

## Original Research

### Assessment of status of the contralateral ears in patients with unilateral CSOM

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#### ABSTRACT:

**Background:** Effusions, retraction pockets, perforations, and cholesteatoma are the different stages of the same pathology which may progress bilaterally. The present study was conducted to assess status of the contralateral ears (CLEs) in patients with unilateral CSOM. **Materials & Methods:** 70 patients of CSOM of both genders were divided into 2 groups as group I with cholesteatoma and group II those without cholesteatoma. The hearing status was assessed using pure tone audiometry. Presence of pathologies such as Tympanosclerosis, Pars tensa retraction, thinning tympanic membrane, Pars flaccida retraction and Opaque tympanic membrane were recorded in both groups. **Results:** Out of 70 patients, males were 40 and females were 30. Contra lateral ears were normal in 18 in group I and 16 in group II. Abnormality found were tympanosclerosis in 4 and 3, Pars tensa retraction in 5 and 2, thinning of tympanic membrane in 3 and 6, Pars flaccida retraction in 2 and 3 and opaque tympanic membrane in 3 and 2 patients in group I and II respectively. The difference was non-significant ( $P > 0.05$ ). The mean conductive hearing loss in group I was 33.76 dB ABG and in group II was 28.54 dB ABG. The difference was significant ( $P < 0.05$ ). **Conclusion:** TM retraction in group I patients and thinning TM in group II were common contralateral ear findings in patients with chronic suppurative otitis media. Hence, a careful evaluation of contralateral ear is mandatory to diagnose hidden pathologies.

**Key words:** Chronic suppurative otitis media, contralateral ear, TM retraction

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#### INTRODUCTION

Chronic suppurative otitis media (CSOM) refers to chronic irreversible inflammatory pathological tissue damage of the middle ear cleft mucosal lining in the setting of a permanent tympanic membrane (TM) perforation. Clinically it manifests as ear discharge and deafness. Although there is probably not a single etiologic factor in otitis media, compromise of the eustachian tube through either obstruction or dysfunction is generally considered a common factor associated with otitis media.

The prevalence of CSOM varies around the world, affecting 30% of North America's, 4–6% of African populations and less than 1% of individuals in the United States and United Kingdom. Poverty, crowded living conditions due to large families, poor sanitation, and lack of personal and environmental hygiene are some of the main factors underlying the prevalence of COM. It is probable that a patient with CSOM will have a disorder of the contralateral ear.

It is mentioned in literature that effusions, retraction pockets, perforations, and cholesteatoma are the different stages of the same pathology which may progress bilaterally. When tubal dysfunction is the initiative of COM, there is a high probability of impairment of both ears, in different degrees of intensity. The present study was conducted to assess status of the contralateral ears (CLEs) in patients with unilateral CSOM.

#### MATERIALS & METHODS

The present study comprised of 70 patients of CSOM of both genders. All gave their written consent for the participation in the study.

Data such as name, age, gender etc. was recorded. Patients were divided into 2 groups as group I with cholesteatoma (squamous type) and group II those without cholesteatoma (mucosal type). The hearing status was assessed using pure tone audiometry. Presence of pathologies such as Tympanosclerosis,

Pars tensa retraction, thinning tympanic membrane, Pars flaccida retraction and Opaque tympanic membrane were recorded in both groups. Data thus

obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

## RESULTS

**Table I Distribution of patients**

Total- 70		
Gender	Males	Females
Number	40	30

Table I shows that out of 70 patients, males were 40 and females were 30.

**Table II Assessment of otoscopic findings in contralateral ears among patients with CSOM**

Findings	Variables	Group I (35)	Group II (35)	P value
Abnormal	Normal	18	16	0.94
	Tympanosclerosis	4	3	0.82
	Pars tensa retraction	5	2	
	Thinning tympanic membrane	3	6	
	Pars flaccida retraction	2	3	
	Opaque tympanic membrane	3	2	

Table II shows that contra lateral ears were normal in 18 in group I and 16 in group II. Abnormality found were tympanosclerosis in 4 and 3, Pars tensa retraction in 5 and 2, thinning of tympanic membrane in 3 and 6, Pars flaccida retraction in 2 and 3 and opaque tympanic membrane in 3 and 2 patients in group I and II respectively. The difference was non- significant (P>0.05).

