International Journal of Current Medical and Pharmaceutical Research

IJCMPR

ISSN: 2395-6429

Available Online at http://www.journalcmpr.com

DOI: http://dx.doi.org/10.24327/23956429.ijcmpr20170139

RESEARCH ARTICLE

A COMPARATIVE STUDY BETWEEN TRAGAL PERICHONDRIUM AND TEMPORALIS FASCIA IN MYRINGOPLASTY

Balaji Swaminathan., Prem Nivas R., Shanmugam V.U., Dinah Swaroop S*., Arthi M and Viveknarayan G

Department of Otorhinolaryngology, Rajah Muthiah Medical College and Hospital Annamalai University, Annamalai Nagar – 608 002 Tamil Nadu, India

ARTICLE INFO

Article History:

Received 19th April, 2017
Received in revised form 13th May, 2017
Accepted 26th June, 2017
Published online 28th July, 2017

Key words:

Myringoplasty, Tragal Perichondrium, Temporalin Fascia.

ABSTRACT

The purpose of the ear surgery is to restore normal anatomical and physiological status of the ear so that the patient leads a comfortable life style**.** 19 patients between the age group of 15-45 years with tubotympanic chronic suppurative otitis media having a central perforation less than 50% were studied. Temporalis fascia was used in 10 patients as graft material and tragal perichondrium in 9 patients. The usefulness of each material in terms of graft uptake and auditory gain was studied. This study concluded that temporalis fascia had 90% success rate and tragal cartilage perichondrium had 77.77% success rate. Tragal perichondrium had failure rate of 22.22%.

INTRODUCTION

Hearing is a sense that enables man to establish contact with his fellow via the symbol of language. The social disease of deafness is thus a serious disability. One will not be surprised if the statistics reveal 5 crore chronic ear patients are there in our country. The otologist in the past had not much to offer for the hearing handicapped people with chronic middle ear disease. With recent times, the advent of the antibiotic era, the introductions of the operating microscope and modern techniques have radically altered the outlook.

Various authors have also under taken comparative evaluations of different graft materials. But still not a very many studies have been done in comparison between two graft materials for myringoplaty. This has prompted us to do this study in comparing between the tragal perichondrium and temporalis fascia as graft material for myringoplasty. This study has been made to delineate the usefulness of each material in terms of graft take up, dry ear and auditory gain.

Aims and Objectives

This work will focus on the grafting materials used for the myringoplasty to achieve closure of tympanic membrane perforation, improve hearing, prevent further disease development and a need for any further surgery for the same. Nearly for the past three and half decades temporalis fascia is being very popularly preferred by many surgeons even though when tragal perichondrium, fat, loose over lay tissue, vein and homologous dura are being used. The results will be analyzed on the terms of Graft take up and auditory gain. Our study included patient attending RMMCH ENT OPD from 2012-2014 with ear discharges.

MATERIALS AND METHODS

The present study of temporalis fascia Vs Tragal perichondrium as a graft material in myringoplasty was carried out in the Department of ENT, Rajah Muthiah Medical College and Hospital. Between January 2012 and January 2014.

Inclusion criteria

All patients aged 15 to 45 years of age with tubotympanic CSOM and having central perforation less than 50% of the area of tympanic membrane.

Exclusion criteria

Revision surgery cases patients with active discharge Attico antral diseases. Patients confirmed to have central perforation with tubotympanic disease were subjected to surgical intervention. Special emphasis was laid on type of perforation, Presence or absence of discharge in middle ear, Ossicular integrity if possible, Pathology like granulation, polyps, etc. Surgical procedures employed were myringoplasty by post aural approach. A separate incision was made for harvesting tragal perichondrium.

Temporalis facia approach

10 patients who received the temporalis fascia graft were operated using the post aural approach, with wilde's post aural incision. Incision taken five millimetres behind and paralled to the post aural groove. Incision was deepened to harvest the temporalis fascia graft. A sufficient piece of deep temporalis fascia was harvested.

Tragal perichondrium approach

In 9 patients who received the tragal perichondrial graft, the incision was placed in the medial aspect of the most prominent part of the tragus, 1 mm below the lateral edge. Care was taken not to incise the perichondrium. Skin and tissues over the tip of tragus were undermined to expose the other side of the cartilage. The cartilage was freed on the medial aspect from skin and tissue on the medial side using a scissore and side knife, creating a pocket up to the base of the cartilage. The cartilage was incised across at its base and removed in Toto with the perichondrium. The perichondrium was then stripped from the cartilage using a drum elevator. The cartilage was then put back into the pocket and the incision sutured with 3/0 mersilk.

The graft was then slit at one corner. The middle ear was irrigated with saline solution and dried by suction. A bed of gel foam was placed in the middle ear and the graft placed as an underlay graft, with the slit ends wrapped around the handle of the malleus. Tympanomeatal flap was reposted and the external auditory canal packed with medicated gel foam. Post aural incisions in the cases were close using 3/0 mersilk and a post aural dressing with mastoid dressing done. Follow up was then done at monthly intervals. Pure tone audiometry was done at 6 weeks postoperatively, after the graft had fully taken and repeated after 3 months. At follow up, the graft was inspected for medialization and development of granulations.

