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Original Research Article.

Assessment of Otoscopic Findings of the Contralateral Ear in Patients with Chronic Suppurative Otitis Media

Sandeep Kumar[1], Abha Kumari[2*]

[1]**Associate Professor, Department of ENT,**
Rajendra Institute of Medical Sciences, Ranchi, Jharkhand, India.
[2*]**Associate Professor, Department of Pharmacology,**
Rajendra Institute of Medical Sciences, Ranchi, Jharkhand, India.

ABSTRACT

Background: Chronic suppurative otitis media is an irreversible inflammatory pathological condition in which there is damage to the mucosal lining of the middle ear cleft leading to permanent perforation of tympanic membrane. There is limited data in the literature regarding the effect of otitis media on the contralateral ear, therefore the aim of the present study was to assess the otoscopic findings of the contralateral ear in patients with chronic suppurative otitis media.

Materials and Methods: The present cross sectional descriptive study was conducted in the Department of ENT for a period of 1 year. A complete demographic evaluation of all the subjects was performed including the gender, age group, educational status and occupation was noted. The contralateral ear was also studied using Schuller radiography. All the data was arranged in a tabulated form and analyzed using SPSS software. All the data was expressed as percentage of total.

Results: The present study enrolled 80 subjects, out of these 50 were males and 30 were females. The mean age of the subjects was 24.05 +/- 2.16 years. According to otoscopy, 52.5% subjects had contralateral ear problem whereas according to PTA, otoscopy and otoendoscopy there 60% subjects who had contralateral ear problems. The results of PTA demonstrated that 39 subjects had contralateral ear problem with conductive hearing loss seen amongst 84.6% cases, sensorineural amongst 12.8% cases.

Conclusion: From the above study we can conclude that there were 60% cases with contralateral ear issues, out of these the most common finding was tympanosclerosis followed by otorrhea.

Keywords: Tympanosclerosis, Suppurative, Otitis Media.

***Correspondence to:**

Dr. Abha Kumari,
Associate Professor,
Department of Pharmacology,
RIMS, Ranchi, Jharkhand, India.

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INTRODUCTION

Chronic suppurative otitis media is an irreversible inflammatory pathological condition in which there is damage to the mucosal lining of the middle ear cleft leading to permanent perforation of tympanic membrane, it is clinically presented by discharge from ear and deafness.[1] Different theories regarding the pathogenesis of chronic otitis media have been postulated. The most commonly accepted theory is given by the Minneapolis group. This theory states that there is development of a continuous chain of events that occur at subepithelial and epithelial levels in the cleft of middle ear.[2] In severe forms chronic otitis media results in retraction and perforation of tympanic membrane, effusion in middle ear or cholesteatoma formation. The model represents the different pathological stages of the same disease, and this same concept can be detected in the contralateral ear.[2] The prevalence of otitis media varies widely around the world, it affects 30% of North America's subjects, 4–6% of the African subjects and less than 1% of subjects of the United States and United Kingdom.[3,4] Risk factors include poverty, lack of proper hygienic conditions, large families and improper sanitation.[5] There is limited data in the literature regarding the effect of otitis media on the contralateral ear,[6,7] therefore the aim of the present study was to assess the otoscopic findings of the contralateral ear in patients with chronic suppurative otitis media.

MATERIALS AND METHODS

The present cross sectional descriptive study was conducted in the Department of ENT for a period of 1 year. The study was approved by the institutional ethical committee and all the subjects were informed about the study and a written consent was obtained from all in their vernacular language. Patients more than 15 years of age with the diagnosis of chronic otitis media were included in the study. A complete demographic evaluation of all the subjects

was performed including the gender, age group, educational status and occupation was noted. The chief complaint of the subjects and the associated signs and symptoms like tinnitus, hearing loss, otorrhea and fistula was recorded. Otoscopy was performed amongst the subjects to note the signs of ear drum perforation, tympanosclerosis, presence of otorrhea etc. and all the data was recorded in a tabulated form. Pure tone audiometry was also performed, and the ear drums were also assessed using otoendoscopy and X-ray mastoid. All the data was arranged in a tabulated form and analyzed using SPSS software. All the data was expressed as percentage of total.

