SUMMARY

It is now widely accepted that Eustachian tube dysfunction has a definite role in the pathogenesis of otitis media. Also the effect of chronic inflammation in worsening the Eustachian tube function is well known.

Being an integral part of the middle ear physiology, **siedentop et al. (1978)** mentioned that a successful surgical repair of drum perforation depends upon a normally functioning ET. There is a lot of contoversy about the role of ETF and its value in the prediction of the outcome of middle ear reconstructive surgery. While some authors like **Mackinnon (1970) and Holmquist (1969)** found a good correlation between preoperative ETF and the success rate of tympanoplasty, **Flisberg (1966)** considered that a recorded tubal hypofunction as a highly unfavourable prognostic sign in tympanoplasty, even contraindication to reconstructive surgery. Others, **Sheehy and Glasscok (1967)** had a good healing rate in their series of tympanoplasty mentioning nothing about ETF tests.

Aims of the work :

Trying to investigate this controversy, this study was planned aiming at :

1- Trying to correlate between preoperative ETF and the outcome of myringoplasty regarding healing and hearing imporvement. Trying to find any significant relation that can exist between preoperative ETF and result of

myringoplasty ventilatory function of ET was assessed preoperative by inflation-deflation test, valsalva's test and Toynbee's test.

2- Recroding any postoperative change of ETF. For this purpose ETF was tested by valsalva's test, Toynbee's test and tympanometry. In this way it can be found out, in cases with successful myringoplasty, to which extent the ETF is affected by closure of the tympanic membrane perforation.

Patients included in the study :

120 patients were included in this study. They had chronic suppurative otitis media, mucosal disease with a dry central perforation. It was made sure that there was no ear discharge at least for 3 months prior to the surgery.

- Non of them had cholesteatoma, granulation or tympanosclerosis.

Methods used :

Each patient was subjected to :

1- Full history.

2- Ear, nose and throat examination.

3- Pure tone audiometry.

4- Pre-operative assessment of the ventilatory function of Eustachian tube by :

- Valsalva's test
- Toynbee's test.
- Inflation-defletion test which was done following the method described by **Siedentop et al. (1972)** and the ETF

was classified in this way into 5 types : I, II, III, IV and V according to the ability of ET to equilibrate negative of -250 mmH_2O and positive pressure of+ 500 mmH_2O

5- Myringoplasty was done using the underlay technique and temporalis fascia graft.

6- Postoperative follow up to find out :

a- Success rate.

b- Cases with successful myringoplasty were subjected 6 months after the operation to :

- Clinical examination and testing drum mobility.
- Pure tone audiometry was done to find out the degree of improvement.
- Postoperative valsalva and Toynbee's test were done as well as Tympanometry as tests for ETF.

Results :

1- Preoperative ETF testing: it was found that valsalva's test was positive in 60% of patients, Toynbee's test was positive in 65% of the patients.

For inflation Deflation test : 8.33% of patients had type I ETF, 20% had type II ETF, 53.33% had type III ETF and 18.33% had type IV ETF. Non of the patients had type V ETF.

2- Healing results : successful myringoplasty was obtained in 100 patients representing 83.33% of the whole group of patients. Success rate was higher in patients with type I and II ETF (90% and 87.5% respectively). While it was

lower in patients with type IV ETF, namely 68.18% but this difference was found to be insignificant.

3- Hearing results : All the patients included in this study had conductive hearing loss. Non of them had mixed or sensorineural hearing loss. The mean preoperative A-B gap was 21.42 dB while postoperative A-B gap was 15.3 dB. Patients with A-B gap from 0-20 dB were 33.33% preoperatively while postoperatively they were 73%. For A-B gap of 20-30 dB preoperatively 66.67% of patients were included while postoperatively they were only 27%. Thus it can be deduced that, there is a significant and definite hearing improvement of the whole group. It was found also, that there was a significant difference in hearing improvement between patients of type I ETF (good function) and type IV ETF (poor ETF); as for patients type I ETF those with postoperative A-B gap 0.20 dB represented 88.88% and those with type IV ETF they represented 46.66%.

4- Postoperative ETF showed improvement as shown by valsalva's test which changed from being positive in 60% of patients preoperatively to be positive in 83% of patients with successful myringoplasty. Also Toynbee showed a similar change from being positive in 65% of patients preoperatively to be positive in 84% of patients postoperatively.

Tympanometric studies showed that patients with type A curve are 50% of the total gruop while it was 33.33% of patients with type IV ETF. In the same time type C curve was

found in 37% of the whole group while found in 40% of patients with type IV ETF. The difference is insignificant which means postoperative improvement of ETF in patients with type IV ETF.

Conclusions :

1- It is important to assess the ventilatory function prior to myringoplasty. The inflation-deflation test is a reliable one. Also Toynbee's test proved to be a sensitive one and can be used as a screening test.

2- Good preoperative ETF can predict good healing and hearing results of myringoplasty. In the presence of poor preoperative ETF the healing results are inferior to those of patients with good ETF although the results are still good results while hearing improvement is markedly inferior to that of patients with good ETF.

3- There is marked postoperative improvement of ETF. due to closure of tympanic membrane perforation.

4- A good tubal function is a prerequisite for a successful myringoplasty while a bad function does not contra-indicate myringoplasty.

5- Patients with preoperative poor ETF should be followed up more thoroughly postoperatively as they are more subjected to develop negative middle ear pressure and hence secretory otitis media.