



CHRONIC DISCHARGING EAR AND PATHOLOGY OF PHARYNGEAL END OF EUSTACHIAN TUBE

Md. Izhar Khan*

Assistant Professor, Department of ENT, Government Medical College, Nagpur.
*Corresponding Author

Kalpna Dasgupta

Professor, Department of ENT, Government Medical College, Nagpur.

Seema Patel

Associate Professor, Department of ENT, Government Medical College, Nagpur.

Ketki Pimpalkhute

Junior Resident, Department of ENT, Government Medical College, Nagpur.

ABSTRACT

Chronic otitis media (COM) active squamous & mucosal type is main cause of ear discharge. Eustachian tube (ET) dysfunction mainly due to pathology in cartilaginous part is important factor leading to COM.

Aims – To evaluate status of ET in active COM leading to discharge from middle ear.

Patients & Methods – One hundred eighty four patients of active COM were selected. Hundred patients of non discharging ear with normal ear drum were studied as control group.

Results – Pathological pharyngeal end of ET was found in 46.19% of COM while in control group 09% had abnormal ET.

Conclusion – Pathological pharyngeal end of ET seems to be important cause for middle ear discharge due to COM.

KEYWORDS : Chronic otitis media, middle ear discharge ,pharyngeal opening of eustachian tube.

INTRODUCTION :

Chronic otitis media active squamous and active mucosal type is main cause of chronic ear discharge . Traditionally chronic active squamous disease is called as cholesteatoma and chronic active mucosal disease as active tubotympanic otitis media. One of the important factor in chronic otitis media is eustachian tube dysfunction (ETD). ETD has been linked to pathology within cartilaginous portion more often than bony portion. Bony portion is a fixed conduit and normally patent. Various pathologies at the pharyngeal end of eustachian tube (ET) leads to obstruction of ET. Lack of middle ear aeration from ET is an underlying cause of cholesteatoma and chronic tympanic membrane perforation (tubotympanic disease)¹.

Cholesteatoma has long been a formidable adversary to the otologic surgeon. It causes erosion of bone and various life threatening complications. The cholesteatoma debris offers a favourable culture medium for various pathogenic bacteria leading to ear discharge. Discharge is scanty ,purulent and foul smelling.²

Tubotympanic disease is characterised by perforation of pars tensa of ear drum associated with ear discharge which is profuse, mucopurulent and odourless.

Causes of obstruction at pharyngeal end of ET¹ are :-

- 1) oedema of mucosa and submucosa** : due to sinonasal infection, allergy ,smoking and laryngopharyngeal reflux .
- 2) obstruction** : due to adenoid hypertrophy , tubal tonsil hypertrophy ,polyp and neoplasm .
- 3) dynamic dysfunction** : muscular dysfunction can be present in few cases .

Evaluation of pharyngeal end of ET :-

Condition of pharyngeal end of ET can be observed by nasal endoscopes. In endoscopic evaluation sinonasal , nasopharyngeal pathologies including anatomical variations can be observed. The present study was undertaken to evaluate the pharyngeal end of ET in patients having chronic otitis media (Active mucosal and active squamous type).

PATIENTS AND METHOD :-

The present study was hospital based prospective study. The protocol for this study was approved by college ethics committee. Informed consent was obtained from all the patients.

One hundred eighty four (184) patients having chronic otitis media

(active) were selected for the study. One hundred four (104) patients were having active chronic mucosal disease (tubotympanic otitis media) and eighty (80) cases were having active squamous disease (cholesteatoma). 106 patients were male and 78 were female aged between 18 to 50 years. A detail history about ear, nose, throat symptoms was taken. Particular attention was given on duration and characteristic of ear discharge and hearing loss. History of nasal obstruction, nasal discharge, sneezing, allergy, smoking and laryngopharyngeal reflux was asked. Thorough ear, nose and throat examination was done.

Inclusion criteria:

1. Active mucosal chronic otitis media
2. Active squamous chronic otitis media

Exclusion criteria

1. Otitis externa
2. Acute suppurative otitis media
3. Tuberculous otitis media
4. Malignancy of external and middle ear
5. Acute rhinosinusitis

Control group – Hundred patients having no ear discharge and normal tympanic membrane were included in control group.

Otomicroscopy and nasal endoscopy was done in all the patients. Nasal endoscopy was done with 0 degree and 30 degree endoscopes under local anesthesia. Detail examination of nasal cavity, osteomeatal complex and nasopharynx was done. Pharyngeal ostium of eustachian tube (ET) was studied in details and patients were divided into three groups according to condition of ET.

Group 1 – Normal ET

Group 2 – Oedematous ET

Group 3 – Tubal tonsil enlargement and or adenoids.

70 Degree laryngoscopy to examine the larynx for evidence of LPR was done.

RESULTS :-

One hundred eighty four (184) patients of chronic otitis media were studied.

Active mucosal disease (AMD) -

AMD was present in 104 (56.52%) patients. Bilateral disease was

present in 31.73%(33/104) and unilateral in 68.26%(71/104). In unilateral AMD other ear had normal tympanic membrane (TM) in 56.33% (40/71) cases and retracted TM in 43.66% (31/71).

History of allergy, smoking and Laryngopharyngeal reflux was present in 29.80% (31/104), 6.73%(7/104) and 5.76% (6/104) respectively.

DNS was present in 84.61% (88/104) patients. It was symptomatic in 80.68% (71/88)subjects.

Enlarged adenoids were present in 25.96% (27/104)cases .

