



**MANAGEMENT PROFILE OF SEROUS OTITIS MEDIA IN ADULTS –
A PROSPECTIVE STUDY.**

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Abstract

Background: Serous otitis media or otitis media with effusion or glue ear is an accumulation of fluid in middle ear in absence of infection. Even though it is primarily a disease of preschoolers it can also affect young adults due to various etiology ranging from anatomical variations to inflammation, allergies, upper respiratory infection, and trauma. The objective of this study is to analyze the management profile of serous otitis media in our tertiary care hospital.

Materials and methods: This is a prospective study, conducted in the department of otorhinolaryngology in a tertiary care centre from the period of march 2022 to march 2023, between the age group of 20 and 50 years and was diagnosed with serous otitis media.

Result: The age group most often affected by serous otitis media ranged from 30 to 40 years of age. The majority of the patients responded well for medical treatment and few of them whom did not respond medically were planned for surgical intervention. All cases (100%) were put on medical treatment and regularly followed up. 78% of cases responded well with medical treatment.22% went in for myringotomy and grommet insertion.

Conclusion: Management profile for adult SOM shows high percentage of better response for medical treatment when compared to surgical intervention.

Key words: serous otitis media, allergy, grommet, fluid.

INTRODUCTION:

Serous otitis media (SOM) or Otitis media with effusion (OME) is defined as the presence of effusion in the middle ear with no acute ear infection ⁽¹⁾. The classic explanation proposes that Eustachian tube dysfunction is the necessary precursor. The Eustachian tube has been traditionally described to provide 2 main functions- Equilibrium of pressure and clearance of secretion. Tubal block can be caused by number of conditions ranging from anatomical variations to inflammation, allergies, upper respiratory infection, and trauma. In addition to mechanical obstruction which is caused by ET dysfunction it induces negative pressure in middle ear which in turn provoke a middle ear mucosal inflammation, capillary disruption and there will be a transduction of fluid from the local vessels to the middle ear ⁽²⁾. From tubotympanic catarrh, acute serous otitis, chronic serous otitis, or progression to fibro adhesive otitis are stages of SOM⁽³⁾. OME can transform into acute suppurative otitis media which requires treatment with antibiotics mainly to avoid complications ⁽⁴⁾. Potential treatment includes decongestants, antihistamines, mucolytics, and antibiotics. Antibiotics can be given in such cases if the SOM results from acute respiratory infections. Even though there is limited role of anti-histamine in the treatment of OME according to studies it may be effective for decongesting the nasal mucosa and ET permeabilization. Hence anti histaminic drugs is used in the management prior to surgical interventions ^(5,6). Surgical intervention includes myringotomy/grommet insertion. In 1760 Eli performed the first myringotomy in an attempt to relieve deafness. Usually there is a dilemma in when to select patients for grommet insertion. Generally, if the foci of infections are ruled out the patients are treated medically for a period of three weeks and reviewed periodically. Politzer described a condition which he termed “Otitis Media Catarrhalis” in 1869. Myringotomy in adults is a less common procedure than in children, because of the adults benefit from the anatomical changes in the anatomy of the middle ear that occur after childhood. The principle of both ventilation and drainage of the middle ear have remained basic in the management of middle ear fluids to date. In this study we have analyzed the management profile of serous otitis media in outpatient department.

MATERIALS AND METHODS:

This is a prospective study, conducted in the department of otorhinolaryngology in a tertiary care center from the period of march 2022 to march 2023. All patients who presented with features of bilateral serous otitis media (clinically and audiological) within the age group 20 to 50 years, who consented to participate in the study were included.

The clinical features included symptoms of aural fullness, hard of hearing. Otosopic examination showing air fluid levels (figure 5), air bubbles behind an intact tympanic membrane (TM). The audiological criteria included a pure tone audiometry showing conductive hearing loss and a type B curve on tympanogram. The selected patients were subjected to endoscopic evaluation where, any patient with a nasopharyngeal mass leading to Eustachian tube dysfunction, was excluded. All patients who fit the inclusion and exclusion criteria underwent medical management, which included a combination of amoxicillin with clavulanic acid, mucolytics, antihistamines and nasal decongestants and nasal steroids, for a

period of three weeks. If the patient showed symptomatic relief and if the hearing improves audiological, after three weeks of treatment the patient was reviewed after 3 months.

