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Original Research Article

Study of clinical profile, pathological and functional changes in contralateral ear in patients of chronic suppurative otitis media

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ABSTRACT

Background: Since unilateral chronic suppurative otitis media (CSOM) does not look to be an isolated entity, but rather a series of constitutional events that affect both ears. The aim of the present study is to study the clinical profile, pathological and functional changes in contralateral ear in patients of CSOM.
Methods: Three thundred CSOM patients were studied in the Department of Otorhinolaryngology and Head and Neck Surgery. Patients were examined with otoscope after complete history and sociodemographic taking.
Results: CSOM was more prevalent among females (54%) of young age group (41.6%) and with lower socioeconomic status (46%). Right ear was mostly affected (52.66%). Majority had discharge with hearing impairment (49.3%), 32.3% had ear discharge and 13.6% had hearing impairment and majority had pars tensa perforation (82.66%). In mucosal type CSOM, in CLE majority had abnormal tympanic membrane TM, of them majority had thinning (17.33%) and out of 65 patients with pars tensa retraction, majority had Grade I (22.17%). In squamosal type of CSOM, in CLE, 75% had abnormal TM, out of that 34.61% had pars tensa retraction and of that 23.07% had Grade I.
Conclusions: Abnormal contralateral ear was more prevalent. Mucous type of CSOM has a chance forming various grades of tympanic membrane retraction, tympano sclerosis, thin healed membrane in the contralateral ear whereas squamous type of CSOM has a greater chance of contralateral ear involvement like, retraction granulation.

Keywords: Abnormal contralateral ear, Hearing impairment, Perforation, Head and neck surgery

INTRODUCTION

The frequency of occurrence of chronic suppurative otitis media (CSOM) is well known. Prevalence of CSOM in developing countries represents a wide range 4% to 33.3%.[1,2] CSOM is defined as a chronic infection of the mucosa lining the middle ear cleft. Middle ear cleft include the eustachian tube, tympanic cavity and mastoid air cell system.

The disease often evolves in a continuum. Abnormalities that at first caused mild or minimal symptoms, such as simple retractions, can progress to severe changes, such as retraction pockets and destructive cholesteatomas. The continuum model explains the development of CSOM in a progressive manner. This theory state that effusion, retractions and cholesteatomas represent different pathological stages of the same disease.[2]

The evolution of this continuum can be seen in the contralateral ear (CLE). When tubal dysfunction is the trigger of CSOM, there is a high probability of impairment of both ears although in different intensity. Some studies point to a tendency of bilateral involvement of the middle ear by inflammatory pathologies.[3]

Poverty, crowded living conditions due to large families, poor sanitation, and lack of personal and environmental hygiene are some of the main risk factors for the prevalence of the COM. CLE are defined as the asymptomatic ear.[4]

CLE is evaluated as normal or abnormal. CLE is again classified according to their otoscopic findings. That may be normal, fluid in the middle ear, tympano sclerosis, retraction of pars tensa and pars flaccida, granulation, atelectasis and healed thin membrane. Lots of studies are there on demography of CSOM but very few studies are there in literature which studies the contralateral ear in patients with unilateral CSOM. The present study is conducted to evaluate the status of contralateral ear in patients with CSOM.

METHODS

Present hospital based descriptive time bound study was performed in 300 patients with unilateral CSOM in the Department of Otorhinolaryngology and Head and Neck Surgery, Gajra Raja Medical College, Gwalior (M.P.) and associated JA Group of Hospitals, Gwalior, (M.P) from February 2017 to August 2018.

All unilateral CSOM patients coming to ENT out-patient department were included. All the patients underwent complete history taking and clinical examination with otoscope. Pure tone audiometry was performed by a calibrated audiometer in a sound-proof room and narrow band masking was used when appropriate.

The hearing of the patient was assessed by pure tone audiogram. Hearing loss up to 15 dB was considered normal, 15-25 as minimal hearing loss, 25-40 dB as mild, 40-55 dB as moderate, 55-70 dB as moderately severe, 70-90 dB as severe and above 90 as profound.

