



ORIGINAL RESEARCH PAPER

ENT

A CLINICAL STUDY ON NON-SUPPURATIVE OTITIS MEDIA WITH SPECIAL REFERENCE TO ITS SURGICAL MANAGEMENT

KEY WORDS:

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INTRODUCTION

- Non-suppurative otitis media (NSOM) is the most common cause of hearing impairment and reason for elective surgery in children. It is defined as persistence of serous or mucoid middle ear effusion for 12 weeks or more.
- Glue ear affects the functioning of the ear and results in hearing impairment of 0 to 50 dB with an average of 20 dB hearing loss. Evidence is still insufficient to demonstrate a causal link between them. The high incidence of functional disability due to this condition has stimulated us to take up the study.
- NSOM results from alteration of the mucociliary system within the middle ear cleft and malfunction of the Eustachian tube leading to serous or mucoid fluid accumulation within the cleft.
- The present study aims to treat diagnosed cases of NSOM in two surgical modalities i.e. myringotomy with insertion of grommet and myringotomy with adenoidectomy/adenotonsillectomy or tonsillectomy. The clinical outcome for these two modalities of treatment was assessed in terms of hearing improvement at two months follow-up.

AIMS AND OBJECTIVES

- To identify the distribution of age and sex in cases of non-suppurative otitis media.
- To find out the commonest predisposing factor.
- To evaluate the different clinical parameters of non-suppurative otitis media.
- To compare the efficacy of surgical management i.e. myringotomy with grommet insertion and myringotomy with adenoidectomy/adenotonsillectomy or tonsillectomy.
- To arrive at the best treatment modality and to compare with the published literature.

MATERIALS AND METHODS

- This study was done in the Department of ENT, Silchar Medical College and Hospital, Silchar. It consists of 50 patients and their age ranges from 4 years to 50 years.
- **Study Period:** June 2020-May 2021.
- **Study Design:** Prospective study.
- **Size Of The Study Sample:** Total number of cases taken in the study is 50 who presented with history and clinical picture of non-suppurative otitis media.

Inclusion Criteria:

- All the cases belonging to either sex from different socio-economic status of age range 4-50 years who presented with history and clinical picture of NSOM were included in

the study.

Exclusion Criteria:

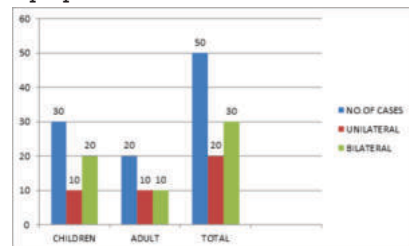
- Children with mental retardation
- Children below 4 years and adults above 50 years are excluded
- Patients with acute ear pain, ear discharge.
- Patients deaf since childhood or with family history of hard of hearing.
- Patients with cleft palate, benign and malignant tumors of nasopharynx.
- Patients coming from long distance are not suitable for follow up and hence excluded from the study

Based on the above criteria 50 patients were recruited into the study and divided into two groups.

- GROUP 1: 25 patients who had undergone myringotomy with insertion of grommet.
- GROUP 2: 25 patients who had undergone myringotomy with adenoidectomy/adenotonsillectomy/tonsillectomy.

RESULTS AND OBSERVATIONS INCIDENCE

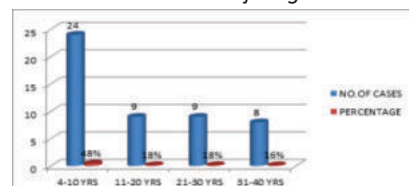
- In this study majority of patients were children (60%). 40% of children had bilateral disease whereas in adults there is no such preponderance.



Bar diagram showing incidence and laterality among children and adults

AGE WISE DISTRIBUTION

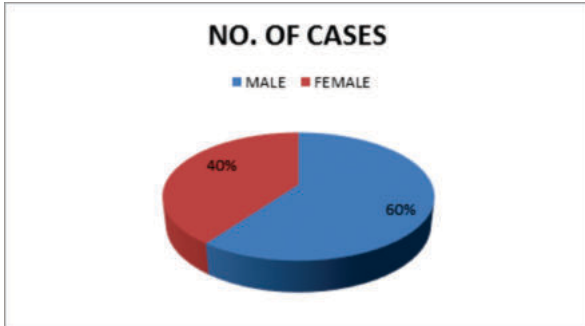
- In the present series majority of cases were children in the 1st decade of life (48%). The youngest patient was of 4 yrs age and the oldest was of 40 yrs age.



Bar diagram showing the age-wise distribution

GENDER

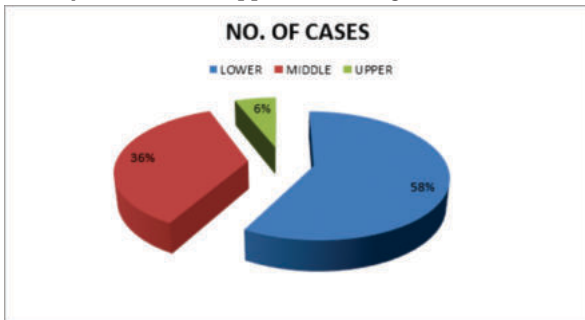
- In the present study, there were 30 males (60%) and 20 females (40%), the male female ratio being 1.5:1



Pie chart showing gender distribution

SOCIO ECONOMIC STATUS

- Majority of the patients (58%) were from the lower socio-economic status; 36% cases were from middle class and only 6% cases from upper class background.



