

Original article:

Study of selection of grafting materials on the basis of type of defects in tympanic membrane

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ABSTRACT:

INTRODUCTION: Clinical investigations and animal experiments have shown that these connective tissues replace the missing fibrous element of the tympanic membrane and allow squamous epithelium and mucosal tissue to cover is medial and lateral surface.

Taking the above mentioned facts in consideration, this study was taken up to Study of selection of grafting materials on the basis of type of defects in tympanic membrane.

MATERIALS AND METHODS: This prospective study was carried out on the patients attending the ENT Outpatient Department of our institution. All patients with the complaint of discharging ear and decreased hearing were screened. Those patients, in whom tubotympanic type of chronic suppurative Otitis Media was found, were taken for this prospective study with randomization.

RESULTS: In our study, graft uptake rate for temporalis fascia was 84% as compared to tragal perichondrium was 80%. Graft take-rate was slightly better for temporalis fascia than for tragal perichondrium (not significant $p >> 0.005$). This marginal difference however, is not significant. Various studies showed the grafts uptake was in the ratio of 80 to 90%, for either temporalis fascia or tragal perichondrium.

CONCLUSIONS: Graft uptake rate is good for both with slightly better take rates for temporalis fascia, than tragal perichondrium.

INTRODUCTION

Various autografts have been used for repair of the tympanic membrane perforation like full thickness skin graft, Pedicled skin grafts (Frenckner 1955), split skin graft (Wullestein 1952 and Zollner 1953).^{1,2,3} Each of these grafts material has its advantages and disadvantages over each other. The healing of tympanic membrane perforation is preceded by ingrowths of connective tissue edges over which the epithelium migrates to close the perforation, keeping this physiological principle in consideration it follows that connective tissue grafts, that is grafts of mesodermal origin like

vein, perichondrium or fascia, prove superior to all other graft materials. Clinical investigations and animal experiments have shown that these connective tissues replace the missing fibrous element of the tympanic membrane and allow squamous epithelium and mucosal tissue to cover is medial and lateral surface.⁴

Taking the above mentioned facts in consideration, this study was taken up to Study of selection of grafting materials on the basis of type of defects in tympanic membrane.

MATERIALS AND METHODS

This prospective study was carried out on the patients attending the ENT Outpatient Department of our institution.

All patients with the complaint of discharging ear and decreased hearing were screened. Those patients, in whom tubotympanic type of chronic suppurative Otitis Media was found, were taken for this prospective study with randomization.

The necessary permission and approval from ethics committee and authority, prior to starting the study was taken. Informed written consents were obtained from the patients involved in the

study according to the protocol approved by the Ethics Committee of our institution.

CRITERIA FOR SELECTION

INCLUSION CRITERIA

Cases of safe type of chronic suppurative otitis media.

The ear should be dry minimum for 3 months with intact ossicular chain.

Patent Eustachian Tube.

EXCLUSION CRITERIA

Unsafe CSOM

Safe CSOM with sensorineural hearing loss.

Patient <15years >50years.

Wet ear.

OBSERVATIONS AND RESULTS

TABLE NO 1: TYPE OF PERFORATIONWISE GRAFT UPTAKE IN STUDY GROUP

QUADRANT	GRAFT UPTAKE		TOTAL
	+	-	
Anterior	11	3	14
Posterior	14	1	15
Subtotal	16	5	21
TOTAL	41	9	50

- 16 out of 21 subtotal perforations were successful
- 11 out of 14 anterior perforations were successful.
- 14 out of 15 posterior perforations were successful.

Most of the smaller perforations here were taken for tympanoplasty when they failed to respond to medical treatment of weekly trichloro – acetic acid cautery or when patient cannot come for repeated sittings.

TABLE 2: GRAFT UPTAKE RATE WITH RESPECT TO AGE OF THE PATIENTS (n = 50).

Age in years	No of patients	Percentage %
≤ 20	7/9	77.77
21 – 30	14/17	82.35
31 – 40	12/16	75
>40	6/8	75

From the above table it is seen that maximum graft uptake rate observed in the age group 21-30 years (82.35%).

TABLE 3: GRAFT UPTAKE RATE WITH RESPECT TO SEX (n = 50).

Sex	Graft uptake	Percentage %
Male	17/22	77.27
Female	24/28	85.71

The above table shows that graft uptake rate was 77.27 % (17 out of 22 ears) in males and 85.71 % (24 out of 28 ears) in female.

Z=0.77, P>0.005

There is no statistical significant difference seen in graft uptake rate in sex.

DISCUSSION

This is the prospective study of 50 Tympanoplasties on patients between the age of 16 to 50 years, who were admitted in the Department Of E.N.T and Head and Neck Surgery at Dr D.Y Patil medical college, Pimpri, between July 2010 to September 2012. This entire study group of patient suffered from Chronic Suppurative Otits Media. Patients in this study were from all socioeconomic groups, including patients referred from other practitioners also.

The graft take rate after 6 months was 82%. Long term studies were not possible due patient's noncompliance. Similar report was

given by Palva T et al (1995)⁵² with graft take rate were 97%.

In our study, graft uptake rate for temporalis fascia was 84% as compared to tragal perichondrium was 80%. Graft take-rate was slightly better for temporalis fascia than for tragal perichondrium (not significant p>>0.005). This marginal difference however, is not significant. Various studies showed the grafts uptake was in the ratio of 80 to 90%, for either temporalis fascia or tragal perichondrium.

These reports compare well with similar study conducted by Jyoti P Dabholkar (2007) whose postoperative graft uptake rate with temporalis

fascia was 84% and tragal perichondrium showed 80%.⁵

Jain CM (1968) who reports 83.33% success rate with temporalis fascia, Ahad SA (1986), with 83.30% success with homologous temporalis fascia, Blanshard JD (1990), 78% take-rate with temporalis fascia in pediatric tympanoplasty. P.K Parida, S.K Nochikattil (2012)⁷¹ in their study found 80% uptake rate with temporalis fascia.^{6,7,8} Most of graft failures seen in the follow-up period were due to infection probably transmitted either along Eustachian tube or along external auditory canal.

HEARING RESULT

80% of cases showed improvement in hearing, while 20% of them showed no improvement, at 6 month follow-up period. About 80% cases operated with temporalis fascia showed hearing improvement, while same percentage (80%) of cases who were operated using tragal perichondrium showed improvement in hearing (statistically not significant $p >> 0.05$) as shown in the Table-6.

CONCLUSIONS:

Graft uptake rate is good for both with slightly better take rates for temporalis fascia, than tragal perichondrium.

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