Active squamous disease (ASD):-

Active squamous disease was present in 43.47% (80/184) subjects. Unilateral disease was present in 67.5%(54/80) and bilateral disease in 32.5%(26/80). In unilateral ASD 64.81%(35/54) had normal TM, 22.22% (12/54) had retracted and 12.96 % (7/54) had tubotympanic disease in other ear.

History of Allergy, smoking and laryngopharyngeal reflux was present in 21.25%(17/80), 10%(8/80) and 7.5%(6/80) patients respectively.

Deviated nasal septum was present in 68.75%(55/80)patients. It was symptomatic in 70.90%(39/55).

Enlarged Adenoids was present in 21.25%(17/80) cases.

Control group

In control group hundred patients were studied. 31% patients had DNS and symptomatic DNS was present in 41.93%(13/31) patients. 5%,3% and 2% patients had allergy, smoking and LPR respectively. Hypertrophy of adenoids was present in 5% cases.

Condition of pharyngeal orifice of ET in chronic otitis media and control group is depicted in Table 1 :

In subjects of active mucosal disease 49.03 % (51/104) had normal eustachian tube(group 1). Oedematous ET(group 2)was present in 34.61%(36/104) and enlarged tubal tonsil blocking ET (group3)was present in 16.34% (17/104). So pathological ET was seen in 50.96% (53/104).

In subjects of active squamous disease 60 % (48/80) had normal eustachian tube. Oedematous ET was present in 27.5% (22/80) and enlarged tubal tonsil was present in 12.5% (10/80). Thus abnormal ET was seen in 40% (32/80) subjects.

When both squamous and mucosal disease leading to discharging ear was considered pathological ET was seen in 46.19%(85/184) and normal ET in 53.80% (99/184) subjects.

In control group 91% had normal ET and9% had pathological ET.

Discussion -

India had the second highest prevalence of chronic suppurative otitis media (7.8%) in the world, next to Tanzania (14%). The disease burden of CSOM leading to ear discharge and hearing loss is high with significant morbidity³. In chronic mucosal otitis media persistence or recurrence of ear discharge occurs due to spread of infection Via ET or via external auditory meatus through perforation. ET blockage is one of the important factor in cholesteatoma formation and also recurrence of cholesteatoma due to post operative retraction.

In the present study in active squamous COM & active mucosal COM normal ET was seen in 60% and 49.03% respectively. While in control group normal ET was seen in 91%. Pathological ET was observed in 40% and 50.96% in squamous & mucosal disease respectively. Pathological ET was seen in 09% cases in control group.

Thus pathological ET was a feature in 46.19% (85/184) cases of

discharging ear while control group (non discharging ear) only 09% had pathological ET (P<0.001)

Shraddha Jain et al⁴ observed pharyngeal end of ET by dynamic slow motion video endoscopy & found abnormal ET in 76.30% cases of squamous disease 53.20% cases of mucosal disease. They found more number of abnormal ET than present study as they have also studied muscular dysfunction in addition to mechanical obstruction. In their study 73 ears were included as control group. Forty ears were having normal tympanic membrane & 33 ears were normal contralateral ears of unilateral ear disease. Normal ET was seen in 71.23% (52/73) and abnormal ET in 28.77% (21/73) cases. They observed more cases of pathological ET in control group as 19 out of 21 (90.47%) abnormal ET subjects had diseased ear on other side. We found abnormal ET on both sides even when patients had unilateral disease.

Jose Evandro et al⁵ in their study observed pathological ET orifice in 38.2% cases of squamous and 33% cases mucosal disease. They have not seen condition of ET in patients having normal ear drum(control group).

Septal correction was done in all the cases of symptomatic deviation, in AMD as first stage operation and in cholesteatoma after dealing with cholesteatoma surgically.

Septal correction was done in all the cases of symptomatic deviation in control group to prevent effect of symptomatic DNS on sinuses, ear & throat.

Medical management in form of systemic decongestant, local steroid spray was given in patients having oedema of ET and tubal tonsil and Adenoid hypertrophy. Adenoidectomy was performed in subject not responding to medical line of management.

In all cases mechanical dysfunction of eustachian tube underlying sinonasal and nasopharyngeal pathology should be identified & treated.

Conclusion

Discharging ear due to COM had oedema & lymphoid tissue hypertrophy in 46.19% cases. ET pathology can lead to recurrent or persistent ear discharge. In every case of chronically discharging ear endoscopic examination should be done to evaluate and treat the abnormal eustachian tube.

Table 1 ET status in discharging & normal ear (non discharging)

ET Status	Discharging ear n=184	Non discharging ear n=100
Normal	53.80%(99)	91%
Oedematous	31.52%(58)	8%
TTH	14.67%(27)	1%

(TTH-Tubal tonsil hypertrophy)

References

- 1) Dennis S. Poe, Quinton Gopen. Endoscopic diagnosis and surgery of eustachian tube dysfunction. Chapter 12, Glasscock – Shambaugh. Surgery of the ear 6th edition: 245-253.
- 2) James S. Brown M.D. A ten years statistical follow up of 1142 consecutive cases of cholesteatoma: The closed versus open technique. Calgury, Alta, Canada Laryngoscope 92: April 1988; 390-396.
- 3) WHO; Chronic suppurative otitis media, Burden of illness and management options; Geneva 2004.
- 4) Shraddha Jain, Minal Gupta et al. Dynamic video endoscopy in eustachian tube dysfunction: is it better than impedance audiometry. Innovative journal of medical and health sciences 6:3 May- June 2016:88-92.
- 5) Jose Evandro Andrade Prudente de Aquino, Dorothy Eliza Zavarezzi et al. Endoscopic avaiation of pharyngeal orifice of eustachian tube in patients with chronic otitis. International archives of Otolaryngology April- June 2007; 1, No. 2.