If the patient showed no improvement after a trial of medical management, they are taken up for myringotomy /grommet insertion (figure 6). Post operative follow up was done for a period of one month.

RESULTS:

Of the 50 patients included in the study the male and female ratio was 1:1, 54% were males and 46% were females. The mean age of patient in the study group was 33.12 the minimum being 20 and maximum of 50 years. Majority of the patients were in the age group of 30-40 years which is about 48%, 36% belong to 20-30 years and 16% belong to 40-50 years. The important symptom was hard of hearing which constituted about 92% and fullness of ear contributed about 82%. Other ear symptoms constituted about 74% which included tinnitus (22%), Cracking/bubbling/echoing (16%), Ear ache (14%) and past history of ear discharge (2%). In this study otoscopic examination revealed that amber colored tympanic membrane was seen in 27 patients which constituted about 54% and 24 patients had dull tympanic membrane which is about 46% (figure 1). Fluid level was seen in 20 patients which constituted about 40%, air bubbles was seen in 24 patient (figure 2) which constituted about 48% and retracted TM was seen in 6 patients about 12%. On pure tone audiometry (PTA) there was conductive hearing loss of 20-40 db. At the end of 1st week 10 patients got cured completely which is about 20% of patients (table 2; figure 3). 29 cases about 58% improved only symptomatically but otoscopically remained the same. And 11 patients about 22% showed no improvement at all both symptomatically and otoscopically. At the end of 3rd week 29 cases got cured completely both symptomatically and audiological which is about 72.5% and 11 cases did not improve which is about 27.5% (table 3; figure 4). But in our study the adult age group responded well medically which is about 78% (39 out of 50 patients) and only 22% (11 out of 50 patients) went in for surgical management. (Table 4)

DISCUSSION:

Most of the cases of SOM are asymptomatic. Serous Otitis Media (SOM) is one of the commonest causes of conductive hearing loss encountered by the Otologist. In this study number of cases was seen in age group of 30-40 years predominantly in males and most of these patients belonged to lower socio-economic status. There was a study conducted by Tos and Stangerup (1985) which have shown that male have more incidence of SOM than female due to male preponderance of childhood infection. In our study the important symptoms were fullness of ear, hard of hearing, tinnitus, Cracking/bubbling/echoing, Ear ache. Even though it is a simple condition if left undiagnosed or untreated can lead to long term consequences. Hence a high index of suspicion is necessary, early and accurate diagnosis prompt treatment with close follow-up is of essence. Recently eustachian tube auto-inflation (ETA) is a preferred choice of conservative management apart from medication^(7,8). The call for invasive

management like tympanocentesis or myringotomy tube insertion becomes more efficient when conservative management fails⁽⁹⁾. OME for more than three months is a major criterion for insertion of tympanostomy tube⁽¹⁰⁾. These tubes mainly help to drain middle ear fluid and acts as a ventilatory port to the middle ear cavity⁽¹¹⁾. The most common materials used to make tympanostomy tubes are plastics and metals⁽¹²⁾. The material should be compatible with the middle ear to work as a tympanostomy tube and also as the tube will induce the host patient to have a foreign body reaction⁽¹³⁾. Polytetrafluoroethylene (PTFE), a material which is made up of fluorine atoms and carbon atoms, is also used in manufacturing the tubes⁽¹⁴⁾. Silicone is another material which soft and stretchy and thus can be easily removed when needed⁽¹⁵⁾. The important inclusion criteria in our study were acute respiratory infection which is 100% that includes acute sinusitis (38%), Acute rhinitis (28%), Acute pharyngitis (28%), Acute Tonsillitis (6%) (table 1). IL-12 may play a critical role in pathogenesis of otitis media with effusion by affecting the production of IL-2 and IFN – γ in addition IL-4 may also have an impact on immunological condition in adults with allergic rhinitis. IL-10 potentially affects the viscosity of middle ear effusion. Study by Howie VM. (1975), and Kaplan et al¹³⁹ (1973) have also shown the predominance of fullness in ear. The complications of otitis media will damage the TM by forming retraction pockets, which in turn will distort the TM which eventually becomes adhesive otitis media. This limits the ossicular vibrations which will lead to permanent hearing loss⁽¹⁶⁾. On pure tone audiometry there was conductive hearing loss was 20-40 db. Study by Schilder, Zielhais and Venden Brook (1993) have shown mean 20 db hearing loss. In Glasgow studies by Dempster & Mackenzie²⁷ (1991) have shown 26 db hearing loss. In our study at the end of 3rd week 29 cases got cured completely both symptomatically and audiological which is about 72.5% and 11 cases did not improve which is about 27.5%. This is supported by a study conducted by Chan et al in 1988 in pediatric age group where out of 30 children 13.33% responded well by medical management and remaining 86.67% did not show favorable results. But in our study the adult age group responded well medically which is about 78% (39 out of 50 patients) and only 22% (11 out of 50 patients) went in for surgical management.

