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Original article:

Myringoplasty in allergic rhinitis patients- observations

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Abstract:

Objective : The aim of the present study was to observe the effect of allergic rhinitis on the success of myringoplasty in patients with chronic suppurative otitis media(CSOM) and allergic rhinitis(AR)

Materials and Methods: In the present study 42 patients suffering from CSOM and AR ,who underwent Type I Tympanoplasty or Myringoplasty were observed for the graft success rate. The graft success rate in this study was compared with the graft success rate in the literature in case of Myringoplasty.

Results:In this study the graft success rate was 78.57% [33 patients]. This was low when compared with graft success rates mentioned in the literature.

Conclusion: This study suggests that Allergic Rhinitis decreases the graft success rate in Myringoplasty. Prospective studies with larger patients groups further delineate the affect of AR in graft success rate in Myringoplasty.

Key words: Allergic Rhinitis [AR] , Myringoplasty , Graft Success rate , Chronic suppurative otitis media [CSOM]

Introduction:

Chronic Suppurative Otitis Media is characterized by the presence of ear drum perforation , purulent discharge in the external ear canal and hearing loss, mainly of the conductive type [1].Abnormal Eustachian Tube function is an important factor in the pathogenesis of middle ear disorders in all age groups [2] . Common etiologies of Eustachian Tube dysfunction include infections, obstructive causes, genetics, reflux disease, allergy and iatrogenic causes [3, 4] . Several studies have reported on a link between eustachian tube dysfunction and IgE mediated hypersensitivity [5] . The likelihood of having IgE- mediated hypersensitivity and allergic rhinitis is higher in patients with CSOM than in general population [6] . Just as allergic reaction affects the nasal mucosa, it can also affect the middle ear and eustachian tube mucosa [7] . However its effect on the operation success in Myringoplasty has not been investigated properly yet [8] . Therefore we carried out the current study to observe the association between Allergic Rhinitis and the success rate in Myringoplasty in CSOM patients.

Materials and Methods:

This prospective study was conducted in the Dept of ENT, Mamtha Medical College, Khammam, during a period of 2 years from August 2015 to July 2017. In the present study 42 patients suffering from AR and CSOM [Mucosal Type] were evaluated. Out of 42 patients, 26 were female and 16 were male patients with age ranging from 17 to 53 years.

Allergic Rhinitis was defined as a presence of history of persistent sneezing on exposure to irritants, a positive physical examination such as a pale or watery nasal mucosa in the absence of common cold in the past 12 months. Clinical AR was then

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confirmed by absolute eosinophilic count [AEC] more than 400 cells /µl and positive skin prick test [SPT] .

Detailed history was taken from all the patients and micro-otoscopic, physical examinations and laboratory tests [AEC, SPT] were carried out. The patients with central perforation in the tympanic membrane suffering from AR, who did not have medical treatment for AR before surgery were included in the study. The patients with ossicular chain defect, pathological middle ear mucosa, Tympanosclerosis, Cholesteatoma, DNS and Otorrhoea, patients with poor cochlear reserve were excluded from this study. All the patients had pre – operative temporal CT examinations and those with mastoid pathology were excluded from this study.

Type I Tympanoplasty or Myringoplasty operation was performed on 42 patients by using temporalis fascia graft material. Operation procedure was standardized for all the patients. Under general anesthesia by post auricular approach the graft was placed by underlay technique. No antibiotics were given pre operatively. Post operatively all the patients were given cefotaxime for one week and topical antibiotic ear drops for 3 weeks. No treatment for AR was given in the early post operative period. The patients were followed with monthly follow – up for 6 months. The repair of the tympanic membrane perforation was considered as success criteria of the operation.

Results:

The age incidence of CSOM, mucosal type with AR ranges from 17 to 53 years with mean age of 27.88 years. The highest incidence was observed between 15 to 25 years age group.

Table 1: Age distribution of patients [n = 42]

Age [years]	No of patients	% of patients
15 – 25	20	47.61
26 – 35	8	19.04
36 – 45	12	28.57
>45	2	4.76

The female to male ratio was 1.625 : 1 . The majority of patients were from rural background. The patients were from different occupations, but most of the patients were daily laborer.

The size of Tympanic membrane perforation in the study group revealed that majority of the patients consist of subtotal perforations with over 75% of the Tympanic Membrane surface area

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Table 2: Perforation size among the patients [n= 42]

Size of perforation	No of patients	% of patients
Small	0	0
Medium	5	11.90
Large	8	19.04
Subtotal	29	69.04

In this study post operatively, the graft was well taken in 33 patients [78.57%] and failed in 9 patients [21.42%] . Among these patients the graft failure rate was more in patients below the age group of 25 years, i.e. 6 patients [30%] . The garft failure rate was observed high in patients with subtotal perforation, i.e. 8 patients [27.58%]

Table 3: Post operative graft status according to age [n= 42]

Age [No of patients]	No of Successful grafts [33]	No of failed grafts [9]
15 – 25 yrs [20]	14 [70%]	6 [30%]
26 – 35 yrs [8]	6 [75%]	2 [25%]
36 – 45 yrs [12]	11 [91.66]	1 [8.33%]
>45 yrs [2]	2 [100%]	0 [0%]

Table 4: Post operative graft status according to perforation size [n= 42]

Size of perforation [No of patients]	No of Successful grafts [33]	No of failed grafts [9]
Small[0]	0 [0%]	0 [0%]
Medium [5]	5 [100%]	0 [0%]
Large [8]	7 [87.5%]	1 [12.5%]
Subtotal [29]	21 [72.41%]	8 [27.58%]

Discussion:

Prevalence of AR in the population varies between 10% and 54% [9] . Despite its high prevalence and its negative effects on the middle ear and mastoid, its effect in chronic otitis surgery has not been investigated properly yet . It was not considered in surgery planning and evaluation of success criteria.

Success rates in Tympanoplasty in the literature vary depending on various factors such as the perforation size, weight of the middle ear pathology [Chronic tubal dysfunction, pathological middle ear mucosa], technique applied, monitorization period, change in the number of cases etc. Chronic tubal dysfunction has an important role among such factors. Effect of

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AR on nasal mucosa and eustachian functions is shown in various studies [10].

Graft success rates in the literature show variability. After 24 months of follow up Cabra et al. [11], found a success rate of 82% in the patients subjected to palisade cartilage Tympanoplasty. Locovou et. al. [12] have reported a success rate of 97.2% in their study in 2014 performed by using cartilage graft. Cavaliere et. al. [13] have reported 100% success ratio in Tympanoplasty performed by using cartilage shield graft in the study consisting of 236 patients. Such variation in success rates can be due to technique applied, variability in the number of cases. In the present study the graft success rate 78.57% is less in comparison with the graft success rates mentioned in the literature. Even though significant difference was not found, these findings suggest that AR decreases the graft success rate of the pathologies occurring in the nasal mucosa, eustachian tube, middle ear and mastoid. Studies with larger number of cases are required in order to evaluate this issue more thoroughly.

Conclusion:

This study suggests that AR decreases the graft success rate in Myringoplasty and larger the perforation lesser the success rate. So if the allergic signs are found in the patients, anti allergic treatment may be helpful to the surgical success rate. Prospective double blinded randomized trials with larger patients groups are required to fully establish the role of allergy in the surgical outcome of Myringoplasty in CSOM.

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