Observations

Table 1 X-ray mastoid

X- ray type	Temporalis fascia group	Percentage	Tragal perichondrium	Percentage
Cellular Mastoid	7	70	5	55.55
Diploid Mastoid	2	20	4	44.44
Sclerotic Mastoid	1	10	0	0

X-ray shows that cellular mastoid was most common -63.15%.

Table 2 Audiometry profile

Tuning fork test	Tragal perichondrium		Temporalis fascia
Rinnes (-ve)	10		9
Webers(+ve)	Rt	6	5
	Lt	4	4
ABC	Normal		Normal

It was observed that all our patients had rinne's negative, suggesting conductive hearing loss with webers getting lateralised to more affected ear and ABC being normal.

Table 3 Hearing loss before surgery

db	Temporalis fascia group	Percentage	Tragal perichondrium	Percentage
10-20	3	30	3	33.33
21-30	7	70	6	66.66

The patients who had auditory loss between 21-30 dB was found to be 68.45% with $p<0.001$, means statistically significant.

Table 4 Graft uptake

	Temporalis fascia group	Percentage	Tragal perichondrium	Percentage
Graft Takeup	9	90	7	77.77

P=8.43, t=3.72 so statistically no significant difference was observed between the graft materials used in regard with graft uptake.

Table 5 Auditory gain after surgery

db	Temporalis fascia group	Percentage	Tragal perichondrium	Percentage
10-15	7	70	6	66.66
16-20	1	10	1	11.11

It was found that auditory gain of 10-15 db was achieved in majority of the patients. $p<0.001$, which is found significant.

DISCUSSION

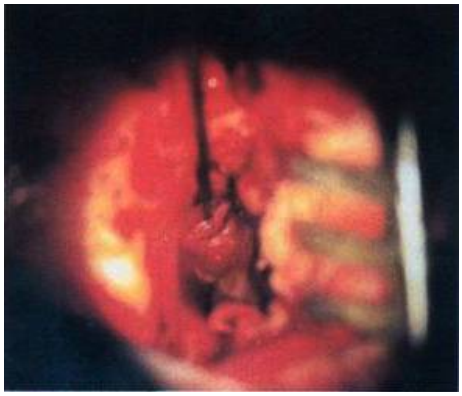
In our present study, an attempt was made to have a comparative study between tragal perichondrium and temporalis fascia as a graft material for myringoplasty. Result were analyzed in the grounds of graft uptake, dry ear and auditory gain. We had 90% of success intemporalis fascia group and 77.7% in the tragal perichondrium group for which t=0.72 and p=8.4 giving no significant difference in the statistic study.

Karkanetos. S. *et al* gives a 96% success rate using tragal pericondrium in a day case myringoplasty. Becveruski. L *et al* concludes of giving an good graft take up rate has 92.3% in his 120 patients who has been operated by over underlay technique. Somoz. S, *et al* showed 86% success rate with tragal perichondrium being used as a graft material in myringoplasty.

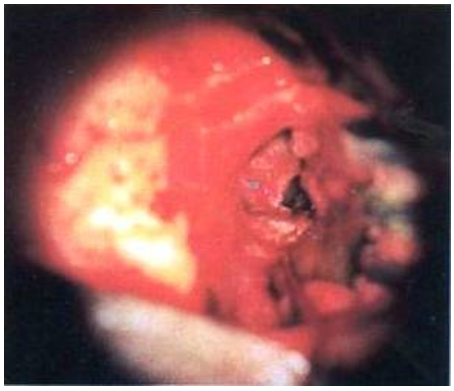
Among experiments carried out by the various authors it was quite evident the results were only oriented on the basis of a good surgical technique very good operating microscope for better resolution of images excellent post operative care and a good post operative follow up. These factors were observed to be the deciding factors for the success of the myringoplasty surgery.

SUMMARY AND CONCLUSION

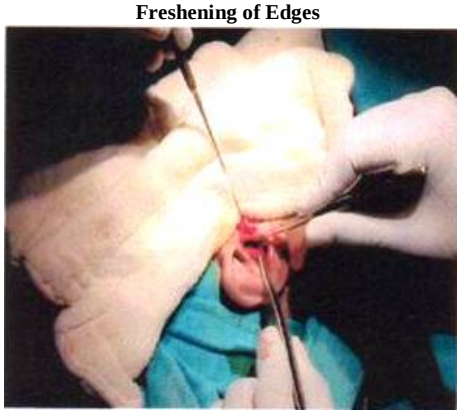
We had a success rate of 90% in termporalis fascia group. There was 77.77% success rate in the tragal perichondrium group. We had a graft failure rate of 22.22% in tragal pericondirum group and Dry ear was achieved in about 90% and 77.77% for the temporalis fascia group and tragal pericondrium group respectively. Thus we had an overall success rate of 84.21% in which an average of auditory gain of 10 to 15 db, we also had similar percentage of 84.21% of dry ear giving no significant statistics difference between the graft materials used for surgery in terms of graft take up, dry ear and auditory gain. The better results could be achieved in future by bringing better awareness about the pre operative, operative and post operative care for the myringoplasty surgery among the patients.