Patients younger than age 12 were excluded to eliminate the possibility of inaccuracies of audiological testing in children. Patients older than 50 years of age were excluded because of the increased incidence of presbycusis in this age group. Patients with history of previous otologic surgery, with history of familial hearing loss, with history of prolonged exposure to noise and ototoxic drugs, head trauma and history of ear discharge in contralateral ear were excluded from the present study.

Routine blood and urine examination, pure tone audiometry, tympanogram and CT scan temporal bone was performed.

All the data analysis was performed using SPSS ver. 20 software. Frequency distribution was performed to find out the frequency of each finding. Data were expressed either as number of patients and percentage. No further statistical test were performed.

RESULTS

CSOM was more prevalent in females (54%) and among the age group of 20 to 30 years (41.6%) followed by 12-20 years (27%). In the present study maximum patients were of lower class (46%), 23% of upper-lower class, 15% of lower-middle class, 10% upper-middle class and 5% of upper class.

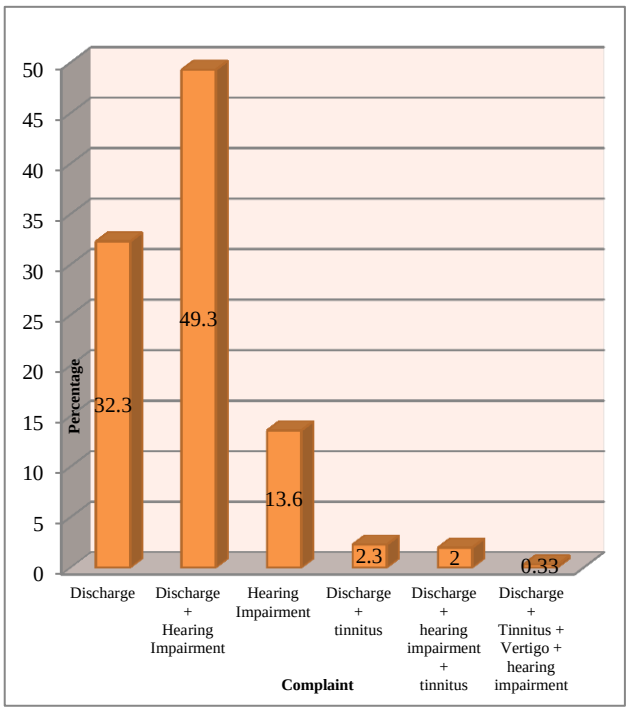

Figure 1: Distribution of chief complaints of patients.

Table 1: Distribution of otoscopic findings in CSOM patients.

Otoscopic findings	No. of patients	%
Pars tensa perforation	248	82.66
Small CP	40	13.33
Medium CP	119	39.66
Large CP	60	20
Sub Total CP	29	9.6
Marginal perforation	13	4.3
Attic perforation	6	2
Polyp	5	1.66
Granulation	12	4
Cholesteatoma	16	5.3

Majority of the CSOM patients had symptomatic right ear (52.66%) and 47.33% patients had symptomatic left ear. Maximum patients (40.33%) were having complaints duration between 1-2 years. Majority of the CSOM patients had mucosal type (82.66%) of which active type (69%) was more common. Squamosal CSOM was reported in 17.33% patients.

Most common otoscopic findings was pars tensa perforation (82.66%) followed by medium CP (39.66%) (Table 1). Most common pathological findings in CLE in patients with mucosal type of CSOM was of Grade I (22.17%) and grade I (4.03%) pars flaccida retraction (Table 2).

Table 2: Pathological findings in CLE in patients with mucosal type of CSOM.

Otoscopic finding		Cases	%
TM	Normal	100	40.32
	Abnormal	148	59.67
Abnormal TM	Tympanosclerosis	30	12.09
	Thinning	43	17.33
	Effusion	15	6
Pars tensa retraction [65 (26.20)]	Grade I	55	22.17
	Grade II	09	3.6
	Grade III	1	0.4
	Grade IV	0	0
Pars flaccida retraction [11 (4.4)]	Grade I	10	4.03
	Grade II	1	0.4

TM; tympanic membrane; CLE: contralateral ear.

Table 3 showed that abnormal TM was present in 75% of the patients, most common abnormal TM was in the form of pars tensa retraction (34.61%), of them Grade I was most common (23.07%).

