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Research Article

Study on Efficacy of Septoplasty in Tubotympanic Type of Chronic Suppurative Otitis Media

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Abstract

Introduction: Chronic suppurative otitis media is classified as tubotympanic type and atticoantral type, in this tubotympanic disease is characterised by the central peroration.

Eustachian tube is the prime focus in the middle ear pathology which in turn is directly related to the nose and nasopharyngeal pathology.

Objectives: To evaluate the efficacy of septoplasty followed by tympanoplasty and tympanoplasty alone in cases of chronic suppurative otitis media patients in terms of a) graft uptake rate, b) audiological outcome, c) closure of air-bone gap and d) residual or recurrent perforation.

Materials and Methodology: The study was conducted from Feb 2016 to Jan 2019 in the ENT department at GIMS government hospital, Kalaburagi. A total number of 64 patients of chronic suppurative otitis media, tubotympanic type with deviated nasal septum have been selected randomly and divided into two groups A and B of 32 patients each, in which group A has undergone septoplasty followed by tympanoplasty after 8 weeks and in group B tympanoplasty alone.

Results: The graft uptake rate in group with septoplasty followed by tympanoplasty is 87.5%, 50% had >15dB gain and 12.5% of the cases had residual perforation. In tympanoplasty alone the graft uptake rate is 75%, 31.25% cases had gain of >15dB and 25% cases had residual perforation.

Keywords: Chronic Suppurative Otitis Media; Tympanoplasty; Septoplasty; Audiological Outcome

Introduction

Chronic suppurative otitis media is a widespread disease in the developing countries, especially in the rural areas. Chronic otitis media is classified as a tubotympanic disease when it is characterized by persistent discharge from middle ear through presence of a central perforation in tympanic membrane. Atticoantral type of otitis media is characterized by the presence of attic retraction pocket, marginal perforation with or without cholesteatoma [1].

The aetiology and pathogenesis of chronic otitis media of mucosal type are multifactorial. The more relevant factor is the Eustachian tube dysfunction. This in turn is influenced by the nasal, Sinonasal and nasopharyngeal pathologies [2]. The fibro cartilaginous part of ET which opens into nasopharynx drains the secretions from the middle ear through mucociliary transport (MCT) system and the frequent opening of the ET prevents the aspiration of infectious secretions from the rhino pharynx into middle ear cavity [3]. Nasal obstruction has been identified as a potential cause of ET dysfunction along with many other factors, such as allergic rhinitis, laryngopharyngeal reflux, cleft palate, adenoid hypertrophy, mucosal diseases of nasopharynx, and prior radiotherapy [4-7]. As a contributor to ET dysfunction, nasal obstruction has been identified as reducing the success rate of tympanoplasty. Therefore, some authors have proposed performing nasal surgery prior to tympanoplasty in patients with coexisting nasal septal deviation (NSD) [8].

Objectives

To evaluate the efficacy of septoplasty followed by tympanoplasty and tympanoplasty alone in cases of chronic suppurative otitis media patients in terms of a) graft uptake rate, b) audiological outcome, c) closure of air-bone gap and d) residual or recurrent perforation.

Materials and Methods

This was a prospective study conducted in the department of ENT in a tertiary care public hospital. Ethical clearance from institutional review board was obtained. Total of 64 patients in the age group of 15 to 60 years of both the sexes suffering from chronic suppurative otitis media and deviated nasal septum presenting to GIMS Hospital ENT department has been selected randomly. Informed consent from all the patients has been taken. All the 64 pa-

tients have been divided into two groups (A and B) each consisting of 32 patients. Group A patients has been subjected to septoplasty followed by Tympanoplasty after 8 weeks and Group B patients has been subjected to Tympanoplasty alone.

Audiological evaluations were done pre operatively as well as 8 weeks post operatively in both group of patients.

CT Scan of nose and paranasal sinuses has been done in all the subjects. Under coverage of broad-spectrum antibiotics, patients have been subjected to surgery.

Data analysis done using MS excel and SPSS v 17.0. Results are interpreted in terms of percentages and chi square tests of significance was applied wherever required.

Inclusion criteria

Total of 64 patients in the age group of 15 to 60 years of both the sexes suffering from chronic suppurative otitis media and deviated nasal septum presenting to GIMS Hospital ENT department has been selected randomly.

