



## OPEN ACCESS

### Key Words

Clinical profile, chronic otitis media, mucosal

### Corresponding Author

Soumya Santhosh,  
Department of ENT, Shridevi  
Medical College and Research  
Hospital, Tumkur, Karnataka, India

### Author Designation

<sup>1,2</sup>Assistant Professor

<sup>3</sup>Senior Resident

<sup>4,5</sup>Post Graduate

**Received:** 20 April 2024

**Accepted:** 30 May 2024

**Published:** 5 June 2024

**Citation:** S. Ashwini Doddamani, Soumya Santhosh, M. Divyashree, Syed Sadiq ul Ameen and M.P. Archana, 2024. Clinical Profile of Patients With Chronic Otitis Media (Mucosal) Attending Tertiary Care Hospital. Res. J. Med. Sci., 18: 91-95, doi: 10.36478/makrjms.2024.7.91.95

**Copy Right:** MAK HILL Publications

## Clinical Profile of Patients with Chronic Otitis Media (Mucosal) Attending Tertiary Care Hospital

<sup>1</sup>S. Ashwini Doddamani, <sup>2</sup>Soumya Santhosh, <sup>3</sup>M. Divyashree, <sup>4</sup>Syed Sadiq ul Ameen and <sup>5</sup>M.P. Archana

<sup>1-5</sup>Department of ENT, Shridevi Medical College and Research Hospital, Tumkur, Karnataka, India

### Abstract

Otitis media is defined as “an inflammation of the middle ear without reference to etiology or pathogenesis.” Chronic otitis media is a long standing infection of a part or whole of the middle ear cleft characterized by ear discharge and a permanent perforation of TM with hearing loss. A perforation becomes permanent when its edges are covered by squamous epithelium and it does not heal spontaneously. The study included 60 patients of age 16 years and above and of either sex, presenting with mucosal type of chronic suppurative otitis media, who underwent type 1 tympanoplasty and cortical mastoidectomy at Department of otorhinolaryngology. Out of 60 patients, 32 cases had large central perforation (53%) out of which 15 patients in dry ear (50%) and 17 patients in wet ear (56.7%). 11 cases had small central perforation (18%) out of which 7 patients in dry ear (23%) and 4 patients in wet ear (13%). 17 cases had subtotal perforation (28%) out of which 8 patients in dry ear (26.7%) and 9 patients in wet ear (30%). Out of 60 patients, 32 cases had large central perforation (53%) out of which 15 patients in dry ear (50%) and 17 patients in wet ear (56.7%). 11 cases had small central perforation (18%) out of which 7 patients in dry ear (23%) and 4 patients in wet ear (13%). 17 cases had subtotal perforation (28%) out of which 8 patients in dry ear (26.7%) and 9 patients in wet ear (30%).

## INTRODUCTION

Hearing forms the vital basis for acquisition of speech and language. The development of the mammalian ear, with its coiled cochlear receptor of wide-band auditory stimuli and vestibular apparatus, delineates the evolutionary adaptation of the middle ear and its sound conduction mechanism to the terrestrial, air-filled environment<sup>[1]</sup>.

Otitis media is defined as “an inflammation of the middle ear without reference to etiology or pathogenesis<sup>[6]</sup>.” Chronic otitis media is a long standing infection of a part or whole of the middle ear cleft characterized by ear discharge and a permanent perforation of TM with hearing loss. A perforation becomes permanent when its edges are covered by squamous epithelium and it does not heal spontaneously. Earlier, CSOM was classified as safe or tubotympanic type and unsafe or atticotympanic type. But now this concept has become redundant<sup>[2]</sup>.

Perforations in the tympanic membrane are described according to their anatomical location. Central perforations are in the pars tensa and are surrounded by some residual tympanic membrane or at least the annulus. The location of central perforations is denoted by their relationship to the handle of malleus as anterior, posterior and inferior. Similarly a perforation is classified based on the extent being limited to one quadrant (less than 25%), involving 2 or more quadrants and involving all the quadrants of TM<sup>[3,4]</sup>.

Majority of the patients do well with antibiotic therapy, but despite there is a subset of patients who develop serious complications. The morbidity and mortality rates of these remains substantial, ranging from 10-31%. The intra temporal complications of CSOM include tympanic membrane (TM) perforation, coalescent mastoiditis, chronic mastoiditis, masked mastoiditis, postauricular abscess, Bezold's abscess, facial nerve paralysis, acute suppurative labyrinthitis, petrous apicitis and labyrinthine fistula<sup>[5]</sup>.