Pie-Chart showing socio-economic status of patients

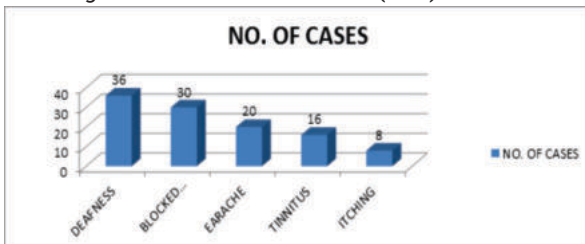
PRE-DISPOSING FACTORS

- In 48% of the cases, evidence of chronic tonsillitis &/or enlarged adenoids were obtained. Previous history of frequent attacks of cold and URTI were seen in 24% cases and acute otitis media seen in 12% cases.

PREDISPOSING FACTORS	NO. OF CASES	PERCENTAGE
Recurrent cold	12	24%
Recurrent pharyngitis	2	4%
Adenoid hypertrophy &/or chronic tonsillitis	24	48%
Chronic sinusitis	1	2%
Acute otitis media	6	12%
Allergy	5	10%
Total	50	100%

SYMPTOMATOLOGY

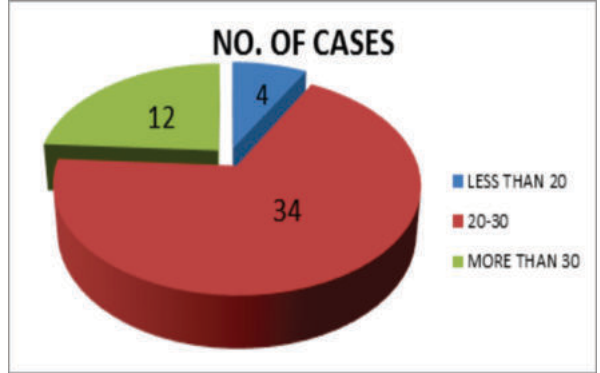
- Most of the patients in the present study complained of deafness (72%) of one to six months duration; the next being blocked sensation in the ears(60%).



Bar diagram showing the presenting symptoms of the patients.

AUDIOMETRY

- 68% of cases were found to have an average hearing loss between 20-30 dB. 24% cases had a hearing loss of more than 30 dB.

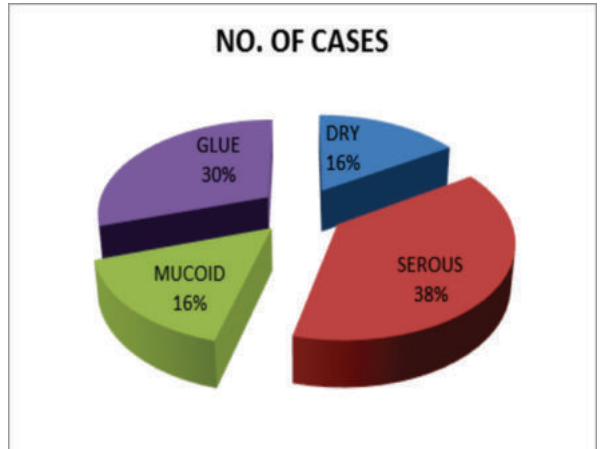


Pie-chart showing number of cases with hearing loss (in dB) before treatment.

TYMPANOMETRY

TYPE OF CURVE	NO. OF CASES	PERCENTAGE
Unilateral B	10	20%
Unilateral C	12	24%
Bilateral B	17	34%
Bilateral C	10	20%
A	1	2%
Total	50	100%