Table 3: Pathological findings in CLE in patients with squamosal type of CSOM.

Otoscopic finding		Cases	%
TM	Normal	13	25
	Abnormal	39	75
Abnormal TM	Tympanosclerosis	12	23
	Thinning	14	26. 9
	Effusion	7	13.46
	Pars tensa retraction	18	34.61
Pars tensa retraction [18 (34.61)]	Grade I	12	23.07
	Grade II	5	9.6
	Grade III	1	1.9
	Pars flaccida retraction	9	17.3
Pars flaccida retraction [9 (17.3)]	Grade I	6	11.55
	Grade II	3	5.7

TM; tympanic membrane; CLE: contralateral ear.

DISCUSSION

Chronic suppurative otitis media is a common condition seen in patients attending the otolaryngology clinic. The discharging ear presents the otologist with the dilemma of operating on it or not. Understanding the clinical profile of CSOM will guide to initiate the management of the disease.

In our study it was observed that CSOM was more common in the age group of 20-30 years. Mean age of presentation was 27.73 years. It was in accordance with the studies done by Damghani et al where mean age of CSOM patients was 23.0 years.[4] In a similar study by Jadia et al and Soni et al mean age of CSOM patients was 24.3±10.63 and 24.05 years respectively.[5,6]

In our study female preponderance was observed, it may be because of the fact that females are bounded to their household tasks due to which they are mostly bound to their home and they seek medical advice only when symptoms hampered their daily routine, so acute suppurative otitis media (ASOM) and serous or secretory otitis media (SOM) leads to chronic suppurative otitis media (CSOM) by the time they seek medical advice. Previous studies are in line with the present study findings. Jadia et al and Damghani et al also reported female preponderance (51.6% and 53% respectively).[4,5] Contrary to present study findings a recent study by Soni et al showed male preponderance among CSOM patients.[6]

In our study most of the patients belongs to lower class; 140 (46.6%), lower middle class 45 (15%), upper lower class 70 (23.33%), upper middle class 30 (10%) and upper class 15 (5%). It was in accordance with study done by Lasisi et al where majority of the CSOM patients belong to lower SES class (48.69%).[7] This can be explained as poor personal and environmental hygiene and poor access to medical facilities and poor nutritional conditions which frequently accompany poor socio economic status.

The main presenting symptom in our study was ear discharge with hearing impairment followed by discharge and hearing impairment. It is in accordance with studies done by Kumara et al where author reported discharge and hearing impairment as the most common presenting symptoms among the CSOM patients.[8]

In our study, mean duration of disease was 4.09 years with the range of 1 to 20 years. It was due to easy accessibility of health facilities because most of the patients are from nearby area. Similar results were reported in the study done by Damghani et al.[4]

In our study mucosal CSOM was seen in 82.66% and squamosal CSOM in 17.33%. It can be explained because of low incidence of squamosal CSOM and patients with squamosal CSOM seek medical advice only when they get significant hearing problem or complications of CSOM. Study done by Abushahma et al reported similar findings and found that mucosal CSOM was present in 76% of the patients.[9] Findings of Shireen et al are also in line with the findings of present study where majority had mucosal CSOM (73.75%) as compared to squamosal CSOM (26.25%).[10]

Limitations

The present study has few limitations, being cross sectional nature of the study; present study findings cannot be applied to larger population, a large randomized clinical trial is needed to provide strength to present study findings.

CONCLUSION

In the present study most of the patients had abnormal contralateral ear. The results of this study and previous studies show that we should not consider CSOM as a disease limited to one ear because in many cases the occurrence of this disease can affect both ears. This issue should always be explained to the patients in order to achieve effective therapeutic outcome. Consequently, the contralateral ear should always be evaluated comprehensively in patients with unilateral CSOM to efficiently diagnose any alterations and, if necessary, provide timely therapeutic intervention. The mucous type of chronic otitis media has chances forming various grades of tympanic membrane retraction, tympano sclerosis, thin healed membrane in the contralateral ear. The squamous type of chronic otitis media has a greater chance of contralateral ear involvement like, retraction granulation etc.

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