



CORRELATIVE STUDY OF OTOSCOPIC FINDINGS AND THE HEARING LOSS IN CHRONIC OTITIS MEDIA IN THE KOLHAN BELT POPULATION OF JHARKHAND

ENT

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ABSTRACT

BACKGROUND: Chronic otitis media is an inflammatory disorder caused by effusion fluids or pathological changes in tympanic membrane of middle ear that leads to hearing loss in all age groups which may be temporary or permanent. **METHODS:** Otological examination was carried out by otoscope (Heinz) microscope (zeiss). For the purpose of calculation of site of perforation tympanic cavity divided in 5 quadrants, Audiological evaluation was done by using tuning fork – H2 (Rinne weber and ABC) pure tone Audiometry was done using ALPS advanced digital audiometric. Type of hearing loss was recorded. **RESULTS:** out 60 patients (120 Ears) 93 (77%) had positive findings, 55 (59.3%) had perforations, 17 (18.2%) cholesteatoma, 14 (15%) had retraction, 2 (3.2%) had TS, 2 (2.15%), had polyp, 2 (2.15%), had granulations. Clinical symptoms were 40 (43%) Ear discharge, 27 (29.03%), had decreased hearing. In the correlative study of chronic otitis media 55 perforation had 30 (32.2%) conductive test, 9 (9.5%) mixed loss, 0% SN loss 8 (8.6%) normalcy was observed. **CONCLUSION:** Chronic otitis media if not treated produces chronic mastoiditis by contiguous spread Erosion of the walls of the middle ear and mastoid cavity may lead to exposure of facial nerve, labyrinthitis (hearing loss), sinus thrombosis, meningitis may potentially will have fatal complications

KEYWORDS

COM=Chronic Otitis Media, Tuning Fork, Digital Audiometry Perforation, Cholesteatoma, Labrynthitis.

INTRODUCTION

Chronic suppurative otitis media (CSOM) is a major cause of acquired hearing impairment at any age⁽¹⁾ COSM is a result of an initial episode of acute otitis media and is characterised by persistent discharge from middle ear through tympanic perforation, especially in developing countries. Most approaches to treatment have been unsatisfactory or are very expensive and difficult as most of the antibiotic is ototoxic⁽²⁾. However recent development in the treatment if COM include evidences for efficacy of antibiotics especially with the introduction of tropical quinolones are reported high effective but remain expensive⁽³⁾. In the COM require careful assessment of middle ear by ENT surgeon for middle ear disease that has not been resolved by antimicrobial therapy. Hence elective mastoidectomy to rule out the exact cause and degree of perforation of ear drum (tympanic membrane), cholesteatoma, retraction, tympanic sclerosis (TS), polyp and granulation⁽⁴⁾. Hence attempt was made to study the COM in hearing loss patients to evaluate the various causes.

MATERIAL AND METHOD

60 (sixty) patients of different age group visiting to ENT department of MGM Medical College hospital Jamshedpur-831020, Jharkhand were studied.

Inclusive Criteria: The patients who have diagnosed to have chronic otitis media were selected for study.

Exclusion Criteria: The patients undergone previous ear surgery, history of trauma in the ear, congenital anomalies of pinna, external auditory canal or middle ear, presence of otitis externa were excluded from the study.

Method: History related to ENT was taken i.e. otorrhea, hearing loss, tinnitus, giddiness, frequent nasal symptoms and tinnitus, complete otological examination was carried out by using otoscope (Heinz) microscope (zeiss). Findings of ear – pre auricular post auricular region pinna, external auditory canal and status of tympanic membrane was noted. Presence of perforation, location, size, type was noted; evidence of cholesteatoma, retraction granulation, tympano – sclerosis, aural polyp was noted. For the purpose of calculating then site perforation, the tympanic membrane was divided into 5 quadrants of 20% each, pars tensa in to 4 quadrants (anterosuperior, anteroinferior, postero-inferior and postero superior) and pars flaccida constituting the remaining 20%. The site of perforation was recorded as a percentage area of the tympanic membrane.

Audiological evaluation was done by using tuning fork – 256, 512, 1024 Hz (Rinne, Weber and ABC). Pure tone audiometry was done using ALPS advanced digital audiometer (AD 2100) for all patients quantitative and qualitative evaluation was done. The type of hearing loss was recorded as normal, conductive, sensorineural and mixed hearing loss.

Each patient was followed up and for those who got operated the state of ossicles was noted the surgery.

The duration of study was June-2018 to July-2020.

Statistical analysis: different types of COM and correlation with nature of hearing loss AC threshold correlation with ABGAP, Correlation of size of perforation were classified with percentage for comparison the values. The statistical analysis was carried out in SPSS software. The ratio of male and female were 2:1.