NATURE OF MIDDLE EAR FLUID

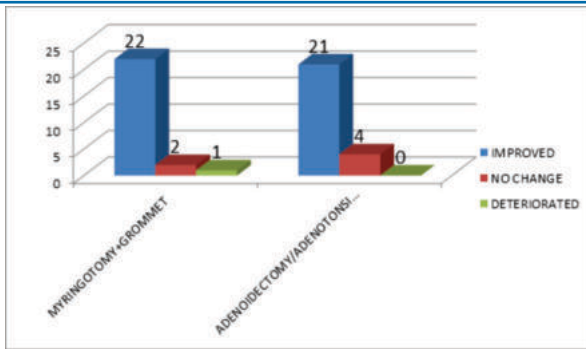


TREATMENT MODALITIES

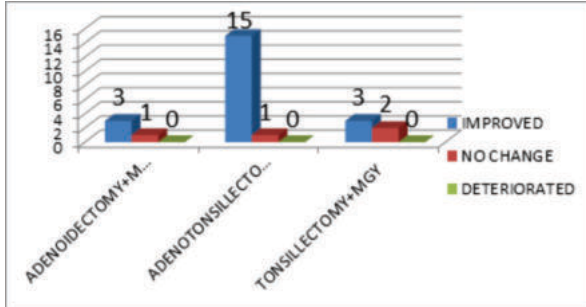
- In Group A, 25 cases including both children and adults were treated with myringotomy aspiration with grommet insertion. In 19 cases grommet was inserted unilaterally and in 6 cases bilaterally.
- Group B comprised of 25 cases of OME who had enlarged adenoid and associated chronic tonsillitis. In 4 cases only adenoidectomy was performed, in 16 cases adenotonsillectomy was done and in 5 cases tonsillectomy was performed. Myringopuncture was performed in all these cases bilaterally. A course of antibiotics was prescribed in cases treated surgically. All the cases were followed up at 2 weeks interval upto 2 months and thereafter monthly.

RESULTS OF TREATMENT

- In Group A, 25 patients who were treated with myringotomy aspiration with grommet insertion, 22 cases (88%) improved at 8th week follow up. 2 cases (8%) did not show any significant improvement in hearing and 1 case (4%) deteriorated with extrusion of grommet.
- In Group B, 25 cases were treated by adenoidectomy/adenotonsillectomy/ tonsillectomy with myringotomy aspiration. Out of these 25 cases, (84% i.e.; 21 cases) showed improvement and 16% (4 cases) did not show any significant change in hearing at 8th week follow up period. Majority of cases which showed improvement was from the adenotonsillectomy group.

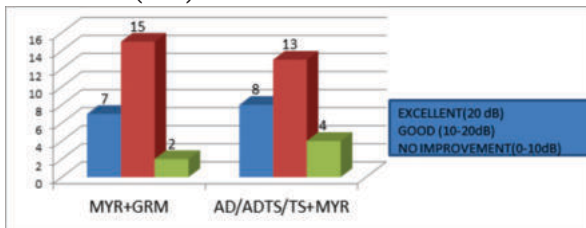


RESULTS OF TREATMENT OFFERED IN GROUP B



HEARING GAIN AFTERTREATMENT

- In Group A patients who were treated with myringotomy with grommet insertion, 15 cases (60%) showed improvement as hearing gain of 10-20 dB. An average hearing gain of more than 20 dB was seen in 28% cases and no improvement was seen in 8% cases.
- In Group B, an average hearing gain of upto 20 dB was found in 13 cases (52%) and more than 20 dB was obtained in 8 cases (32%).



Bar diagram showing range of hearing gain in dB after treatment.

DISCUSSION

- In this study, 60% of cases were children. The peak incidence was found in the age range ranging from 4-5 years (18%) which is similar to the study done by Rajeev Ambastha et al in 2020 who found out that the peak incidence was from 4-5 years age group (17%).

GENDER DISTRIBUTION

STUDIES	MALE : FEMALE RATIO
Sriwardana KB et al	1.27:1
Collins MP et al	1.4:1
Draper et al	1.57:1
Sharat Babu et al	1.18:1
Present Study	1.5:1

- An increased prevalence among the lower socio-economic groups (58%) was also noted in the study (Table 4). Similar study was also done by Yadav et al on prevalence of Otitis Media with Effusion among the government school children in Haryana, quoted that lower socio-economic status and poor hygiene as the major contributing factors.
- In the present study, 24 patients (48%) gave evidence of chronic tonsillitis and/or adenoid hypertrophy. Brownlie Smith et al (1961) also stressed the role of tonsils, adenoids and sinuses as infective foci which probably predispose to

this condition.

- PTA-In this study, the average hearing loss between 20-30 dB was found in 68% cases and average hearing loss of more than 30 was seen in 24% cases. Paparella MM mentioned that in NSOM the audiogram characteristically shows mild to moderate flat conductive loss in the range of 10-40 dB.
- In Group A, 22 cases (88%) improved. Out of those cases which showed improvement, 15 cases (60%) showed improvement of hearing gain of 10-20 dB at 2 months follow up. An average hearing gain of more than 20 dB was seen in 7 cases (28%). Similar results were also obtained by Shahedin et al. Ruckley and Blair (1988) have reported 100% improvement with grommet and 81% improvement with myringotomy alone.
- The best response was seen in adenotonsillectomy group where 93% patients improved. This finding agrees with that of Tos (1987) and Austin (1989) who found significant improvement in about 90% cases after adenotonsillectomy.
- Our study also matched with Sharath Babu et al (2016) who did a prospective study on 600 children and found that the mean hearing threshold after adenoidectomy with grommet insertion, adenoidectomy, adenotonsillectomy and grommet insertion decreased from 29.4 dB to 13.27 dB, 31.15 dB to 9.81 dB, 28.35 dB to 13.12 dB respectively.
- The overall results reveal that after treatment with grommets, 60% cases showed "Good" improvement (hearing gain of 10-20 dB) and "Excellent" improvement (>20 dB) was seen in 28% cases. On the other hand, after treatment with adenoidectomy and/or tonsillectomy "Good" improvement was seen in 52% cases and "Excellent" improvement was seen in 32% cases. No improvement (upto 10 dB) was seen in 8% in Group A and 16% in Group B.