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Research Article

Unlocking the Relief: Role of Nasal Surgeries in CSOM Patients

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Abstract

Persistent middle ear inflammation known as Chronic Suppurative Otitis Media (CSOM) is frequently accompanied by recurrent ear discharge and a perforated tympanic membrane. The development and maintenance of CSOM are frequently linked to nasal diseases, such as deviated nasal septum, nasal polyps, inferior turbinate hypertrophy and chronic rhinosinusitis. Another important factor in the pathogenesis of CSOM is eustachian tube dysfunction (ETD), which impairs middle ear draining and ventilation. With an emphasis on functional endoscopic sinus surgery (FESS), septoplasty, inferior turbinoplasty and polypectomy, this study investigates the effects of nasal procedures on the management and outcomes of patients with chronic sinus infection (CSOM). This study attempts to clarify the advantages and restrictions of nose surgery in this group by reviewing the available literature and providing a case series. The role of addressing ETD in conjunction with nasal surgeries is also discussed to provide a comprehensive approach to the treatment of CSOM.

Keywords: CSOM; Nasal Surgery; Functional Endoscopic Sinus Surgery; Septoplasty; Polypectomy; Eustachian Tube Dysfunction

Aim

Analysis on how addressing nasal pathologies and Eustachian tube dysfunction can improve the outcomes of CSOM, reduce symptoms, and enhance the overall quality of life in affected patients.

Introduction

The function of the Eustachian tube can be compromised by nasal diseases such as deviated nasal septum, nasal polyps, inferior turbinate hypertrophy and chronic rhinosinusitis. This can result in negative middle ear pressure and recurrent infections. Correcting these diseases by nasal operations might be a crucial part of the overall care of CSOM. It has been demonstrated that functional endoscopic sinus surgery (FESS) is beneficial in alleviating the symptoms of chronic rhinosinusitis, which may lessen the likelihood that CSOM would worsen [1]. Furthermore, endoscopic sinus surgery has been shown to help individuals with persistent otitis media, suggesting that it may be useful in treating middle ear and sinonasal disorders that coexist [2].

Another popular nasal procedure called septoplasty can enhance Eustachian tube function by fixing anatomical abnormalities that prevent proper drainage and airflow [3]. These surgical procedures can improve middle ear airflow, lower infection rates, and improve general ear health by correcting nasal blockages. Research is to demonstrate how critical it is to treat sinonasal illness in the treatment of chronic suppurative otitis media disease (CSOM),

stressing that a complete strategy that includes nasal operations is essential for the best possible outcomes for patients [4,5]. Because it makes it possible to identify and treat sinonasal diseases that may be causing middle ear infections to persist, nasal endoscopy is essential for the diagnosis and treatment of individuals with central sensitization of middle ear disease (CSOM) [6]. Additionally, endoscopic sinus surgery has demonstrated encouraging outcomes in lowering ear discharge and enhancing tympanic membrane repair in individuals with chronic rhinosinusitis who have CSOM [7]. The impact of nasal operations on long-term otitis media highlights the relationship between sinonasal and middle ear health, supporting a combined strategy to therapy [8]. The treatment of CSOM can be greatly improved, increasing patient outcomes and lowering the burden of the condition by treating the underlying nasal diseases and enhancing middle ear ventilation pathway with focused surgical procedures.

Material and Methods

In order to assess the results of nasal operations in patients with Chronic Suppurative Otitis Media (CSOM) and related nasal diseases, this study used a retrospective case series methodology. FESS, septoplasty, polypectomy, inferior turbinoplasty and/or other nasal surgeries performed at our tertiary care centre between January 2024 and March 2024 were performed on 15 patients with CSOM diagnoses.

Inclusion criteria were:

- Age ≥ 15 years.
- Diagnosed with CSOM.
- Presence of nasal pathology (inferior turbinate hypertrophy, chronic rhinosinusitis, nasal polyps, deviated nasal septum).
- Underwent nasal surgery.

Exclusion criteria were

- Patients with systemic diseases affecting ear health.
- Previous ear surgeries within the last 6 months.

Every patient received a thorough otolaryngological evaluation, which included nasal endoscopy. Tympanometry and the Valsalva manoeuvre were used to measure the function of the eustachian tube. Patients had inferior turbinectomy, FESS, septoplasty, or polypectomy, depending on the nasal diseases that were detected.

Data collection

Preoperative and postoperative data were carefully gathered from each patient's medical file. The frequency and length of ear discharge were among the factors of interest, since they offered information on the severity and prognosis of the illness. In order to determine the degree of perforation and any indications of healing, the tympanic membrane condition was assessed. In order to assess hearing function and any improvements following surgery, tuning fork test and pure tone audiometry data was obtained. Tympanometry and Valsalva manoeuvre were used to examine the Eustachian tube's ability to empty and ventilate the middle ear. Furthermore, the Chronic Ear Survey (CES) was utilised to evaluate the patients' quality of life (QoL), providing a thorough understanding of their overall health and the effects of CSOM on their day-to-day activities. These parameters provided a robust framework for evaluating the effectiveness of nasal surgeries in the management of CSOM.

Results

There were 5 men and 10 women among the 15 patients in the study, with a mean age of 37.5 years (range: 15–60 years). The distribution of nasal disorders is shown in Table 1.

Nasal Pathology
Chronic Rhinosinusitis-2
Nasal Polyps-3
Deviated Nasal Septum-5
Inferior turbinate hypertrophy-5

Table 1: Distribution of Nasal Pathologies in Study Participants.

