

# Otitis Media with Effusion Plain Myringotomy versus Myringotomy with Grommet Insertion

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## Abstract

**Introduction:** Otitis media with effusion is one of the most common causes of conductive deafness. Thorough assessment leading to the diagnosis is imperative for good treatment options. Various modalities have been tried for the same with mixed outcome.

**Aim:** The aim of present study is to compare the two of the commonest surgical procedures performed for the treatment of the condition.

**Materials and Methods:** Retrospective study based on the analysis of the records of 72 patients presenting to the outpatient department of KBN Institute of Medical Sciences, Gulbarga, Karnataka, India, between January 2015 and August 2015. All the patients had been subjected to the tuning fork tests, pure tone audiometry and tympanometry and conclusively diagnosed with otitis media with effusion.

**Result:** The results were assessed on the basis of subjective improvement in symptoms and closure of A-B gap on pure tone audiograms.

**Conclusion:** Otitis media with effusion has long been known to be one of the leading causes of conductive deafness in the population especially the pediatric group.

**Key words:** Audiometry, Deafness, Effusion, Myringotomy, Tympanotomy

## INTRODUCTION

Acute suppurative otitis media is defined as the acute inflammation of the mucoperiosteum of the middle ear cleft. The pathology arising in the Eustachian tube and spreading on to the middle ear cavity.<sup>1,2</sup> The causative organisms are believed to be *Staphylococcus aureus*, Streptococci, *Haemophilus Influenza*, Moraxella. The course of the disease begins with the stage of Eustachian Catarrh where pain and deafness are the predominating symptoms and examination of the tympanic membrane reveals retraction and congestion.<sup>3-5</sup>

The second stage is the presuppurative stage characterized by collection of fluid in the middle ear cavity which initially

is sterile, but becomes a good source for the growth of bacteria, eventually leading to the stage of suppuration that is characterized by the presence of pus which eventually gets extruded in the external auditory canal presenting as discharge as a result of the rupture of the tympanic membrane. Eventually, the disease goes into remission following antibiotic treatment or by nature of the hosts immunity. In certain instances, this does not happen leading to the persistence of collection in the middle ear which is sterile as a result of long-standing usage of antibiotics. The primary source of all these events is the Eustachian tube infection. Children who frequently complain of repeated ear pain and discharge not responding to regular line of treatment often are investigated for adenoidal hypertrophy, by radiological examinations or diagnostic nasal endoscopy, which if enlarged needs surgery to relieve the chronic Eustachian tube obstruction.<sup>6-9</sup>

The sequel of long standing Eustachian tube pathology varies from suppurative otitis media to otitis media with effusion and atelectasis. In individuals who are prone for such repeated Eustachian tube insults need treatment of

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the cause as in adenoidectomy. Most children respond after this with eventual resolution of symptoms but in a few if the middle ear collection fails to resolve which symptomatically presents as persistence of deafness and aural fullness, myringotomy with or without grommet (Figure 1) or exploration of middle ear in the form of tympanotomy may be needed. Long standing use of antibiotics for treatment of repeated ear infections often predisposes the individual to the development of otitis media with effusion, which if untreated leads to more irreversible sequelae such as atelectasis and retraction pockets which would then necessitate a surgical exploration of the middle ear and reconstruction.<sup>10-13</sup>

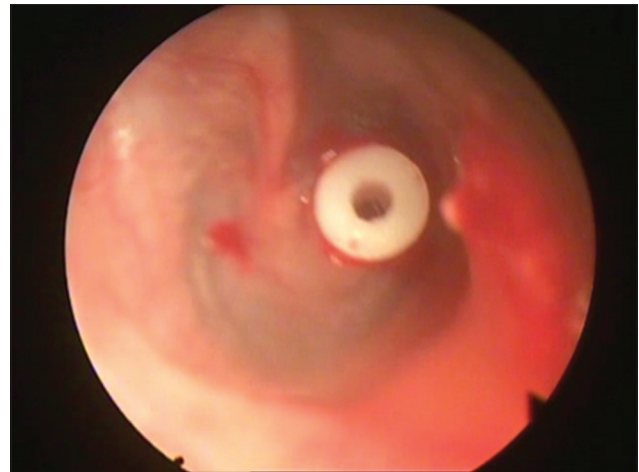


Figure 1: Grommet on the tympanic membrane

## MATERIALS AND METHODS

The protocol was approved by Local Ethics Committee, and Written Informed Consent was taken from each patient. A retrospective study based on the analysis of the records of 72 patients presenting to the outpatient department of KBN Institute of Medical sciences, Gulbarga, Karnataka, India, between January 2015 and August 2015. All cases of Retractions suggestive of an unsafe pathology were excluded from the study. All the patients had been subjected to the tuning fork tests, pure tone audiometry and tympanometry. Moreover conclusively, diagnosed with otitis media with effusion.

## RESULTS

About 38 patients (52.77%) underwent myringotomy with grommet insertion and 34 patients (47.22%) underwent only myringotomy. Of the 38 patients who underwent myringotomy with grommet insertion (Figure 1), 32 (84.21%) patients had improvement in the symptoms and 27 (71%) had closure of the air-bone gap on pure tone audiogram.

The remaining 34 patients underwent only myringotomy of which 24 (70.58%) had improvement in hearing and 20 (58.82%) had changes in audiogram (Table 1).

## DISCUSSIONS

Otitis media with effusion is a significant cause for conductive deafness in the general population. Adenoids are known to be the primary cause for the same in the pediatric age group. Even adult patients who are subjected to prolonged antibiotic treatment for middle ear infections are also predisposed to develop otitis media with effusion. The characteristic feature of the condition being an accumulation of sterile thick fluid in the middle ear that

Table 1: Results of the study

Number of patients (72)	Myringotomy only (34)	Myringotomy with Grommet (38)
Subjective improvement (%)	24 (70.58)	32 (84.21)
Closure of A-B gap (%)	20 (58.82)	27 (70.58)

fails to respond to the regular line of treatment leading to hearing impairment and occasionally pain and tinnitus. The examination finding of an intact tympanic membrane that appears dull and bulging with reduced mobility seems to aid in the diagnosis. At times, the finding of air-fluid level on the membrane, as well as bubbles visualized also help the diagnosis. Tympanometry reveals a classical type B curve with negative middle ear pressures also helps in the diagnosis. Surgical intervention in the form of ventilation tubes or myringotomy or exploratory tympanotomy has been tried with varying results.<sup>14,15</sup> Although pediatric age is the most common involved, at times even adults seem to be affected by the condition. Most children often are advised adenoidectomy with Grommet insertion for the condition. At times when the diagnosis is in doubt even plain myringotomy has been suggested for the treatment of the condition. Over a period of time the grommet will aerate the middle ear sufficiently till the Eustachian tube recovers its function.

## CONCLUSIONS

Otitis media with effusion has long been known to be one of the leading causes of conductive deafness in the population especially the pediatric group. Hence, the study has been designed to study the efficacy of Grommets against plain myringotomy in middle ear effusion. The study proves that myringotomy with Grommet insertion yields significant improvement in results both subjectively and on Audiometry, compared to myringotomy alone. Only

in few select patients where the secretions are very thick does the need for exploration deserves a mention, or in cases which fail to respond to myringotomy.

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