

**INFLUENCE OF FUNCTIONAL ENDOSCOPIC SINUS SURGERY ON MIDDLE EAR MUCOSA IN PATIENTS WITH BOTH SINUSITIS AND CHRONIC SUPPURATIVE OTITIS MEDIA.****Dr. P. Hari Krishna**

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ABSTRACT Chronic suppurative otitis media (CSOM) is middle ear infection with ear discharge of more than 3 months and permanent tympanic membrane perforation. Among many etiologies, Sinusitis is the most important etiology for Chronic suppurative otitis media patients as it alters Eustachian tube function. Two main routes of mucociliary transport have been identified in the lateral nasal wall. The first route drains secretions from the frontal and maxillary sinuses with the anterior ethmoidal complex. The secretions now travel both anteriorly and inferiorly to the aperture of the eustachian tube. The second pathway involves the transportation of secretions from the sphenoid sinus and posterior ethmoid cells to the nasopharynx, both superiorly and posteriorly, via the Eustachian tube aperture. The kind of discharge changes when the paranasal sinuses are diseased. Purulent or extremely viscous secretions leak around the eustachian tube aperture in chronic sinusitis. This could have serious effects on the Eustachian tube's ability to operate normally. Nasopharyngeal pathology are excluded in this study. Middle ear mucosal status improved after performing Functional Endoscopic Sinus Surgery. Thus Sinusitis contributes to infection in mucosal type of CSOM.

KEYWORDS : Chronic suppurative otitis media, Eustachian tube, Sinusitis, Functional Endoscopic Sinus Surgery.**INTRODUCTION**

Maintaining normal middle ear function, depends on the patency and appropriate function of the Eustachian tube. The Eustachian tube's mucociliary transport mechanism plays a critical role in both the pathophysiology and prognosis of chronic suppurative otitis media and in the outcome of myringoplasties.

Pathology in the nose and nasopharynx affects the patency of Eustachian tube. Sinusitis is the most significant cause of middle ear disease among the many etiologies. Sinusitis caused by adhesions, morphological differences in the lateral nasal wall and deviations in the nasal septum, all obstruct ventilation and the free flow of air through the nasal cavities, making them more vulnerable to infection through the secretion and movement of the mucus blanket. Purulent or extremely viscous secretions leak around the eustachian tube aperture in chronic sinusitis. This could have serious effects on the Eustachian tube's ability to operate normally. A previously normal eustachian tube can continue to be resistant to abnormal secretion because of its own mucociliary clearing. Owing to the severity and protracted nature of this ailment, inflammation of the lymphoreticular tissue within the orifice may cause congestion and blockage, and a deceleration in mucociliary clearance may lead to impaired ventilation, ultimately resulting in changes to the middle ear cleft.

AIM OF STUDY:

The aim of study is to ascertain that there is overall improvement in management of mucosal type of Chronic Suppurative Otitis Media after curing Sinusitis.

Type Of Study: Prospective Study

Source Of Data : 100 Patients with C.S.O.M. and sinusitis, who visited the E.N.T. department at Government General Hospital, Kurnool over 18 months period make up the study population.

Inclusion Criteria

Patients with features of mastoiditis on X ray and also with persistent ear discharge even after treatment with oral and topical antibiotics were subjected to Diagnostic nasal endoscopy and computed tomography of paranasal sinuses.

Exclusion Criteria

Patients with Acute Suppurative Otitis Media /Acute infection of Nose and Paranasal sinuses/ Otitis Media with Effusion. Patients not giving consent for study upon him/her.

RESULTS:

Hundred patients who attended ENT Department of Government general hospital, Kurnool, between January 2023 and June 2024, were included. Twenty four patients had a small central perforation of

tympanic membrane involving the anterior quadrant on otoendoscopy. 32 patients had a subtotal central perforation, whereas 44 patients had a large central perforation involving the anterior and posterior quadrants. 36 patients exhibited polypoidal mucosa, whereas 64 patients had edematous middle ear mucosa. Patients with CSOM were chosen randomly from the E.N.T. department. The patients received mucolytic medications, systemic and topical antibiotics and one month of follow-up care. Additionally, a mastoids X-ray was taken. The study included patients with persistent ear discharge after one month.

Every patient in our study had a Diagnostic nasal endoscopy. Discharge in middle meatus is present in all patients. In 48 patients the discharge was mucopurulent, in 28 patients it was purulent, and in 24 patients it was mucoid in nature. All patients showed the discharge around the Eustachian tube's opening. Antibiotics, antihistamines, and decongestants were administered to patients exhibiting signs of persistent sinusitis for a minimum of six weeks. Despite a brief improvement in their symptoms, individuals frequently experienced relapses. They underwent endoscopic sinus surgery and underwent post-operative follow-up every two weeks for a duration of 3 months. Every two weeks, the patients middle ear mucosal condition and ear discharge were evaluated via otoendoscopy.

