Original Article

Graft material used in type 1 tympanoplasty

Rajat Rohan[1*], Abhinav Raj[2], Sumit Chattopadhyay[3]

[1,2]PG Student, [3]Associate Professor, Department of ENT, M.G.M Medical College and L..S.K.Hospital Kishanganj Bihar, INDIA.
Email: rajat55rohan@gmail.com

Abstract

Aims and Objective: 1.The present study was undertaken to compare the results of various autogenous tissues as grafting materials for the repair of the tympanic membrane defect. 2. Comprised of the materials temporalis fascia, tragal perichnodrium, areolar tissue and Ear lobule fat.
Keywords: Surgical Wound Infection Grade, Preoperative Skin Preparation, Aqueous Povidone Iodine, Alcoholic Chlorhexidine.

[*]**Address for Correspondence:**
Dr. Rajat Rohan, PG Student, Department of ENT, M.G.M Medical College and L..S.K.Hospital Kishanganj Bihar, INDIA.
Email: rajat55rohan@gmail.com
Received Date: 10/01/2016 Revised Date: 14/02/2016 Accepted Date: 08/03/2016

Access this article online

Quick Response Code:

Website: www.statperson.com

DOI: 10 March 2016

INTRODUCTION

Chronic otitis media is the chronic inflammation of mucoperiosteal lining of the middle ear cleft characterized by ear discharge, a permanent perforation of the tympanic membrane and impairment in hearing. It is one of the most common ear diseases encountered in developing countries due to poor socio-economic standards, poor nutrition, lack of health education and unhygienic habits. It is a major cause for deafness in India. Tympanoplasty is now an established surgery for tympanic membrane perforations being carried out routinely by otorhinolaryngologists. Autologous graft materials such as, temporalis fascia, tragal perichondrium, areolar tissue and fat a have stood the test of time in repairing tympanic membrane perforations. Temporalis fascia is the most preferred grafting materials.

MATERIALS AND METHODS

110 cases were selected from the outpatient department of otolaryngology, 47 cases were male and 63 were female ranging from 13 to 48 years, average being 28.9 yrs. All the cases were judged clinically and with investigations i.e. routine haemogram, X-ray of mastoid (lateral oblique view), X-ray of paranasal sinuse (Occipito-mental view) and special test where required. Pure tone audiometry was performed in both air conduction and bone conduction in all cases. Selection criteria of the individual for this present study were: 1 -Adult subjects were preferred (age >13 yrs) 2 -Chronic suppurative otitis media with central perforation though location and size of the perforation were variable. 3 -Dry ear for at least three months. 4 -Other ear was normal. 5 -Pure –conductive type of deafness was confirmed by pure–tone audiometry. 6 -Except the ear disease there was no other disease condition, which could affect the results of the study. Before operation every ear was inspected under operative microscope. In this study group tympanoplasty operations were performed using various autogenous tissues as grafting materials i.e. 2 - Temporalis fascia were used in eight years, tragal perichodrium used in ten ears, areolar tissue in ten ears, and Ear Lobule fat in ten ears.

Methods

All the selected 110 ears were operated under operative microscope model Zeiss. OPMI-1 using the magnification of 0.4 to 0.6 with 12.5 x eye piece and 200mm lens. 104 ears. were operated under local anaesthetic infiltration with 2% lignocaine in adrenaline. (1:1,00,000).Of these patients premeditation was given as follows in 54 cases of Large to moderat.

RESULTS AND OBSERVATION

110 Patients suffering from unilateral chronic suppurative otitis media had undergone Type –I tympanoplasty. 104 cases were operated under local anaesthesia and 6 cases were operated under general anesthesia. Four types of autogeneus tissues were used as grafting material.3

How to site this article: Rajat Rohan, Abhinav Raj, Sumit Chattopadhyay. Graft material used in type 1 tympanoplasty. *International Journal of Recent Trends in Science and Technology*. March 2016; 18(2): 328-330. http://www.statperson.com (accessed 14 March 2016).

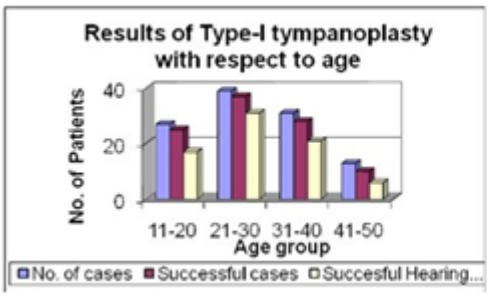
Temporalis fascia was used in 80 cases, Tragal perichondrium in 10 cases, Areolar tissue in 10 cases, and Fat from Lobule of same ear in 10 cases. Routine hemogram, X-Ray Mastoids (Lateral oblique view), X-ray paranasal air sinuses (Occipito-mental view) X-Ray. Nasopharynx and pure tone audiomety was performed in both air and bone conduction. Both pre and post operative audiometric results were compared to find out the hearing change with these four graft materials.

