



ORIGINAL RESEARCH PAPER

ENT

STATUS OF CONTRALATERAL EAR IN UNILATERAL CHRONIC OTITIS MEDIA

KEY WORDS: COM, PTA, Tympanometry

Abushahma K	Department of ENT Head and Neck Surgery, Ruhilkhand Medical College and Hospital Bareilly U.P. INDIA.
Ashish K M	Department of ENT Head and Neck Surgery, Ruhilkhand Medical College and Hospital Bareilly U.P. INDIA.
Surendra P	Department of ENT Head and Neck Surgery, Ruhilkhand Medical College and Hospital Bareilly U.P. INDIA.

ABSTRACT

Introduction: Chronic otitis media (COM) is the most common disease of ear in developing countries. COM is defined as a chronic inflammation of middle ear cleft which is associated with more than six weeks of ear discharge through permanent tympanic membrane perforation. COM based on pathology it is divided into mucosal and squamosal type.
Aims: To evaluate the status of contra lateral ear in unilateral COM.
Material and methods: This is a cross-sectional study was performed including 110 patients with unilateral COM who came to ENT OPD of RMCH Bareilly. Patients over 15 years of age with unilateral COM were taken for this study. All patients has been examined and investigated in the form of detailed proforma was taken which included the complete history, otoscopic examination, Tuning Fork Test(TFT), Audiometric evaluation (Pure Tone Audiometry (PTA), Tympanometry) and Radiography (X-ray mastoid schuller view).
Results: On otoscopic findings (76.3%) patients in mucosal and (88.2%) patients in squamosal showed abnormalities in contralateral ear. PTA showed (56.4%) incidence of hearing loss in contralateral ear (46.4%) Conductive Hearing Loss, (8.9%) sensorineural Hearing Loss and (1.8%) mixed). In squamosal type of COM (67.6%) patients had hearing impairment as compared to mucosal type 51.3%. In tympanometry findings (39.1%) patients had problem in contralateral ear. Radiographic finding of contralateral ear showed sclerotic mastoid air cells (32.4%) in squamosal type and (9.2%) in mucosal type.
Conclusion: Aprox (80%) patients with unilateral csom have abnormal ear findings in contralateral ears. Squamosal type of unilateral csom had more chances of abnormalities in contralateral ear. In this study the results showed that disease of unilateral ear can also affects the other ear.

INTRODUCTION

Chronic Otitis Media(COM) is defined as a chronic inflammation of middle ear and mastoid cavity. Chronic Otitis Media is divided into mucosal and squamosal.

When the inflammation is associated with a discharge through a tympanic membrane perforation, it is known as chronic otitis media. It may be acute when less than six weeks or Chronic when discharge occurs more than six weeks. [1]

Chronic otitis media mainly occurs due to malfunction of the eustachian tube, in patients with chronic otitis media it is probable that patients will have related findings in their contralateral ear also. [2]

Poverty, over crowded living conditions, poor sanitation and hygiene and low socioeconomic groups are some of the main factors underlying the prevalence of chronic otitis media. [3]

There is limited study on this subject in this regards. We studied this topic to find out the status of contralateral ear in unilateral middle ear disease in patients who were admitted to RMCH between October 2015 to March 2016.

MATERIAL AND METHOD :-

This is a cross-sectional study undertaken in department of ENT & Head and Neck surgery of Ruhilkhand Medical College and Hospital Bareilly including 110 patients with complaining of unilateral ear discharge.

Patients over 15 years of age with unilateral COM were included in this study.

They were examined and investigated in the form of detailed proforma, which included the complete history, otoscopic examination, Tuning fork test(TFT), Audiometric evaluation (Pure Tone Audiometry (PTA), Tympanometry) and Radiography (X-ray mastoid schuller view). Status of contralateral ear was also noted.

OBSERVATIONS:-

There were 60 (54.54%) males and 50 (45.45%) females in this study.

Of the 110 cases, 76 (69.1%), and 34 (30.9%) had a feature, otoscopic examination and investigation finding confirm the diagnosis mucosal and squamosal type of CSOM respectively.

Condition of Tympanic Membrane in contralateral Ear	Male (%)	Female (%)	Total Patients (%)
Normal	14 (12.72%)	8 (7.3%)	22 (20%)
Abnormal	46 (41.8%)	42 (38.2%)	88 (80%)
Total	60 (54.54%)	50 (45.45%)	110 (100%)

2. Types of CSOM in disease Ear :-

Types of CSOM in diseased Ear	Male (%)	Female (%)	Total patient
Mucosal	44 (40%)	32 (29.1%)	76(69.09%)
Squamosal	16 (14.54)	18 (16.4%)	34 (30.9%)

3. Abnormalities in Contra lateral Ear in all patient in unilateral CSOM :-

Types of COM	Normal	Abnormal	Total
Mucosal	18(16.4%)	58 (76.3%)	76
Squamosal	4 (3.6%)	30 (88.2%)	34

In mucosal type (76.3%) patients had abnormal finding in contra lateral ear & squamosal (88.2%) patient had abnormal contra lateral finding.