CONCLUSION

Serous otitis media is a more commonly encountered in children. This condition occurs less commonly in adults, owing to the anatomical changes in the eustachian tube which occurs with ageing. Hence, the discussion about the management profile in adults with serous otitis media is limited. In this study, we have highlighted the management profile in adult patients with SOM in our institution. Management profile for adult SOM shows high percentage of better response for medical treatment when compared to surgical intervention.

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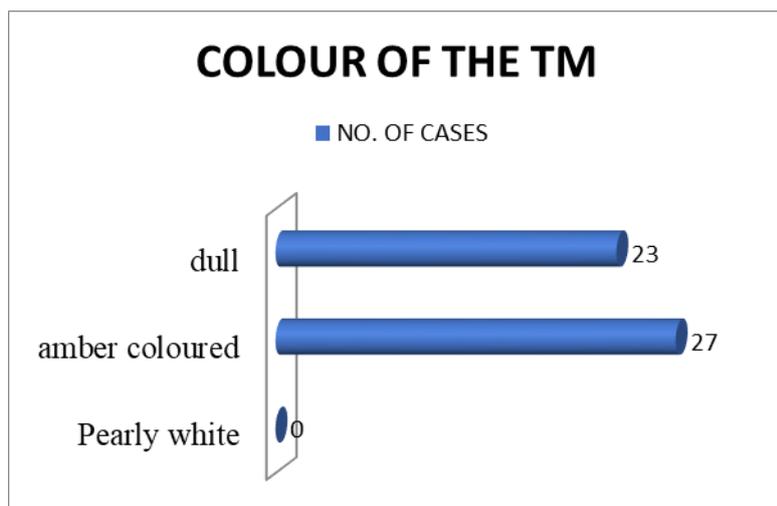
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Table 1 – Symptom-wise distribution of cases

S. No.	Symptom	No. cases	of Percentage
1	Fullness of ear	41	82%
2	Ear block/ hard of hearing	46	92%
3	Acute respiratory infection	50	100%
	Acute sinusitis	19	38%

	Acute Rhinitis	14	28%
	Acute pharyngitis	14	28%
	Acute Tonsillitis	3	6%
4	Other ear systems	37	74%
4a	Tinnitus	11	22%
4b	Crackling/bubbling sound/echoing	8	16%
4c	Ear ache	7	14%

FIGURE 1: Bar graph – Sign-wise distribution of cases



In this study 54% of the patients had amber coloured tympanic membrane and 46% of the patients had dull tympanic membrane.