The majority of cases on a CT scan of the paranasal sinuses had Grade I disease (52%) which is minimal disease limited to OMC, followed by Grade II disease (24%) which is moderate incomplete opacification of one or more sinuses, Grade III disease (14%), which is complete opacification of one or more major sinuses, but not all, and Grade IV disease (6%), which is total opacification of all sinuses. In 4 % of cases, CT scan shows normal paranasal sinuses. Maxillary sinus is the most commonly involved sinus among sinusitis.

In 66 patients, Deviated nasal septum was the most common anatomical variation on the CT scan. 40 patients had enlarged bulla constricting OMC, and 46 patients had medialized uncinate with thickening of the maxillary mucosa. In 28 patients, concha bullosa was found. 24 individuals had a type of frontal cell or a prominent agger blocking the frontal recess. Upon diagnostic nasal endoscopy and CT PNS, every patient exhibited anatomical variations and signs strongly indicative of chronic sinusitis.

It was shown that the proportion of patients who experienced unilateral ear discharge was 36 and bilateral ear discharge was 64. According to our study, patients had the same incidence of both unilateral and bilateral sinusitis. The patients with unilateral ear discharge had signs of chronic sinusitis and discharge over respective Eustachian tube's orifice.

To address their chronic sinusitis, the patients had functional

endoscopic sinus surgery using the Messerklinger approach. Patients with unilateral sinusitis underwent surgery only on the diseased side. Additionally, 66 patients had septal correction.

Evaluation of CSOM after FESS +/- Septoplasty

Improvement in the middle ear mucosal state was evaluated after sinusitis resolved. Out of 100 patients, 84 (84%) had better middle ear mucosal state following sinusitis resolution, while 16 (16%) had no change at all in terms of mucosal status or type of ear discharge. Patients with improved mucosal condition will undoubtedly get better if they receive cortical mastoidectomy or myringoplasty, if applicable, as further treatment.

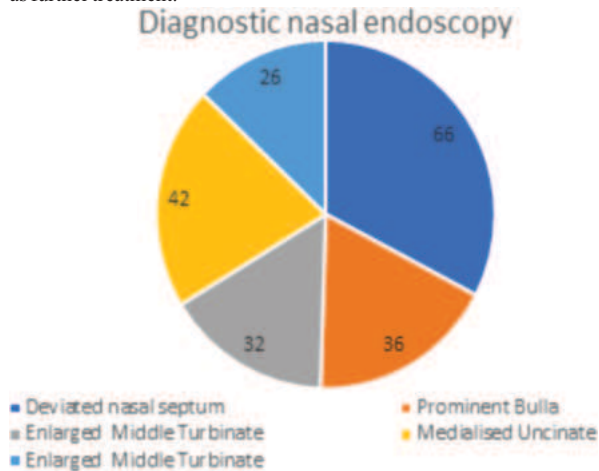


Fig 1: Diagnostic Nasal Endoscopy findings

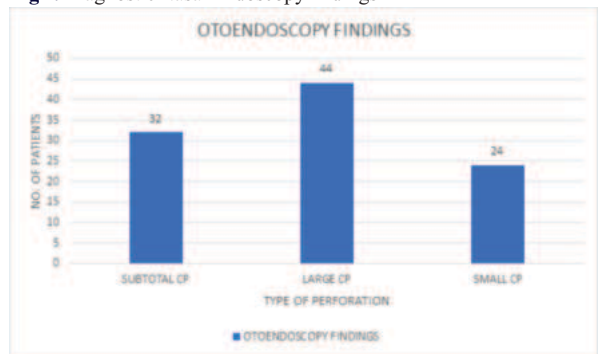


Fig 2: Otoendoscopy findings

Table 1 : Improvement Of Middle Ear Mucosal Status After Treatment Of Sinusitis

Nature of Middle ear mucosa	Middle ear mucosa after surgical treatment of sinusitis	
Edematous	Improved	54
	No improvement	10
Polypoidal	Improved	30
	No improvement	6

CONCLUSION

The most common cause of CSOM with recurrent ear discharge is sinusitis. According to our study, unilateral ear discharge is solely related to sinusitis on the corresponding side. The most frequent morphological variations of the nose and paranasal sinuses that predispose to sinusitis are deviated nasal septum, medialized uncinate, and enlarged bulla in that order of incidence. Resolving sinusitis has a positive impact on enhancing the condition of the middle ear mucosa in CSOM. When patients undergo endoscopic sinus surgery to clear their sinusitis, the outcome for CSOM clearance is favourable. Functional endoscopic sinus surgery has become a dependable and successful treatment for sinusitis. Overall prognosis of CSOM has improved after Functional endoscopic sinus surgery.

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