4. Otopscopic finding of contralateral ear :-

On otoscopic examination findings of mucosal type of COM were retracted tympanic membrane in(32.9%) cases, tympanosclerotic patches in (27.6%) cases and effusion 15.8% cases while in squamosa type retracted tympanic membrane 38.2%, tympanosclerotic patches (32.7%) and effusion (16.4%) cases showed abnormalities in their contralateral ears..

Types of COM	Retraction of tympanic membrane	Tympanosclerotic patches	Effusion
	No of Patient (%)	No of Patient (%)	No of Patient (%)
Mucosal (76 patient)	25 (32.9 %)	21 (27.6 %)	12 (15.8 %)
Squamosal (34 patient)	13 (38.2%)	15 (44.1 %)	6 (17.6 %)
Total	38 (34.5 %)	36 (32.7 %)	18 (16.4%)

5.Types of hearing loss in Contralateral ear :-

Types of COM and number of patients	Conditive hearing loss	Sensorineural hearing loss	Mixed hearing loss	Total number of hearing loss patient
Mucosal (76)	37 (48.7%)	2 (2.6%)	-	39 (51.3%)
Squamosal (34)	14 (41.2%)	7 (20.6%)	2 (5.9%)	23 (67.6%)
Total hearing loss	51 (46.4 %)	9 (8.9 %)	2 (1.8 %)	62 (56.4%)

In Squamosal (67.6 %) hearing loss & mucosal type (51.3 %) hearing loss in contra lateral ear. Conditive hearing loss (46.4 %), sensorineural hearing loss (8.9 %) & mixed types of hearing loss (1.8 %) cases.

Tuning fork test (TFT) finding- lower frequencies were involved more, in mucosal type (51.3%) in contralateral ear and (84.2%) in affected ear, in squamosal type (67.64%) in contralateral ear and (94.1%) in affected ear.

Pure tone audiometry findings :-

Pure tone audiometry	Mucosal type		Squamosal Type	
	Affected ear	Contra lateral ear	Affected ear	Contra lateral ear
<25 dB	42 (55.3%)	29 (38.4%)	23 (67.6%)	17 (50%)
26-40 dB	17 (22.4%)	10 (13.4%)	6 (17.6%)	5 (14.7%)
41-55 dB	3 (3.9%)	-	3(8.8%)	1(2.9%)
56-70 dB	-	-	-	-
71-90 dB	-	-	-	-
>90 dB	-	-	-	-
Total number of patient (%)	62 (81.6%)	39 (51.3%)	32 (94.1%)	23 (67.6%)

In squamosal type of COM (67.6%) patients had hearing impairment as compared to mucosal type (51.3%) in their contralateral ears.

Tympanometry findings in Contralateral ear :-

Types of COM	Type A	Type B	Type C
Mucosal (76)	-	16 (21.1%)	2 (2.6%)
Squamosal (34)	-	21 (61.8%)	4(11.8%)
Total (110 patient)	-	37 (33.6 %)	6 (5.5 %)

In mucosal type (21.1 %) type B and (2.6%) of type C curve and in Squamosal type (61.8 %) type B and (11.8%) type C curve.

Radiographic finding of contralateral ear showed sclerotic mastoid air cells 11 (32.4%) cases, in squamosal type and 7 (9.2%) cases in mucosal type.

DISCUSSION:-

Chronic otitis media occurs due to inflammation and infection in middle ear cleft and is persistent and long standing, with varying prevalence around the world.

It is a major health problem in developing countries. It is also one of the common health problem in India.

Over populated families, Poverty, personal sanitation and poor

environmental and living in slums are factors of some of the leading causes of the condition.

Malfuction of eustachian tube plays an important role in development of disease.

According to continuum theory, in the absent of arresting mechanism, the pathology may progress bilaterally in a considerable proportion of cases, although with differing degree of severity. Although clinical studies published by Scheibe et al have demonstrated a high prevalence of alteration in contralateral ears. [5]

Otitis media with effusion is recognized as an initial condition which, when unresolved, may progress to chronic transformation. Although only a small percentage of cases of otitis media with effusion will evolve to chronic otitis media, considering that the presence of bilateral effusion is reported to high, it might be expected that the prevalence of bilateral chronic otitis media would be similarly prevalent. [6]

Limited study data are available in the literature relating to the contralateral ear in patients with COM.

Chalton et al assessed the contralateral ear in 73 patients and found abnormalities in (53.4%) of them. [7]

Vartiainen et al described a series of 493 contralateral ear in patients undergoing for surgery of chronic otitis media. They found 63% of the contralateral ear having some degree of abnormalities. [8]

P adhikari et al evaluate the status of contralateral ear in 750 patients and found abnormalities (62.8%) in mucosal type and (71.4%) in squamosal type of CSOM. [9]

Mohammad Ali et al assessed the contralateral ear in 100 patients and found abnormalities in more than (54%) patients. [10]

Patients with unilateral COM are very likely to present with associated disease in contralateral ear.

Our study revealed that (88.2%) squamosal type of unilateral COM had a more chances of contralateral ear involvement than (76.3%)mucosal type.

CONCLUSION

Aprox (80%) patients with unilateral COM have abnormal ear findings in contralateral ear. Squamosal type of unilateral COM had more chances of abnormalities in contralateral ear. In this study the results showed that disease of unilateral ear can also affects the other ear.

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