If left unchecked, infection can spread beyond the temporal bone as a subperiosteal abscess or intra cranial extension. Potential intra cranial complications include acute meningitis, epidural abscess, subdural empyema, brain abscess, lateral venous sinus thrombosis and otitic hydrocephalus<sup>[6]</sup>.

## MATERIALS AND METHODS

The study included 60 patients of age 16 years and above and of either sex, presenting with mucosal type of chronic suppurative otitis media, who underwent type 1 tympanoplasty and cortical mastoidectomy at Department of otorhinolaryngology.

**Sampling Technique:** The patients were selected by random sampling. The sample of 60 patients included two groups of 30 patients each:

**Dry Group:** Patients with dry central perforation Tubotympanic COM with no active discharge for a period of at least 3 months.

**Wet Group:** Any patients with COM Tubotympanic disease with mild mucoid discharge, at the time of surgery.

### Criteria for Selection of Sample:

#### Inclusion Criteria:

- Patients of age 15 years and above and of either sex.
- Patients with chronic otitis media with small/ large /subtotal central perforation.
- Patients with conductive hearing loss.
- Patients with dry ear for a minimum period of 3 months prior to surgery were included in DRY group.
- Patients with mucoid discharge at the time of surgery were included in the WET group.

#### Exclusion Criteria:

- Patients with Marginal and Attic perforation/ cholesteatoma.
- Patients of age less than 15 years.
- Patients with sensorineural hearing loss.
- Patients with intra cranial complications.
- Patients with only hearing ear.
- Patients undergoing revision tympanoplasty.
- Patients with ossicular chain erosion confirmed at the time of surgery.

**Methods of Collection of Data:** Patients who satisfied the above mentioned criteria for selection were taken as subjects for the study, after taking an informed and written consent. The data of the patient was collected in a case proforma as per Annexure.

The selected patients are subjected to clinical, audiological and laboratory Investigation.

- Detailed history of patient, General and systemic examination of patient.
- Socioeconomic status of patients was assessed.
- Examination of tympanic membrane under microscope was done and hearing evaluation using tuning fork tests.
- PTA and Relevant Laboratory investigation including Hb, Rbs, S. creat, S. urea, X-ray mastoids. Chest x-ray and ECG for patients above 40 years.
- All patients underwent cortical mastoidectomy with tympanoplasty with tympanic membrane grafting using temporalis fascia graft placed underlay technique under local anesthesia.

- Postoperatively all patients were put on oral antibiotic and anti-histaminics for a period of 2 weeks. Mastoid dressings changed on 1st post-operative day, sutures were removed on 7th postoperative day after suture removal patients were asked to instill topical antibiotics+ steroid drops (Ofloxacin + clotrimazole + beclomethasone) for period of 3-4 weeks. All patients are followed up in OPD every 2 week for period of 3 months. Otoscopy was done to assess the graft status and presence of any discharge at every follow-up. Postoperative appearance of tympanic membrane is shown in the fig. (iii). Intactness of drum and graft uptake was accessed after 1 month.

At the end of 3rd-6th months an audiogram was done on all the patients with intact drum. The presence of any complication was noted and treated simultaneously.

## RESULTS AND DISCUSSIONS

Patients between the age group of 16-60 years were included in this study. Maximum numbers of patients were seen in the age group of 21-40 years of age group (83%). In Dry group 12 patients were between age group of 21-30 years (40%) and 13 patients in 31-40 years age group (43.3%). In Wet group, 17 patients were between the age group of 21-30 years (56.7%), 8 patients in 31-40 years (36%). Mean age in wet ears group was 28.12 yrs., whereas in dry ears group it was 30.18 yrs. Thus both groups were matched in age distribution Age

In our study, out of 60 patients, 28 were male and 32 were females. Wet group included 14 male and 16 female patients. In dry group, there were 14 males and 16 females. 53% of the subjects were females and 46% of them were males in both the groups.

In our study, out of 60-41 patients belonged to BPL group and 19 patients belonged to APL group. Dry group included 11 (36.7%) in APL and 19 (46.7%) in BPL group. Dry group included 8 (26.7%) in APL and 22 (73%) in BPL group.

Bilateral perforations were seen in 21 patients. In Dry group, 10-11 patients in Wet group.

Unilateral perforations were seen in 39 patients. In Dry group, 20-19 patients in Wet group.

Maximum number of patients i.e. 26 had duration of discharge for more than 10 years (43%), 12 in dry group and 14 in wet group. 21 patients had duration less than 5 years, 13 patients between 6-10 yrs. There was no statistical significant difference between the groups. Also there was no significant difference between graft take-up rates and duration of the disease.

