



ORIGINAL RESEARCH PAPER

Medical Science

Assessment of ETF before tympanoplasty

KEY WORDS: Eustachian tube function, Impedance audiometry. Chronic otitis media,

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ABSTRACT

Introduction :- It is a universally accepted fact that dysfunction of ET plays a vital role in jeopardising the functional integrity of the middle ear. Various known methods of determining ETF include sonometry, radiological study, photoelectric method to measure patency, assessment of ventilatory capacity of ET using fluoresene/, saccharine test to assess mucociliary clearance time.

Aims & Objectives :-

The present study is aimed to :-

1. Compare result of Tympanoplasty with and without preoperative evaluation of ETF.
2. Assess the relevance of ETF before tympanoplasty.

Material & Methods :-

80 patients were included in the study from August 2013 to 2014 in the department of ENT at MGM Medical College, Kishan Ganj, Bihar.

Observations & Results :-

The average post operative improvement in hearing was recorded to be within 70 dB in 60 (90.90 %) cases and within 25 dB in 6 (9.10 %) cases.

Male : 50

Female : 30

Discussion :-

The role of ETF in the successful outcome of tympanoplasty remains controversial. Some studies have demonstrated a condition between (N) pre operative tubal functional & successful grafting. We studied the result of tympanoplasty in 80 patient dividing into 2 group i.e in one group (control) ETF was not done and in another group of equal number the ETF was done before tympanoplasty. In our study 66 (82.5%) out of 80 had successful tympanoplasty in respect to post operative graft taking and hearing improvement both subjective & objective. The control group B recorded 88 % success rate. In group A1 83.33% of patients & in group A2 75% cases resulted in successful tympanoplasties.

Conclusion :-

Total of 80 cases with dry C.P. between 18 and 60 yrs were randomly selected for the study. All the patient were randomized into 2 groups. Group A (40) was listed for ETF before surgery by using impedance audiometry, Toynbee test was performed in the ear having tympanic membrane perforation.

Group A - A1 -with good ETF

- A2-with poor ETF

Group B – (40) operated without going ETF test.

Considering all the group together the graft was accepted in 66 (82.5%) patients at the end of the follow up period.

INTRODUCTION :-

It is a universally accepted fact that dysfunction of ET plays a vital role in jeopardising the functional integrity of the middle ear. Various known methods of determining ETF include sonometry, radiological study, photoelectric method to measure patency, assessment of ventilatory capacity of ET using fluoresene/, saccharine test to assess mucociliary clearance time & assess ETF. Impedance audiometry offers a much easier simpler & user friendly way to assess ET function. Jogren Holmgvist & O Haller, (1970) showed that there exists a relationship between ET & mastoid air cell system. Blue stone etal. (1979) reported that assessment of ETF was an essential test before Tympanoplasty. Manning etal (1987) opined that the normal ET function was associated with good result of tympanoplasty where as poor function did not predict a poor outcome.

Glasscock & Shambaugh (1990) recommended (that ETF should always be tested before performing tympanoplasty.

Shimada etal (1990) documented that good ETF may lead to successful tympanoplasty results.

AIM & OBJECTIVES :-

The present study is aimed to :-

1. Compare result of Tympanoplasty with and without preoperative evaluation of ETF.
2. Assess the relevance of ETF before tympanoplasty.

MATERIAL & METHODS :-

This is a prospective randomized case controlled study which was conducted over a period of 1 yr from august 2013 to 2014. 80 patients were included in the study from the department of ENT MGM MEDICAL COLLEGE Patients with nasal allergy, pulmonary disease anaemia and age <18yrs>60 yr were not included in the study.

OBSERVATIONS & RESULTS :-

The total no of cases included in the study was 80. No of male was 50 and female was 30. The average age of patients was 27.5 yrs ranging from 18 to 55 yrs. Of the 80 patients 78 % belonged to the rural populations and were from a lower socioeconomic back ground.

12 patients (10 %) had B/L C.P.

44 Patients (55%) had U/L C.P

24 Patients (30%) had U/L sub total perforation

Discharge and deafness were the chief complaints in majority of cases as suggested by Glasscock and Shambaugh (1990) in pure tone conductive losses bone conduction. Threshold is essentially normal with a depression of the AC conduction threshold. An air bone gap of 20-30 dB indicates mild conductive loss, 30-40 dB moderate conductive loss and 45-70 dB, a severe conductive loss. In the N bone conduction the curve lies between 0-25 dB.

Sensory neural deafness is classified according to the placement of bone curve as follows 20-40 dB – Mild deafness 41-55 dB moderate deafness 56-70 dB severe deafness and 71-90 % - very severe deafness. above 90 dB Profound deafness.

PTA recorded mild to moderate degree of conductive loss in most of the cases. The average air bone gap in pre operatively as a whole was 40-45 dB.

Tympanoplasty results recorded type B curve with low base and absent stapedial reflex in all the affected cases. The radiological finding of the mastoid varied between diploic and sclerotic. ETF was done before surgery by using impedance audiometry. All the patients were randomised into 2 graphs.