- Out of 120 ears 93 (77.5%) had positive findings
- Out 93 ears 55 (59.3%) had perforation 17 (18.2%) cholesteatoma, 14 (15%) had retraction, 3 (3.22%) had tympano sclerosis, 2 (2.15%) had polyp 2 (2.11%) had granulation.
- Out 55 Ears with perforation 29 (31.1%) were subtotal, 12 (12.9%) anterior 12 (12.9%), posterior 2 (2.15%) total

OBSERVATION AND RESULTS

Table-1: Symptoms of the patients of chronic otitis media with hearing loss – 5 (8.3%) had nasal discharge, 16 (26.6%) had facial pain, 8 (13.3%) had post-nasal drip, 11 (18.3%) had tinnitus, 21 (35%) vertigo, 17 (28.3%) snoring, 10 (16.6%) had cheek pain, 5 (8.3%) enlargement of Jugular nodes.

Table-2: Study of positive findings 55 (59.3%) perforators, 17 (18.2%) had cholesteatoma, 14 (15%) had refraction, 8 (3.22%) had T.S., 2 (2.15%) had polyp, 2 (2.15%) had granulations.

Table-3: Types of perforations were 29 (31.1%) sub-total, 12 (12.9%) had anterior, 12 (12.9%) posterior, 2 (2.15%) total.

Table-4: Conduction loss was 30 (32.2%) and 9 (9.6%) in mixed loss and 0% in SN and 8 (8.6%) was normal in 12 anterior, 8 (8.6%) conduction loss, 1 (1.07%) mixed loss 0% in SN loss and 2 (2.15%) in normal.

12 posterior had 9 (9.5%) had conduction loss (CL), 1 (1.07%) mixed loss (ML) and 2 (2.15%) normal 29 subtotal had 19 (20.4%) CL, 7 (7.5%) ML, and 0% SN loss and 1 (1.07%) normal, 17 cholesteatoma had 7 (7.5%) CL, 5 (5.3%) ML, 1 (1.07%) S.N loss, 1 (1.07%) was normal, 14 Retraction had 6 (6.4%) CL 3 (3.22%) ML 0% SN loss 4 (4.3%) Normal, 2 TS had 1 (1.07%) CL, 0% ML 0% SN loss, 2 (2.15%) Normal, 2 granulation had 1 (1.07%) CL, 0% ML, 0% SN, 1 (1.07%) normal.

DISCUSSION

The present correlative study of otoscopic findings and hearing loss in chronic otitis media in Jharkhand population clinical symptoms in COM in hearing loss patients 40 (43%) ear discharge, 27 (29.03%) decreased hearing, 21 (35%) had vertigo, 17 (28.3%) had snoring, 11 (18.3%) tinnitus, 16 (26.6%) had facial pain 10 (16.6%) had cheek pain, 8 (13.3%) had post-nasal drip, 5 (8.3%) had nasal discharge, 5 (8.3%) had enlarged jugular lymph nodes (Table-1). The positive findings were 55 (59.3%) perforation, 17 (18.2%) had cholesteatoma, 14 (15%) retraction, 3 (3.22%) T.S, 2 (2.15%) polyp, 2 (2.15%) granulations (Table-2) out of 55 perforations 29 (31.1%) were sub-total, 12 (12.9%) anterior, 12 (12.9%) posterior, 2 (2.15%) total (Total-3). In 55 perforation had 30 (32.2%) conductive loss, 9 (9.6%) had mixed hearing loss, 0% SN loss, 8 (8.6%) were normal. In 12 anterior perforation had 8 (8.6%) conductive loss (CL), 1 (1.07%) mixed hearing loss (MHL) 0% SN loss, 2 (2.15%) normal, 12 posterior had 9 (9.6%) CL, 1 (1.07%) MHL, 0% SN loss, 2 (2.15%) normal 29 sub-total had 19 (20.4%) CL, 7 (7.5%) MHL, 0% SN loss, 1 (1.07%) normal, 1 total perforation had 1 (1.07%) CL, 0% MHL of SN loss 0% normal, 17 cholesteatoma had 7 (7.5%) had CL, 5 (5.37%) MHL, 1 (1.07%) SN loss, 1 (1.07%) normal, 14 Retraction had 6 (6.4%) conductive loss, 3 (3.22%) had MHL, 0% SN loss, 4 (4.3%) Normal, 3 TS had 1 (1.07%) had CL, 0% MHL 0% SN loss, 2 (2.15%) normal, 2 granulation had 1 (1.07%) CL 0% MHL 0% SN loss, 1 (1.07%) (Table-4). These findings were more or less in agreement with previous studies⁽⁵⁾⁽⁶⁾⁽⁷⁾.

Poverty, illiteracy, overcrowding, inadequate housing and poor hygiene. These five factors aggravate the otitis media if neglected leads to COM⁽⁸⁾. Moreover swimming in local overcrowded swimming pools, recurrent respiratory tract infections more than three types per year, overcrowded families will have the aetiology of COM⁽⁹⁾.