Out of 60 patients, 32 cases had large central perforation (53%) out of which 15 patients in dry ear(50%) and 17 patients in wet ear (56.7%). 11 cases had small central perforation (18%) out of which 7 patients in dry ear (23%) and 4 patients in wet ear (13%). 17 cases had subtotal perforation (28%) out of which 8 patients in dry ear (26.7%) and 9 patients in wet ear (30%).

Prior to the procedure, all the cases underwent examination under microscope.

Status of middle ear mucosa was assessed. 10 patients in Wet group (33%) had edematous mucosa, 0 had hypertrophied mucosa and rest 20 (66.7%) cases had normal mucosa.

In Dry group, 9 patients (30%) had hypertrophied mucosa, 21 (70%) patients had normal mucosa. We found statistically significant difference between two groups.

Depending on the cellularity of mastoid, mastoid cavity was divided in to three groups-cellular, diploic and sclerotic during the procedure.

In our study 33 patients had cellular type of mastoid (55%) 15 cases in dry ear and 18 cases in wet ear. 15 patients had diploic type of mastoid (25%), 7 in dry and 8 in wet ear. Rest 12 had partially sclerotic type of mastoid (20%) 8 in dry and 4 in wet ear. There was no statistical significant difference between two groups. Also there was no significant difference between graft take-up rates and Type of mastoid

Age is an important non mastoid factor influencing the outcome of type 1 tympanoplasty. Failure of type 1 tympanoplasty in children attributed to adenoid, Eustachian tube dysfunction.

In our study, patients below age of 16 years were excluded. Mean age in wet ears group was yrs. whereas, in dry ears group it was yrs. Maximum number of patients were seen in the age group of 21-40 years (83%).

In a study of 87 cases ortergren<sup>[7]</sup>, maximum numbers of patients were in the age group of > 40 years, also they divided the patients into two groups based on their age.

The first group was below 40 years and second group above 40 years and the success rates in terms of grafts take up were found to be 90-75.7%.

Similarly in our study success rates were 67.8-50%, below and above 40 years age group respectively.

In our study, out of 60 cases, 28 were males and 32 were females. Wet group included 14 male and 16 female patients. In dry group, there were 14 males and 16 females. In our study slightly female predominance is observed in the ratio of 1.1:1.

It has been proven that socioeconomic factors such as poor living conditions, overcrowding, poor

Table 1: Age distribution of patients

Age wise distribution of the patients among two groups					
Age group	Dry ear		Wet ear		p-value
	Frequency	Percent	Frequency	Percent	
≤20 yrs	2	6.7	4	13.3	0.293
21-30 yrs	12	40.0	17	56.7	
31-40 yrs	13	43.3	8	26.7	
> 40 yrs	3	10.0	1	3.3	
Total	30	100.0	30	100.0	0.159*
Mean±SD	30.81±8.02		28.12±6.48		
* T test					

Table 2: Sex distribution of patients

Sex	Sex wise distribution of the patients among two groups				
	Dry ear		Wet ear		p-value
	Frequency	Percent	Frequency	Percent	
Female	16	53.3	16	53.3	1.00
Male	14	46.7	14	46.7	
Total	30	100.0	30	100.0	

Table 3: Socioeconomic status distribution of patients

SES	Socio-economic status wise distribution of the patients among two groups				
	Dry ear		Wet ear		p-value
	Frequency	Percent	Frequency	Percent	
APL	11	36.7	8	26.7	0.405
BPL	19	46.7	22	73.3	
Total	30	100.0	30	100.0	

Table 4: Status of contralateral ear

Laterality	Laterality of involvement of the ears in the patients among two groups				
	Dry ear		Wet ear		p-value
	Frequency	Percent	Frequency	Percent	
Bilateral	10	33.3	11	36.7	0.787
Unilateral	20	66.7	19	63.3	
Total	30	100.0	30	100.0	

Table 5: Duration of the disease

Duration of discharge	Distribution of patients based on duration of discharge among the two groups				
	Dry ear		Wet ear		p-value
	Frequency	Percent	Frequency	Percent	
≤5 yrs.	9	30.0	12	40.0	0.222
6 - 10 yrs.	9	30.0	4	13.3	
> 10 yrs.	12	40.0	14	46.7	
Total	30	100.0	30	100.0	

