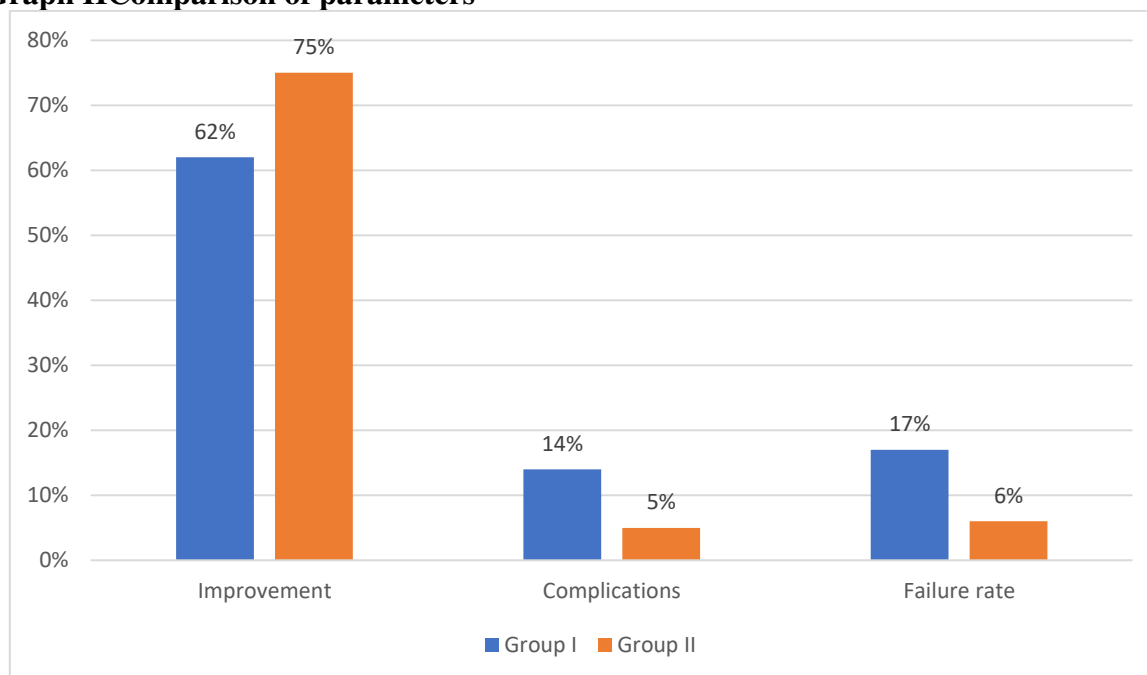


Table III Comparison of parameters

Parameters	Group I	Group II	P value
Improvement	62%	75%	0.05
Complications	14%	5%	0.02
Failure rate	17%	6%	0.01

Table III, graph I shows that in group I and group II showed improvement in 62% and 75%, complications in 14% and 5% and failure rate in 17% and 6% respectively. The difference was significant ($P < 0.05$).

Graph II Comparison of parameters

Discussion

Otitis media with effusion (OME) is a frequent paediatric disorder. The condition is often asymptomatic, and so can easily be missed.⁷ However, OME can lead to hearing loss that impairs the child's language and behavioural development. The diagnosis is essentially clinical, and is based on otoscopy and (in some cases) tympanometry.⁸ About 80% of the children suffered from this disease by the age of 10 with the highest prevalence at ages of 2 and 5. OME exhibits non-purulent middle ear effusion with the absence of acute infection typical for AOM appearing as middle ear inflammation, including fever and otalgia.⁹ It has been postulated that the Eustachian tube short length, horizontal position, and reduced rigidity in the paediatric population may permit the reflux of naso- and oropharyngeal microbes into the middle ear cavity, explaining the higher incidence of OME in children compared to adults.¹⁰ Bacterial involvement in OME has been widely reported, with various available methods to identify pathogens from middle ear effusion, including traditional culture methods and polymerase chain reaction (PCR).^{11,12} The present study was conducted to assess the effectiveness of grommet insertion compared with topical intranasal steroids in otitis media with effusion patients.

We found that group I had 14 males and 15 females and group II had 12 males and 17 females. Chavan et al¹³ in their study comparison of medical and surgical management were done. Medical management include topical intranasal steroids by Mometasonefuorate. The recommended dose for treatment of the nasal symptoms is 1 spray (50 microgram of mometasone furoate in each spray). Recommended duration of spray is 2 to 4 weeks and the

stated achievement of effect of spray is approximately 1 to 2 weeks. Surgical management include myringotomy with grommet insertion. Generally, myringotomy is performed in conjunction with the insertion of a polyethylene tube called as grommet. Infants and small children are best managed by performing this procedure under a general anesthetic. In older children and adults, local anesthetic can be used as a single block in posterior canal wall so as it block Arnold's nerve. Cases of children 10 (47.62%) patients shows improvement and 17 (48.57%) adult patient shows improvement having minimal difference. Similarly, failure of treatment in children is 1 (4.76%) complications in 2 (9.52%) and in adult patients 0 (0%) complication in 2 (5.71%) it was not showing significant differences. p value was not significant and showing that the differences in value was not having any level of significance in same group. It is concluded that topical nasal steroids are not so effective as surgical drainage of exudative material (myringotomy).

We observed that fullness of ear was seen in 45% in group I and 62% in group II, otalgia in 55% in group I and 48% in group II and hearing impairment in 26% in group I and 25% in group II. Korona-Glowniak et al¹⁴ evaluated the bacteriological profile of middle ear effusion in OME. Risk factors of the bacterial OME aetiology were also identified. Middle ear effusions (MEF) from 50 children, aged 2–8 years, diagnosed by ENT and undergoing routine tympanostomy tube placement were collected. MEF samples were streaked on standard microbiological media. Next, DNA was isolated from MEF samples and analysed with multiplex PCR for *Streptococcus pneumoniae*, *Haemophilus influenzae*, *Moraxella catarrhalis* and *Alloiococcus otitidis*. In multiplex PCR assay 37 (74%) of 50 children were positive for at least one of the four microorganisms. In 27.0% positive children multiple bacterial pathogens were identified. *A. otitidis* was the most frequently identified in positive MEF children (59.5%). By multiplex PCR, *H. influenzae*, *S. pneumoniae* and *M. catarrhalis* were detected in 24, 18 and 8% of OME patients, respectively. There was significant association between bilateral infection and *H. influenzae* aetiology of OME.

Conclusion

Authors found that Grommet insertion compared with topical intranasal steroids in otitis media with effusion patients found to be superior.

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