FIGURE 2: Effusion behind Tympanic membrane

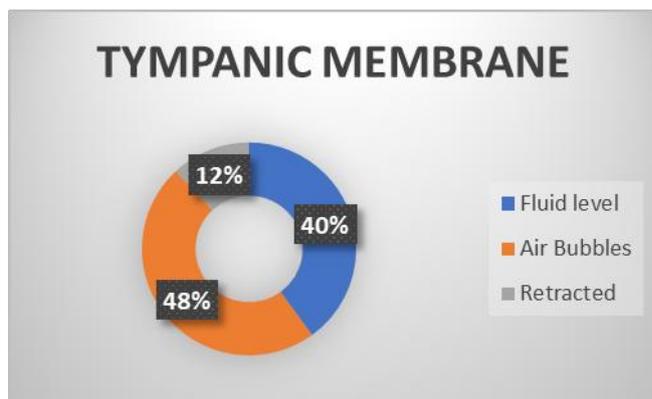


Table 2. Follow up 1st week

IMPROVEMENT	1ST WEEK	Percentage
COMPLETELY CURED	10	20%
SYMPTOMATICALLY IMPROVEMENT	29	58%
NO IMPROVEMENT	11	22%

FIGURE- 3:

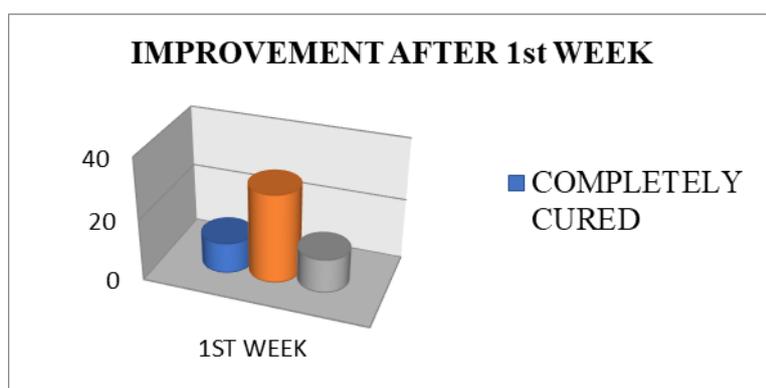


Table 3 : Improvement after 3rd week

IMPROVEMENT	3RD WEEK	PERCENTAGE
COMPLETELY CURED	29	72.5%
NO IMPROVEMENT	11	27.5%

FIGURE 4:

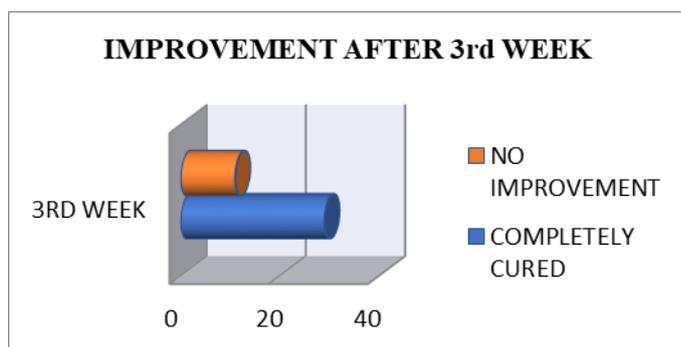


Table 4: Management distribution

MANAGEMENT	NO CASES	OF Percentage
MEDICAL	39	78%
SURGICAL	11	22%

FIGURE -4

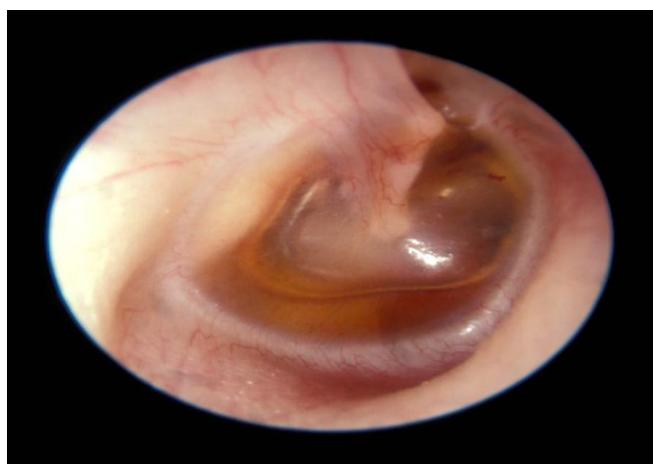


Figure 5-This is a picture showing fluid level behind intact tympanic membrane.



Figure 6 -This is a picture showing grommet inserted in Antero inferior quadrant.