Table 6: Size of perforation

Size of perforation	Distribution of patients based on Size of perforation among the two groups				
	Dry ear		Wet ear		p-value
	Frequency	Percent	Frequency	Percent	
LCP	15	50.0	17	56.7	0.606
SCP	7	23.3	4	13.3	
STP	8	26.7	9	30.0	
Total	30	100.0	30	100.0	

Table 7: Status of middle ear mucosa

Middle ear mucosa	Distribution of patients based on Middle ear mucosa among the two groups				
	Dry ear		Wet ear		p-value
	Frequency	Percent	Frequency	Percent	
Edematous	0	0.0	10	33.3	0.0001
Hypertrophied	9	30.0	0	0.0	
Normal	21	70.0	20	66.7	
Total	30	100.0	30	100.0	

Table 8: Cellularity of mastoid

Distribution of patients based on Mastoid air cells among the two groups					
Mastoid Air cells	Dry ear		Wet ear		p-value
	Frequency	Percent	Frequency	Percent	
Cellular	15	50.0	18	60.0	0.433
Diploeic	7	23.3	8	26.7	
Sclerotic	8	26.7	4	13.3	
Total	30	100.0	30	100.0	

hygiene and poor nutrition are predisposing factors for COM. The influence of socioeconomic factors in graft up take has not been studied in detail.

In our study maximum number of patients, 41 patients (68%) belonged to below poverty line and 19 patients (31.6%) belonged to above poverty line.

In our study of 60 patients, 21 cases (35%) had Bilateral COM. In dry group 10 patients had bilateral disease and in wet group 11 Patients had bilateral COM. The operated ear on right side (50%), including 13 in Dry and 17 in Wet groups. And on left side also, it was 50%, in dry ear being 17 and Wet ear being 13.

Out of 60-32 patients had large central perforation (53%), 11 patients had small central perforation (18%) and 17 cases had subtotal perforation.

Jackler and schindler<sup>[8]</sup> who also reported the success rates of graft take uprates for unilateral and bilateral disease were 86-83.3% respectively.

In the study by Adkins et al. graft take up with regard to condition of opposite ear was found to be significant. There was a 93.4% success rates in unilateral perforation compared to 60% success rates in bilateral perforations of the ear drum. They postulated that the higher failure rate in bilateral ear perforations might be due to more severe or prolonged aetiology of the otitis media in these cases.

## CONCLUSION

Out of 60-30 patients had dry ears and 30 patients with scanty mucoid discharge, irrespective of amount of discharge. Both the groups were statistically comparable regarding age and sex of the patient.

Patients between the age group of 16-60 yrs. were included in this study, mean age of 30.81years in dry group and 28.12 years in Wet group. There were 28 males and 32 females in the study.

## REFERENCES

1. Bluestone, C.D., G.A. Gates, J.O. Klein, D.J. Lim and G. Mogi *et al.*, 2002. Definitions, terminology, and classification of otitis media. *Ann. Otol. Rhinol. Laryngol.*, 111: 8-18.
2. Browning, G.G., 2008. Chronic otitis media. In: Scott-Brown's Otorhinolaryngology, Head and Neck Surgery,, Gleeson, M., (Ed.), Hodder Arnold, London, UK., pp: 3396-3397.
3. Erkan, M., E. Sevik, T. Aslan and E. Güney, 1994. Bacteriology of chronic suppurative otitis media. *Ann. Otol. Rhinol. Laryngol.*, 103: 771-774.
4. Gross, N.D. and S.O. McMenemy, 2003. Aural complications of otitis media. In: Glasscock and Shambaugh's Surgery of the Ear,, Gulya, A.J., (Ed.), BC Decker, Hamilton, Ontario, Canada, pp: 435-441.
5. Youngs, R., 1998. Complications of suppurative otitis media. In: Diseases of the Ear,, Ludman, H. and T. Wright, (Eds.), Hodder Arnold, London, UK., pp: 398-399.
6. Telian, S.A. and C.E. Schmalbach, 2003. Chronic otitis media. In: Ballenger's Otorhinolaryngology Head and Neck Surgery,, Snow, J.B. and J.J. Ballenger, (Eds.), BC Decker, Hamilton, Ontario, Canada, pp: 271-272.
7. Balyan, F.R., S. Celikkanat, A. Aslan, A. Taibah, A. Russo and M. Sanna, 1997. Mastoidectomy in noncholesteatomatous chronic suppurative otitis media: Is it necessary? *Otolaryngol. Head Neck Surg.*, 117: 592-595.
8. Jackler, R.K. and R.A. Schindler, 1984. Role of the mastoid in tympanic membrane reconstruction. *Laryngoscope*, 94: 495-500.