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Original Research Article

Tragal Perichondrium vs. Temporalisfascia in Myringoplasty: A Comparative Study

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Abstract: Use of temporalis fascia or tragal perichondrium in myringoplasty is a well known entity sins long time. No proper data available for comparison of temporal fascia vs tragalperichondrium in myringoplasty. The objective of our study to know the comparative outcome of Myringoplasty using Temporalis fascia and Tragal perichondrium as graft materials. Advantages and disadvantages in harvesting graft materials, postoperative complications, graft uptake and hearing improvement. A prospective study was conducted on 80 cases of Foreign Bodies admitted from 1st November 2010 to 30thMayl 2012. The complete data is collected from the patient in a case record form by taking history of illness, detailed clinical examination & relevant investigations. As compared to Tragalperichondrium harvesting temporalis fascia was easy surgically. There was no much difference in post oprative sequilae. With temporalis fascia graft uptake was 92.5% compared to 87.5% in tragal perichondrium 80% hearing improvement that is air bone gap less than 20db with temporalis fascia and 75% hearing improvement with tragalperichondrium. In our study temporal fascia is a better graft material when to tragalperichondriu.
Keywords: Temporalis fascia, tragal perichondrium, myringoplasty.

INTRODUCTION:

The tympanic membrane perforations are may be due to chronic suppurative otitis media or traumatic in origin. If the perforations fail to heal spontaneously or by conservative therapy, they require surgical closure of the tympanic membrane by myringoplasty. The repaired perforation restores the vibratory area of the tympanic membrane and affords round window protection, thus improving hearing. It also prevents exposure of the middle ear to external infection and allergens.

Biological graft materials act as a scaffold of tissue matrix when applied to seal the perforation and this subsequently revascularises in readiness for migration of fibroblasts and epithelium. Autologous graft materials used in myringoplasty include vein, fat, fascia lata, temporalis fascia, perichondrium and cartilage.

The materials varied regarding their ease of harvesting, preparation time, placement ease, viability, graft uptake and hearing improvement. However due to it anatomic proximity, translucency, and suppleness, temporalis fascia and tragal perichondrium are the two most preferred grafting materials[1,2].

METHODOLOGY:

A sample size of 80 patients in the age group 10 years to 50 years with history of safe perforation, from 1st November 2010 to 30thMayl 2012 for a period of one & half year was studied. All Patients with benign otorrhoea with central or sub-total perforations, were included in the study. Data were recorded for patient's age, sex, date of diagnosis, any significant symptoms or signs, diagnostic otoendoscopicmaneuvers employed. Patients were followed up on 1st week, 2nd week and 1st month for any complication. Preoperative audiological evaluation done to assess the hearing both qualitatively and quantitatively. Half of the patients under went myringoplasty using temporalis fascia and other half

underwent myringoplasty using tragal perichondrium as graft material. Post operatively patients observed for any complication and after patients followed up for 3 visits that is at 1st month, 2nd month and 3rd month. Audio logical and otoscopic examination done after 3rd month to compare hearing improvement and healing of perforation [3,4,5].

Exclusion criteria:

Patients excluded from this study were those:

- Below 10 years who may not co-operative for audiometric procedures.
- Above 50 years of age.
- With sensory neural hearing loss.
- With middle ear conditions like tympanosclerosis and osscicular fixation or ossicular discontinuity.
- With history complications middle ear disease.

RESULTS:

Total number of cases was divided in to two groups. Group 1-myringoplasty done using temporalis fascis, Group 2-myringoplasty done using tragal perichondrium. Each contains 40 cases. Maximum number of patients seen in age group of 21-30years followed by age group of 31-40years.60% we remale patients.

Graft up take was better in group 1(92.5%) when compared to group 2(87.5%). Hearing improvement when compared to other studies was better in group 2(80%) patients and in group 1 it is 75%. Post operative pain in pinna was more severe in group 2 patients when compared to group 1 patients.