Group A was tested for ETF before surgery and group B was operated without going through ETF test. Group A was further divided into 2 subgroups (1). Those with good ETF (A1) and those with poor ETF (Group A2) including partial and grossly impaired tubal function.

Considering all the groups together, the graft was taken up in 66 (82.5 %) patients at the end of follow up period. All the patients with successful tympanoplasty had both subjective and objective improvement in hearing.

In Group A1 (n= 24) all the patients had good ETF pre operatively. Of them 20 (83.33 %) patients had successful tympanoplasties and 4 (16.67 %) had failures.

In group A2 (n=16) all the patients had poor ETF of which 4 patients had grossly impaired tubal function and remaining 12 patients had partially impaired tubal function.

In group A2 (n=40) patients on whom no preoperative ETF was done, the graft was accepted in 34 (85%) cases and rejected in 6 (15%) patients.

In successful cases of group A (n=40) improvement of hearing within 10 dB in 25 cases (62.5%) after 3 months of surgery and remaining after 6 months post operatively.

Improvement of hearing within 11-15 dB in 08 patients (20%) at 3 months post operatively and in 7 patients (17.5%) at 6 months within 16-20 dB in 3 patients (7.5%) at 03 months and 5 patients (12.5%) at 6 month and up to 21-25 dB in 4 cases (12.5 %) after 3 month and 3 cases (7.5 %) at 6 months.

In group B where no ETF tests were done pre operatively hearing improvement up to 10 dB in 28 patients (70%) at 3 months post operatively and remaining same at 6 month.

Others were as follows: -

Within 11-15 dB in 10 patients (25%) at 3 months 6 patients (15%) at 6 months within 16-20 dB in 02 patients (5%) at 3 months.

3 patients (7.5 %) at 6 month and up to 21-25 dB in 2 patients (5%) at 3 month and 3 patients (7-5 %) at 6 months).

The average post operative improvement in hearing was recorded to be within 70 dB in 60 (90.90 %) cases and within 25 dB in 6 (9.10 %) cases.

Male : 50
Female : 30

Sl. No.	Age GR	No of patients
1	10-20	18
2	21-40	42
3	41-60	20

PRE- OP HEARING LOSS (n=80)

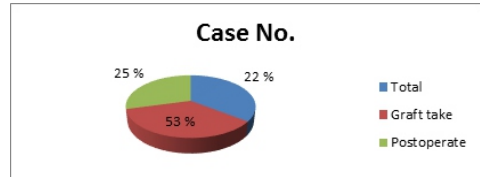
1	08 patients (10%)	20 to 30 dB – AB gap
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2	20 patients (25%)	30 to 40 dB – AB gap
3	44 patients (55%)	40 to 50 dB- AB gap
4	8 patients (10%)	50 to 60 dB – AB gap

POST OPERATIVE RESULTS

Gain in hearing	With ETF Test (n=40)		No ETF Test (n=40)	
	03 month	06 month	03 month	06 month
Up to 10	25	25	28	28
11-15	8	7	10	6
16-20	3	5	2	3
21-25	4	3	2	3

Graft take up result in both groups :



POST OP RESULT :-

	Good (A1)	Poor ETF (A2)	No ETF (B)
Total	24	16	40
Successful	20	12	34
Failed	4	4	6

DISCUSSION :-

The role of ETF in the successful outcome of tympanoplasty remains controversial. Some studies have demonstrated a condition between (N) pre operative tubal functional & successful grafting. We studied the result of tympanoplasty in 80 patient dividing into 2 group i.e in one group (control) ETF was not done and in another group of equal number the ETF was done before tympanoplasty. In our study 66 (82.5%) out of 80 had successful tympanoplasty in respect to post operative graft taking and hearing improvement both subjective & objective. The control group B recorded 88 % success rate. In group A1 83.33% of patients & in group A2 75% cases resulted in successful tympanoplasties. This result highlights that poor ETF does not adversely affect the outcome of surgery in majority of cases. Palva & Kajra (1969) reported that the post operative behaviors of such ears showed no difference between those that failed that test & those that did not. Strauss (1981) recommended that a pre operative tubal dysfunction is no C/I for tympanoplasty, all should be operative.

CONCLUSION :-

Total of 80 cases with dry C.P. between 18 and 60 yrs were randomly selected for the study. All the patient were randomized into 2 groups. Group A (40) was listed for ETF before surgery by using impedance audiometry, Toynbee test was performed in the ear having tympanic membrane perforation.

Group A - A1 - with good ETF
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Group B – (40) operated without going ETF test.

All the cases under went type I tympanoplasty by over underlay technique (Kartusetal) 2002 through modified endaural incision of Lempert using Temporal fascia graft (Roy Chaudhary)

Considering all the groups together the graft was accepted in 66

(82.5%) patients at the end of the follow up period. All the patient with successful tympanoplasties had both subjective & objective improvement in hearing.

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