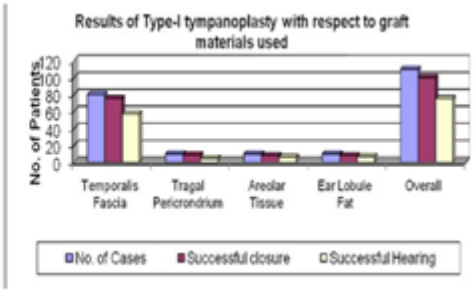
SUMMARY AND CONCLUSION

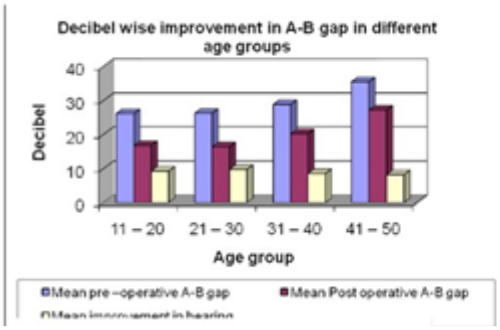
110 subjects of unilateral chronic suppurative otitis media dry central perforation were undertaken in this present study for Type – I, Tympanoplasty operation. All the subjects were adults and the age ranged from 13 years to 48 years. Only dry ears at least for 3 months were selected. Subjects suffering from pure conductive type of deafness were selected. Pre-operative in all cases and postoperatively in successfully repaired cases of myringoplasty. pure tone audiometry was performed both in air conduction and bone conduction. Average threshold of hearing (db) and air-bone gap (dB) was recorded and compared to evaluate the change of hearing. Four autogenous tissue materials were used for grafting of the tympanic membrane defects. The graft were placed by underlay technique, when using temporalis fascia, Tragal Perichondrium and Areolar tissue but directly into perforation when might fat 6 month from ear lobule. Postoperative follow up was carried out up to 6 months. The comparative. Analysis of the material used for the tympanoplasty and their results with regard to successful. Repair of the tympanic membrane defect and subsequent improvement of hearing so obtained. Were summarized as below. The younger age group had less impairment of hearing than that of the older age group in chronic suppurative otitis media with central perforation. Anterior perforation group had less impairment of hearing than that of posterior perforation group. Also Anterior perforation has slightly better result in successful closure of perforation and successful hearing later on compared to posterior perforation. Sclerotic pattern of mastoid X-Rays were more in number is comparison to cellular pattern of mastoid X-Rays in chronic suppurative otitis media with central perforation. It is also observed that the larger the size of the perforation greater was the degree of hearing impairment pre operatively. Sclerotic pattern of mastoid pneumatization achieved better successful closure of tympanic membrane defect than that of cellular pattern of mastoid pneumatization. The younger age group has better chances of successful closure of tympanic membrane perforation and hearing gain later on.[4,5] In a large perforation temporalis fascia was best in closing the perforations but hearing results were best for areolar tissue. Tympanoplasty using Fat from ear lobule has high success rate of 80% for tiny. small perforations. It is an office procedure which is cost effective with minimum post operative morbidity. But it is an underused procedure. We should practice it more for the benefit of our patients. Areolar tissue has excellent success of 80% which can be used even in revision. tympanoplasty procedure following failure of temporal fascia tympanoplasty or primarily. leaving temporal fascia for revision surgery if at all needed. Decibel wise hearing improvement. Was 9.5 dB, 8.5dB, 8.9 dB and 6.8 db for temporal fascia, tragal perichnodrium areolar tissue and ear lobule fat respectively. Failure may be due to large perforation or due to infection like acute otitis media, respiratory tract infection or neglected post operative advice. Further long term study with more number of patients and verities of graft materials are necessary to achieve detailed and accurate results.

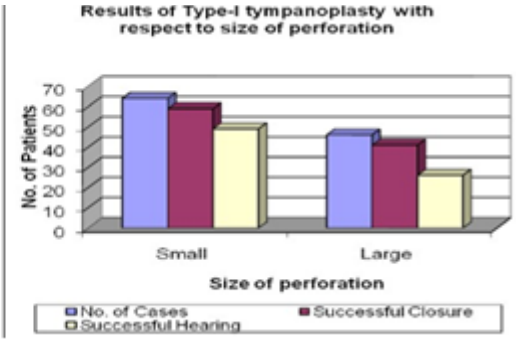
LIMITATIONS OF MY STUDY

Fat from ear lobule was used only in tiny, less than 5 % area of tympanic membrane perforations but other grafts were used in larger perforation. But for comparison the size of perforations should have been of similar size. Fat from ear lobule was used without knowing the actual middle ear and ossicular status. Therefore it was actually a myringoplasty rather than type1 tympanoplasty.









REFERENCES

1. Singh M, Rai, bandyopadhyay S. Middle ear microsurgery in India:A retrospective audit study. Indian J Otolaryngol Head Neck surg 2006;58:133-6
2. Sade J, Berco E, Brown M, Weinberg J, Avraham S.Myringoplasty: Short and long term results in a Training program. J Laryngol Otol 1981;95:653-65
3. Booth JB. Myringoplasty- Factors affecting results. Final report .J Laryngol Otol 1973;87:1039-84
4. Strahn RW, Acquarelli M, Ward PH, Jafek B. Tymanic membrane grafting. Analysis of materials and Techniques.Ann Otol rhinol Laryngol 1971;80:845-60
5. Indorewala S.Dimensional stability of free fascia grafts: Clinical application. Laryngoscope 2005; 115:278-82.

Source of Support: None Declared
Conflict of Interest: None Declared