Table-1: Number of cases in each group

TEMPORALIS FASCIA(Group 1)	40
TRAGAL PERICHONDRIUM(Group 2)	40
TOTAL	80

Table-2: Age Distribution

AGE	**GROUP 1**		**GROUP 2**		**TOTAL**	
	Number	Percent %	Number	Percent %	Number	Percent %
10-20	7	8.75%	8	10%	15	18.75%
21-30	15	18.75%	14	17.5%	29	36.25%
31-40	9	11.25%	10	12.5%	19	23.75%
41-50	9	11.25%	8	10%	17	21.25%

Table-3: Sex distribution

SEX	**GROUP I**		**GROUP II**		**TOTAL**	
	Number	Percent %	Number	Percent %	Number	Percent %
MALE	26	32.5%	22	27.5%	48	60%
FEMALE	14	17.5%	18	22.5%	32	40%

Table-4: Graft Take up Rate

Graft Material	**Total**	**Graft take up**	**Residual perforation**	**Success %**
Temporalis fascia	40	37	3	92.5%
Tragal perichondrium	40	35	5	87.5%

Table-5: Hearing improvement

Graft Material	**Post-operative Gap<20dB**	**Post-operative Gap>20dB**	**Success%**
Temporalis Fascia	30	10	75%
Tragal Perichondrium	32	8	80%

DISCUSSION

Traditionally chronic otitis media is classified into tubotympanic disease characterized by the presence of a central perforation and atticoantral disease characterized by the presence of a cholesteatoma. The size of perforation is more important in determining the hearing loss than its location. The mechanism of hearing impairment is primarily due to reduced surface area on which the sound pressure is exerted, with reduced hydraulic ratio and secondarily due to sound reaching the round window directly canceling the baffle effect

Over the years different grafting materials have been introduced right from canal wall skin by William House in 1958 to temporalis fascia in 1964 by Ned Chalet and cartilage in 1963, since then skin as a grafting material has been discarded due to its desquamation properties with chances of cholesteatoma formation. Vein grafts also have not been so popular due to its chances of getting reperforated. To date temporalis fascia and tragalperichondrium have been the two most commonly used grafting materials.

In this study we have compared the results of temporalis fascia and tragal perichondrium grafts used for the repair of perforated tympanic membrane using underlay technique. Patients with benign otorrhoea and good cochlear reserve were selected.

Both temporalis fascia and tragalperichondrium fulfill all the criteria of ideal graft tissue. Both being mesodermal in origin, they are free from the possibility of post operativecholesteatoma.

Our study has Maximum number of patients seen in age group of 21-30years because of social stigmaandpatients in this age group presents to doctor and are ready to undergo myringoplasty. 60% of our patients were males.

Graft uptake was better with temporalis fascia(92.5%) when compared to tragalperichondium it is 87.5%, but hearing improvement was better with tragalperichondium that is air bon gap of <20 db after 3 months. In the study conducted by Gibb using temporalis fascia as graft material by underlay technique the percentage take rate was 87.5%. Strahan achieved graft uptake success rate of 87% by this method. Goodhill achieved near 100% success rate with tragal perichondrium in underlay tympanoplasty. Strahan recorded 86% tragal perichondrium graft uptake. Eviator noted that graft take rate with tragal perichondrium by underlay method was 90.47%.

The graft take up rates are more with Temporalis fascia. The improvement of hearing restoration is more with tragalperichondrium[6,7,8,9]

CONCLUSION AND SUMMARY

Otorrhoea has become a major health issue in terms of hearing disability in low socioeconomic patients mainly due to environmental pollution,allergy and upper respiratory tract infection. Safe type of chronic otorrehoea is more common in economically weaker section of rural population due to overcrowding and lack of hygiene.

It is common against the age group of 21 to 30 years –36.25%.60% affected were male patients. From our study we suggest temporalis fascia as a better graft material as theease of harvest from the same incision, as the operation, availability of a large amount of graft tissue and good take up rates without subsequent complications. Tragal perichondrium has better hearing improvement compared to temporalis fascia [10]

Take Home Message

1. Both temporalis fascia and tragal perichondrium provide are easily available at operative site.
2. Both materials are mesodermal in origin which excludes the risk of iatrogenic cholesteatoma.
3. Good results are observed in hearing restoration withTragal perichondrium graft.
4. Good results are observed in graft take up with Temporalis fascia graft.

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