History of two weeks persistent ear discharge, the ear could be dry mopped well enough to see the ear drum. The perforation of tympanic membrane confirms the COM⁽¹⁰⁾. It requires study the intracranial or extra cranial infections are more appropriate treated with surgery. Mastoidectomy with or without tympanoplasty eradicates mastoid infection in about 80% of the patients and may be combined with surgical drainage of otogenic abscess else were but restoration of hearing either by tympanoplasty or by the use of hearing amplification device⁽¹¹⁾ as there would degeneration or erosion of vestibule cochlear apparatus or labyrinthitis which impair the hearing.

SUMMARY AND CONCLUSION

Correlative study of COM and hearing loss depends on correlation between the duration of OCM and development of hearing loss in high frequencies implies that earlier the attempts are made to control and treat the disease, better would be the outcome in hearing preservation after treatment. But this study demands further patho-physiological, genetic, nutritional, Embryological study because exact pathogenesis of otitis media is still unclear.

- This research paper was approved by ethical committee of MGM Medical College Jamshedpur-831020 Jharkhand
- No Conflict of interest
- No funding

Table – 1 Clinical symptoms in chronic otitis media and hearing loss patients (No. of patients: 60)

Symptoms	No. of patients	Percentage
Ear discharge	40	43
Decreased hearing	27	29.03
Vertigo	21	35
Snoring	17	28.3
Tinnitus	11	18.3
Facial pain	16	26.6
Cheek pain	10	16.6
Post nasal drip	8	13.3
Nasal discharge	5	8.3
Enlargement of Jugular lymph node	5	8.3

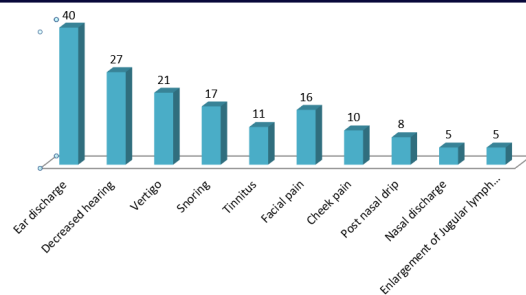


Figure.1 Clinical symptoms in chronic otitis media and hearing loss patients

Table – 2 Study of positive findings in chronic otitis media

Sl No	Particulars	No. of patients	Percentage
1	Perforations	55	59.3
2	cholesteatoma	17	18.3
3	Retraction	14	15
4	Tympanic Sclerosis (TS)	3	3.22
5	Polyp	2	2.15
6	Granulation	2	2.15

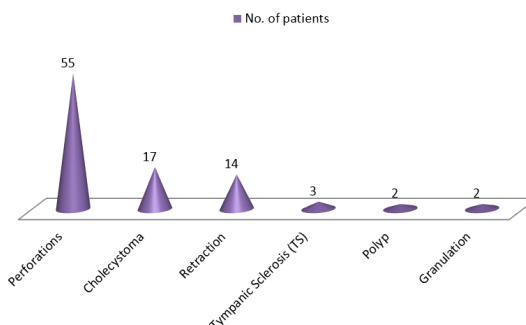


Figure.2 Study of positive findings in chronic otitis media

Table – 3 Types of perforations (No. of patients: 55)

Sl No	Particulars	No. of patients 55	Percentage
1	Sub-total	29	31.1
2	Anterior	12	12.9
3	Posterior	12	12.9
4	Total	2	2.15

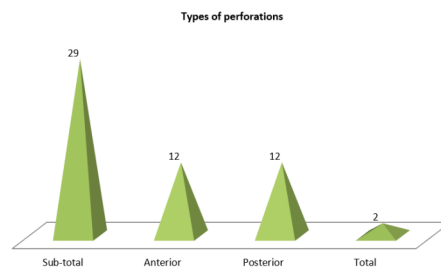


Figure.3 Types of perforations

Table – 4 Study of COM correlated with nature of hearing loss

COM	Total No of Ear (93)	Conductive loss	Mixed hearing loss	SN loss	Normal
Perforation type	55	30 (32.2%)	9 (9.61)	0	8 (8.6%)
Anterior	12	8 (8.6%)	1 (1.07)	0	2 (2.15%)
Posterior	12	9 (9.6%)	1 (1.07)	0	1 (1.07%)
Sub total	29	19 (20.4%)	7 (7.5)	0	0
Total	1	1 (1.07%)	0	0	1 (1.07%)
Cholesteatoma	17	7 (7.5)	5 (5.37%)	1 (1.7%)	4 (4.3%)
Retraction	14	6 (6.4%)	3 (3.22%)	0	1 (1.07%)
TS	3	1 (1.07%)	0	0	2 (2.15%)
Granulation	2	1 (1.07%)	0	0	1 (1.07%)

SN = Sensorineural
TS = Tympano sclerosis
Mixed hearing loss = MHL

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