Table 1: Otoscopic findings of the study

Findings	Percentage
Tympanic membrane retraction	10
Regular otorrhea	30
Tympanosclerosis	43
Tympanic perforation	17

Table 2: Results of PTA

PTA results	Frequency	Percentage
Mixed	1	2.5
Sensorineural	5	12.8
Conductive	33	84.6
Total	39	100

Table 3: X-ray findings

Results	Frequency	Percentage
Bone defect	2	9.1
Sclerosis	7	31.8
Decline in mastoid air cells	13	59.1
Total	22	100

RESULTS

The present study enrolled 80 subjects, out of these 50 were males and 30 were females. The mean age of the subjects was 24.05 +/- 2.16 years. The mean duration of disease was 10.98 +/- 3.76 years with the range of 2-16 years. There were 24 patients with the chief complaint of otorrhea and 28 patients complained of hearing loss.

According to otoscopy, 52.5% subjects had contralateral ear problem whereas according to PTA and otoendoscopy there were 60% subjects who had contralateral ear problems. There were overlapping of symptoms amongst the study subjects. There were 30% cases with regular otorrhea, 10% subjects reported with tympanic membrane retraction. Tympanic perforation was observed in 17% cases. Tympanosclerosis was seen amongst 43% cases. (table 1)

The results of PTA demonstrated that 39 subjects had contralateral ear problem with conductive hearing loss seen amongst 84.6% cases, sensorineural amongst 12.8% cases. (Table 2)

X-ray results showed abnormality in 22 cases, with decline in mastoid cells in 59.1% (n=13) cases. Sclerosis was seen in 31.8% (n=7) cases. Bone defect was observed only in 2 cases. (Table 3)

DISCUSSION

Otitis media is one of the most commonly seen disorder of middle ear which is caused by infection and can be further divided into acute otitis media, otitis media with effusion, chronic suppurative otitis media, and chronic otitis media with cholesteatoma.[8] Otitis media with cholesteatoma is an inflammatory infection of the middle ear that is persistent. The main etiology behind cholesteatoma is malfunctioning of the Eustachian tube therefore, it is common that patients present with disorder of the contralateral ear also.[8]

One of the earliest studies performed in Brazil stated that 75% of the subjects have some modification in the contralateral ear. Few of the frequent findings were retraction, ear drum perforation, cholesteatoma, and plaque sclerosis. In our study, according to otoscopy, 52.5% subjects had contralateral ear problem whereas according to PTA and otoscopy there were 60% subjects who had contralateral ear problems. There were overlapping of symptoms amongst the study subjects. There were 30% cases with regular otorrhea, 10% subjects reported tympanic membrane retraction. Tympanic membrane perforation was observed in 17% cases. Tympaniosclerosis was seen amongst 43% cases. The condition is long lasting, persistent and has varying prevalence around the globe.[3,4] The main etiology includes, poverty, over-crowded families, and lack of environmental and personal sanitation.[5] It begins as otitis media with effusion which, when unresolved, generally progresses to chronic transformation. Very few percentage of cases of evolve to chronic otitis media, the presence of bilateral effusion cases are very high though.[7,9] There is scarcity of data in the literature regarding to the contralateral ear amongst patients with chronic otitis media.[10,11] In the present study, the results of PTA demonstrated that 39 subjects had contralateral ear problem with conductive hearing loss seen amongst 84.6% cases, sensorineural amongst 12.8% cases. X-ray showed abnormality in 22 cases, with decline in mastoid cells in 59.1% (n=13) cases. Sclerosis was seen in 31.8% (n=7) cases. Bone defect was observed only in 2 cases. In another study conducted in the year 1996 involving 496 subjects suffering from otitis media showed that 63% subjects had contralateral ear disorders with retraction being the commonest followed by perforation of the tympanum.[11] As per a study amongst 500 patients in Brazil, 75.2% reported to have issues in the contralateral ear, with tympanum retraction beingthe primary feature.[6,12]

CONCLUSION

From the above study we can conclude that there were 60% cases with contralateral positive findings, out of these the most common finding was tympanosclerosis followed by otorrhea. The occurrence of otitis media in the contralateral ear is a common issue faced by majority of patients with unilateral otitis media.

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