**Table III Conductive hearing loss**

Conductive hearing loss	Mean (ABG)	P value
Group I	33.76 dB	0.01
Group II	28.54 dB	

Table III shows that mean conductive hearing loss in group I was 33.76 dB ABG and in group II was 28.54 dB ABG. The difference was significant (P<0.05).

## DISCUSSION

Chronic otitis media (COM) is an inflammation of the middle ear cavity and mastoid mucosa with irreversible tissue damage. Although improvements in general health and medical care, COM is still common around the world. The pathology starts first as a simple abnormality then progresses to severe changes, as in the following sequences; the TM retraction, middle ear effusion, or even perforation, or might lead to formation of the cholesteatoma so it represents various pathological stages but of the same disease, and this evolution concept of the continuum theory could be even detected in the contralateral ear (CLE). The present study was conducted to assess the status of the contralateral ears (CLEs) in patients with unilateral CSOM.

We found that out of 70 patients, males were 40 and females were 30. Dawood et al assessed the status of the contralateral ears (CLEs) in patients with 96 unilateral CSOM. All were categorized as group 1 and group 2 respectively. The incidence of otoscopic CLEs structural abnormalities was 47.91% in both groups; being 45.83% in group 1 mostly 25% of TM retraction, and 50% in group 2 mainly (20.84%) of thinning TM. Mastoid CT scan showed (35.41%) air cell abnormalities in both groups; being 37.5% in group 1 and 33.33% in group 2 while tympanic cavity mucosal thickening was 33.33% in group 1 and 25%

in group 2. Conductive hearing loss was found (39.58%) in both groups; being 45.83% in group 1 and 33.33% in group 2, while C-curve tympanometry curve was 63.63% and 36.36% in both groups, respectively.

We found that contra lateral ears were normal in 18 in group I and 16 in group II. Abnormality found were tympanosclerosis in 4 and 3, Pars tensa retraction in 5 and 2, thinning of tympanic membrane in 3 and 6, Pars flaccida retraction in 2 and 3 and opaque tympanic membrane in 3 and 2 patients in group I and II respectively. Vartiainen E et al in their study a total of 271 patients having COM with or without cholesteatoma were evaluated. Pathologic alterations such as tympanic membrane perforations, adhesive otitis, cholesteatoma, retraction pockets, and tympanosclerosis in the CLE were determined. Results showed that 39.1% had pathologic alterations in their CLE. The 60.9% of the CLEs were normal. The most frequent finding in these patients was dry perforation of the tympanic membrane (26.9%). The remaining pathologies were retractions (7.3%), cholesteatoma (1.9%), sclerosis (2.2%), and adhesive otitis media (0.7%). A considerable percentage of the CLEs of the patients with COM were affected with a spectrum of pathologies at some degree.

We found that mean conductive hearing loss in group I was 33.76 dB ABG and in group II was 28.54 dB

ABG. Damghani et al<sup>14</sup> in their study 100 patients with COM, 60% of patients experienced disorders of the contralateral ear. Otoscopy analysis showed 54% of patients had a disorder of the contralateral ear, with the most common disorder being perforation of the ear drum. PTA showed a 48% incidence of contralateral ear problems (85% conductive hearing impairment; 12.5% sensorineural hearing impairment; 1.2% mixed). A total of 73.2% of patients with conductive hearing loss had a problem across all frequencies, while half of the patients with sensorineural hearing impairment had problems at frequencies greater than 1000 Hz. 38% of patients had problem in the contralateral ear. HRCT and Schuller graphical analyses indicated 31.5% and 36% occurrence of contralateral ear disorders, respectively. The limitation the study is small sample size.

### CONCLUSION

Authors found that TM retraction in group I patients and thinning TM in group II were common contralateral ear findings in patients with chronic suppurative otitis media. Hence, a careful evaluation of contralateral ear is mandatory to diagnose hidden pathologies.

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