Freshening of Edges

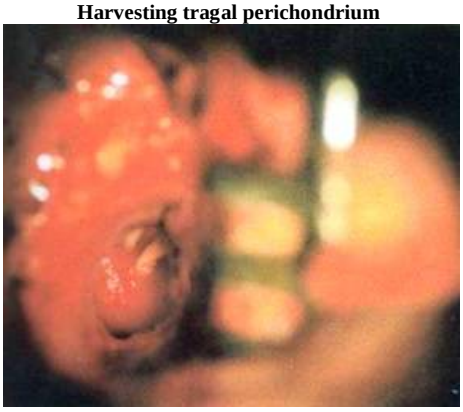


TM flap elevation

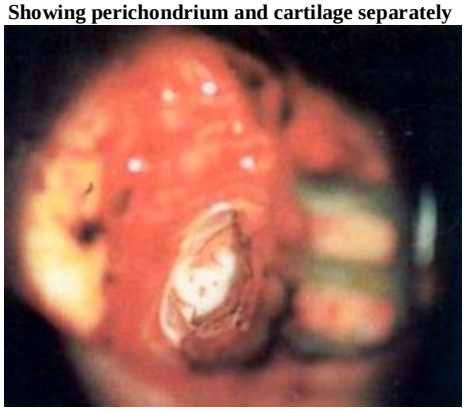


Harvesting tragal perichondrium

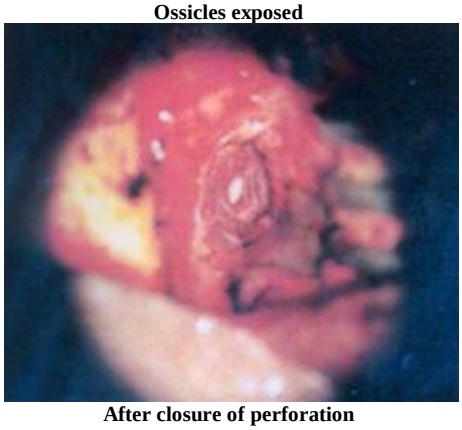
Showing perichondrium and cartilage separately



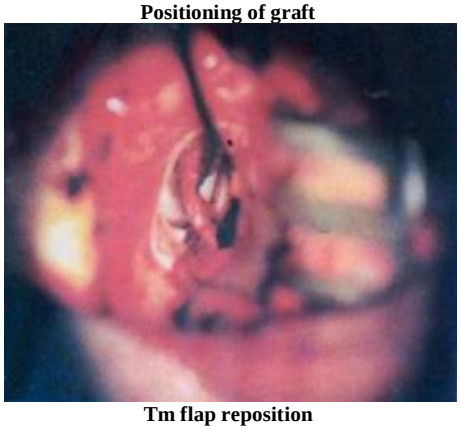
Ossicles exposed



Positioning of graft



After closure of perforation



Tm flap reposition

References

1. Ahmed. EL-Guindy, *et al* Trans cannal myribgoplasty, *Journal of Laryngology and Otology*, Jun 1982. Vol.92, No: 3. P.93-95.
2. Austin David F, Mechanics of Hearing, Glasscock and Shambough, 4th edition chapter 13, 1990, 296-321.
3. Ayache. F and Sean L, Adipose graft- an orginal option in myringoplasty. *Journal of otology France*, Mar 2000, Vol.106, No: 2. P.43-48.
4. Balansherd. J.D, *et al*, Long term study in myringoliasty, *Journal of Laryngology and Otology*, Oct 1990,Vol.100, No.4, p.28-32.

5. Bawa.K, *et al*, comparative study between temporalis fascia and dura matter, *Indian journal of Oto Laryngology*, Sep 1982, Vol39, No.3, p.21-25.
6. Becveruski.L, *et al*, Overview of tympanoplasty, Laryngoscope, July 1984., Vol.94,No.3,p.112-114.
7. Bernel.S, an Eugene. C, Cartilage palisade anatomic consideration, *Otol Neurootol*, Jan. 2003., Vo. 24,No.1,p.182-194.
8. Berthold E, uber Myringoplastik, 1627, 1878 in the book surgery of the Ear, Philadelphia, W.B. Saunders and Co, 2nd edition.
9. Bluerks. S, *et al*, Cartillage grafting in myringoplasty Laryngoscope, July 1992, Vol.104, No: 33, p.118-122.
10. Browning G.G. Aetipathology of inflammatory conditions of the external and middle ear, *Scott Broens Otolarynngolofy*, 1997, ch 3:Vol.3, 1-27.

****