

**EVALUATION OF HEALING AND HEARING RESULTS
OF FULL THICKNESS CARTILAGE GRAFT VERSUS
PARTIAL THICKNESS CARTILAGE GRAFT IN
TYMPANOPLASTY**

By

**Islam Mohamed Magdy Mahmoud
M.B.B.CH**

Submitted for partial fulfillment of
The requirements of the Master degree of
Otorhinolaryngology

Department of Otorhinolaryngology

Faculty of Medicine

Fayoum University

2015

**EVALUATION OF HEALING AND HEARING RESULTS
OF FULL THICKNESS CARTILAGE GRAFT VERSUS
PARTIAL THICKNESS CARTILAGE GRAFT IN
TYMPANOPLASTY**

By

**Islam Mohamed Magdy Mahmoud
M.B.B.CH**

Thesis

Submitted for partial fulfillment of
The requirements of the Master degree of
Otorhinolaryngology

Supervised By

Dr.Sherif Safwat Guindi

Associate professor of Otorhinolaryngology, Faculty of
medicine
Fayoum University.

Dr.Mohammed Kamel Abd El-Moez

Lecturer of Otorhinolaryngology, Faculty of medicine
Fayoum University.

Dr.Mohammed Ahmed Hussein

Lecturer of Otorhinolaryngology, Faculty of medicine
Fayoum University.

Department of Otorhinolaryngology

Faculty of Medicine

Fayoum University

2015

SUMMARY

Chronic Suppurative Otitis Media is an inflammatory process in the middle ear space that results from an initial episode of acute otitis media, characterized by a persistent discharge from the middle ear through a tympanic membrane perforation, lasting more than 6-12 weeks, and results in permanent changes in the tympanic membrane including atelectasis, tympanosclerosis, retraction pocket development, or cholesteatoma. It is classified as active, inactive and inactive with frequent reactivation.

The aim of myringoplasty is to close tympanic membrane perforations, restore hearing, and reconstructs a healthy middle ear cavity, prevention of ear infections, aural discharge and to protect against long-term middle ear damage by preventing the ossicular pathology and preventing possible cholesteatoma formation.

There are numbers of grafting materials have been used to reconstruct the tympanic membrane, including skin, fascia, vein, perichondrium, dura mater, and cartilage. Presently, temporalis fascia is the most frequently used grafting material, with approximately 90% graft take.

For cases at high risk for failure, such as recurrent perforations, and severely atelectatic tympanic membranes, many surgeons have used cartilage as a grafting material because of its increased stability and resistance to negative middle ear pressure.

Rigidity and thickness of the cartilage graft is the concern for the audiological outcome of the surgery.

The thickness and composition of cartilage graft should represent a balance between sufficient stability and adequate acoustic sensitivity.

In this study, our aim was to evaluate the healing and audiological outcomes of tympanoplasty performed using tragal cartilage grafts of two different thicknesses (full thickness and half thickness).

This study included 30 patients selected from the ENT out-patient clinic of Fayoum university hospital, presenting with safe CSOM and all patients were candidates for type one tympanoplasty. All patients had been informed about consent to participate in this study. Also, approval from the ethical committee, Fayoum University was obtained. All patients underwent type one underlay tympanoplasty between July 2014 & February 2015.

Patients were divided by a systemic random sampling method into two groups with 15 patients in each group.

The two groups were subjected to an underlay tympanoplasty (primary), using the tragal cartilage.

-Group A: patients received a full thickness cartilage graft.

-Group B: patients received a partial thickness cartilage graft.

Clinical follow-up for graft taking, perforation, retraction or lateralization was done for 6 months post-operatively.

Assessment of hearing included audiological follow-up by pure tone audiometry at three months post-operatively. The difference between preoperative and post-operative air-bone gap was calculated.

In Group A, the pre-operative average air-bone gap was 30.15 ± 5.42 dB, the post-operative average air-bone gap was 20.44 ± 5.34 dB and the average air-bone gap closure was 9.71 ± 0.52 dB **In Group B**, the pre-operative average air-bone gap was 30.22 ± 6.49 dB, the post-operative average air-bone gap was 10.74 ± 4.29 dB and the average air-bone gap closure was 19.48 ± 5.93 dB.

Statistically, we found a significant improvement in hearing levels in both groups, as the p value for the relation between the mean preoperative

PTA-ABG and the mean postoperative PTA-ABG in (**group A**) was ($p < 0.0001$) which was highly significant, and the p value for the same relation in the (**group B**) was also ($p < 0.0001$) which was highly significant, The p value for the relation between the air-bone gap closure in both groups was ($p < 0.0001$) which was highly significant, so the hearing gain is significantly less in full thickness cartilage tympanoplasty compared to partial thickness cartilage tympanoplasty. We found no statistically difference in the rate of good graft take between two groups, as the rate of graft failure in both groups was (6.67%) and the rate of good graft take in both groups was (93.33%) during clinical follow-up for 6 months post-operatively.

We concluded that the partial thickness tragal cartilage graft is preferable to the full thickness one according to hearing gain level in type one tympanoplasty, so cartilage of partial thickness maintains a good balance between adequate stability and good hearing improvement level.