Exclusion criteria

1. Patients <15 and >60 years
2. Patients with ASOM
3. Patients with traumatic rupture of tympanic membrane
4. Patients with sensorineural hearing loss
5. Atticoantral disease cases
6. Patients with complications of CSOM
7. Patients with other nasal pathologies like sinonasal polyposis, adenoids etc
8. Patients who did not give consent
9. Patients with other systemic comorbidities.

Results and Discussion

In our study, 64 patients are divided into two groups of 32 each. Among which group A consists of septoplasty followed by tympanoplasty patients and group B tympanoplasty alone.

Age Group	Group A		Group B	
	Septoplasty + Tympanoplasty		Tympanoplasty	
	No.	%	No.	%
15 - 30	27	84.375	23	71.87
31 - 45	4	12.5	9	28.125
46 - 60	1	3.125	0	0
Total - 64 Cases	32	100	32	100

Table 1: Age Distribution.

In our study of 64 patients, we have divided 32 patients in each group wherein it has been seen that the incidence rate of chronic suppurative otitis media is more commonly seen in the 2nd and 3rd decade of life with an average of 84.37%. The youngest patient in our study was 15 years and oldest one was 53years. The current study results were comparable to a study conducted by Bozkus F., *et al.* [9] where maximum incidence of Chronic otitis media was found in 21 - 30 years of age group. Related results were found in a study conducted by Eryilmaz A., *et al*. [10] where maximum incidence of disease was found among 20 - 30 years of age group and ramakrishna., *et al*. [11] has also similar incidence rate as our study.

Gender	Group A		Group B	
	Septoplasty + Tympanoplasty		Tympanoplasty	
	No.	%	No.	%
Male	12	37.5	13	40.625
Female	20	62.5	19	59.375
Total	32	100	32	100

Table 2: Gender Distribution.

In our study the incidence rate of females is more as compared to males. In group A it is 62.5% and in group B it is 59.3% whereas almost equal incidence of disease was found among males and females in a study conducted in Chennai [12]. In another study conducted by Dhanasekaran., *et al*. [13] higher incidence was found among males when compared to females in a ratio of 3:2 respectively.

Pure Tone Average(db)	Group A		Group B	
	Septoplasty + Tympanoplasty		Tympanoplasty	
	No.	%	No.	%
20 - 25	14	43.75	13	40.625
26 - 30	13	40.625	15	46.875
>30	5	15.625	4	12.5

Table 3: Pre-operative audiological chart.

In our study it has been seen that in group A 43.75% had air bone gap <25dB, 40.62% had a gap of 26 - 30 and 15.62% had a gap of >30dB. In group B 40.62% had an air bone gap of <25dB, 46.87% had a gap of 26 - 30dB and 12.5% had a gap of >30dB. This finding is comparable to the study conducted by Ramakrishna., *et al.* [11] and ahmed abdul khabeer., *et al*. [14].

Air-Bone Gap Closure	Group A		Group B	
	Septoplasty + Tympanoplasty		Tympanoplasty	
	No.	%	No.	%
<10dB	6	18.75	12	37.5
10 - 15dB	10	31.25	10	31.25
>15Db	16	50	10	31.25
Total	32	100	32	100

Table 4: Post-operative audiological chart.

In this study 50% of the cases in group A had >15dB gain and 31.25% of the cases in group B had a gain of >15dB. This is more as compared to other studies like Ramakrishna., *et al.* [11] and ahmed abdul khabeer [14].

Graft	Group A		Group B	
	Septoplasty + Tympanoplasty		Tympanoplasty	
	No.	%	No.	%
Graft taken	28	87.5	24	75
Residual perforation	4	12.5	8	25
Total	32	100	32	100

Table 5: Graft uptake rate.

In this study the graft uptake rate in group A is 87.5% and in group B uptake rate is 75%. 12.5% of the cases had residual perforation in group A and 25% cases had residual perforation in group B which is comparable to the study conducted by Ramakrishna., *et al.* [11] and ahmed abdul khabeer [14].

Conclusions

The graft uptake rate in group with septoplasty followed by tympanoplasty is 87.5%, 50% had >15dB gain and 12.5% of the cases had residual perforation. In tympanoplasty alone the uptake rate is 75%, 31.25% had gain of >15dB and 25% cases had residual perforation. This study shows that septoplasty is required at least 8 weeks prior to tympanoplasty in patients with sinonasal diseases which helps both in graft uptake and improvement in hearing and reducing residual perforation rate post op [15-19].

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