Based on their individual nasal pathologies, the research group underwent a variety of nasal operations. To treat their chronic rhinosinusitis, 2 out of the 15 patients had functional endoscopic sinus surgery (FESS). Five patients underwent septoplasty to rectify a deviated nasal septum, and 5 patients underwent inferior turbinectomy which improved nasal airflow and could have improved Eustachian tube function.In addition, three patients had polypectomy procedures to remove nasal polyps, which can impede nasal airways and aggravate middle ear problems. These surgical procedures were customised to meet each patient's unique needs and were intended to lessen the effect of nasal diseases on CSOM. Numerous metrics exhibited noteworthy enhancements in the postoperative results. Following surgery, there was a noticeable decrease in both the incidence and duration of ear discharge (Table 2).

Parameter	Preoperative Mean ± Parameter	Postoperative Mean ± SD	p- value
Frequency of ear discharge (days/ month)	12.4 ± 5.2	3.2 ± 1.8	
Duration of ear discharge (months)	8.6 ± 3.4	2.1 ± 1.1	
Air conduction threshold (dB)	35.6 ± 8.5	25.3 ± 6.2	0.002
Bone conduction threshold (dB)	15.2 ± 5.1	12.7 ± 4.8	0.034
CES QoL score	45.8 ± 10.2	72.4 ± 8.9	

Table 2: Comparison of Preoperative and Postoperative Outcomes.

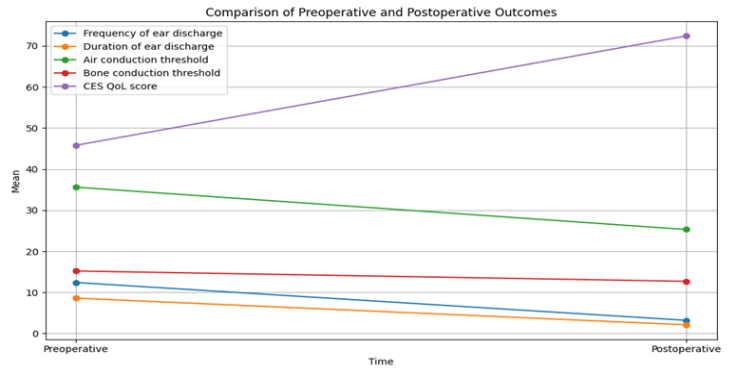

Figure 1: Comparison of Preoperative and Postoperative Outcomes.

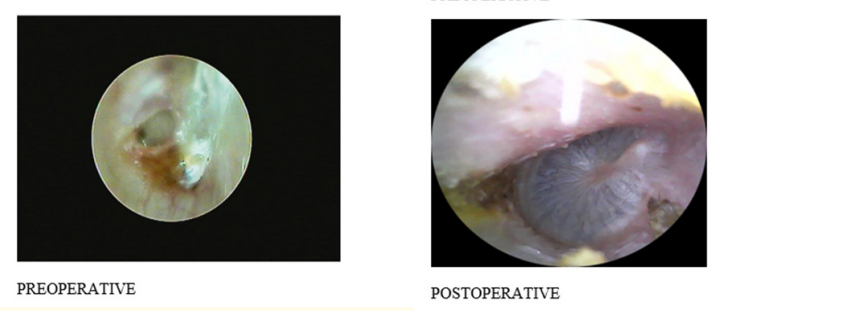

Figure 2

Discussion

This study shows that nasal procedures, such polypectomy, septoplasty, and FESS, greatly enhance the care and results for patients with CSOM who also have concurrent nasal diseases. The improvement in audiometric results and the decrease in frequency and length of ear discharges demonstrate how effective treating nasal diseases in these individuals is. These results are consistent with other research showing the advantages of endoscopic sinus surgery for persistent otitis media [2]. In addition to relieving nasal symptoms, nasal operations improve Eustachian tube function, which is essential for middle ear drainage and ventilation. The idea that nasal diseases aggravate CSOM and cause ETD is supported by the notable improvement in Eustachian tube function following surgery [3].

In addition, the significant increase in QoL ratings following surgery highlights the comprehensive advantages of treating nasal diseases in individuals with CSOM. This all-encompassing strategy may result in enhanced patient satisfaction and better therapeutic outcomes. To investigate the long-term advantages of nose operations in the treatment of CSOM, more research with bigger sample numbers and longer follow-up times is required. Optimising treatment plans for CSOM patients with nasal diseases requires incorporating ear and nose care into clinical practice.

"The effect of concurrent nasal surgery on the eustachian tube function and myringoplasty outcomes", a study conducted in Yivu central hospital, Shangai, China focused on nasal surgery's effects specifically in patients undergoing myringoplasty with nasal pathologies like sinusitis and septal deviation. Both studies support the integrative treatment of ear and nasal conditions to improve outcomes for chronic ear diseases. However, their study emphasizes on long-term outcomes of nasal surgery on graft success rates, while our study focuses more on immediate improvements symptomatically and quality of life. The central takeaway is that treating nasal conditions, plays a crucial role in managing chronic ear pathology, enhancing overall patient outcomes.

Conclusion

In conclusion, targeted nasal surgeries like functional endoscopic sinus surgery (FESS), septoplasty, and polypectomy, which treat underlying nasal pathologies like chronic rhinosinusitis, nasal polyps, and deviated nasal septum, can greatly improve the management of Chronic Suppurative Otitis Media (CSOM). By strengthening the Eustachian tube, these procedures increase middle ear airflow and lower the risk of recurrent infections. These surgical techniques provide a complete approach to treating both sinonasal problems and Eustachian tube dysfunction (ETD), which can help patients with CSOM achieve better results. The combination of middle ear and nasal therapies emphasises the value of a multidisciplinary approach to the treatment of this persistent and frequently incapacitating illness.

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