

## Original Research Article

# Demographic profile of subjects undergoing tympanoplasty in a tertiary care centre of Punjab: analysis of 60 cases

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## ABSTRACT

**Background:** Different tympano meatal vascularised flaps were compared in the tympanoplastic surgery in chronic suppurative otitis media.

**Methods:** 60 cases with diagnosis of chronic suppurative otitis media were selected from ENT OPD of Dayanand Medical College and Hospital Ludhiana. 6 types of tympanomeatal flaps were used and 10 cases of each flap were taken. The study was conducted for the period of 1 year from June 2015 to August 2016.

**Results:** Maximum numbers of patients were in the age group of 31-40 years (26.7%), followed by age group of >50 years (23.3%). Minimum age among these patients was 11 years and maximum 65 years. Mean age was 36.67. Graft failure was in 2 patients, 1 lies under age group 31-40 years and other was in more than 50yrs group. Female patients constituted 56.7% and male patients were 43.3% in our study population. Graft uptake was 93% in females and 100% in males. In our study on 60 patients, 41 (68.3%) patients had a rural and 19 (31.7%) an urban background.

**Conclusions:** Age does not affect the results of tympanoplasty, whatever flap maybe utilised. Awareness in rural population regarding reconstructive ear surgery is there nowadays though there is still gender discrimination, with less number of ladies opting for this elective surgery.

**Keywords:** Tympanomeatal flaps, Tympanoplasty, Vascularised

## INTRODUCTION

Tympanoplasty is an established operative procedure for reconstruction of perforation of the tympanic membrane (TM). The term Tympanoplasty was coined by Wullstien in 1953 to describe surgical reconstruction of the middle ear hearing mechanism.<sup>1</sup> The discovery of the tympanic membrane and the role of ossicles in hearing with advent of antimicrobials added up to the better understanding of diseases and their treatment of the ear.

Successful tympanoplasty reported to be 100% in terms of graft uptake and air bone gap was closed to within 0-10 db in 63% and to within 0 to 20 dB in 97% cases. The closure of tympanic membrane perforation restores the vibratory area of the membrane, affords round window protection

and thus improved hearing, lessens the susceptibility of the middle ear mucosa to infections via eustachian tube and external auditory meatus.<sup>2</sup>

The two basic principles of tympanoplasty namely sound protection for the round window and sound pressure transformation for the oval window were defined after Davis and Walsh 1950.<sup>3</sup> Tympanoplastic Surgeries were introduced by Moritz 1952, Zollner 1953, 1955 and Wullstein 1953, 1956 in Germany to restore and conserve hearing after removal of disease from the middle ear.<sup>1,4,5</sup> Incidence of suppuration can be traced to Egyptus 2500 B.C., Hypocrites 9460- 370 B.C. Much thought was given to the seriousness of disease but no attempt however was made to close the perforation. The credit of closure of a perforation goes to Benzar et al.<sup>6</sup> He used prosthesis to

repair the gap and since then various methods have been used and tested, and are still being probed in order to achieve a healthy, functional, dry and near to normal ear. A dry ear and a good eustachian tube function, are major prerequisites for a successful tympanoplasty.<sup>7-9</sup> Moreover there should be no foci of infection around the nose, paranasal sinuses and the throat.<sup>10</sup> The mucosa of middle ear should appear to be normal to the naked eye on otomicroscopy.<sup>11</sup>

Reeve et al too considered a dry ear a prerequisite for successful tympanoplasty and if the ear does not dry after treatment, indicates severe tubal dysfunction.<sup>12</sup> This study intended to compare the results of different vascularized tympanomeatal flaps in tympanoplasty in almost similar setup.

## METHODS

In this study the results of different vascularised flaps were compared. 60 cases with diagnosis of Chronic Suppurative Otitis Media were selected from ENT OPD of Dayanand Medical College and Hospital Ludhiana. 6 types of tympanomeatal flaps were used and 10 cases of each flap were taken. The study was conducted for the period of 1 year from June 2015 to August 2016. All the patients fulfilled the standard criteria for tympanoplasty a proper work out was carried out as per the performa attached. Only safe suppurative otitis media (CSOM) were included in the study. Unsafe suppurative otitis media (CSOM), otitis externa, stenosis of external auditory canal and ossicular discontinuity were excluded from the study.

Patients with both dry and wet ears were taken and different approaches were applied (post aural, end aural and transcanal / permeal approach) and different flap techniques were used randomly. Clinical and hearing assessment was carried out at 2 weeks, 4 weeks, 3 months and 6 months in all the patients.

The graft uptake, graft mobility with valsava and pneumatic seigalisation and hearing gain were different parameters basis of which different flap techniques were compared. The hearing gain in patients with cortical or without cortical mastoidectomy was also the outcome of this study was based upon the uptake of graft and improvement in hearing in different age groups, gender and advantage of different flaps over one another.

### Statistics

All statistical calculations were done using Statistical Package of Social Sciences (SPSS) 17 Version statistical program for Microsoft windows (SPSS Inc. released 2008. SPSS statistic for windows, version 17.0, Chicago). Ethical approval of the study was taken from the Institutional Ethics Committee.

## RESULTS

Maximum numbers of patients were in the age group of 31-40 years (26.7%), followed by age group of >50 years (23.3%). Minimum age among these patients was 11 years and maximum 65 years. Mean age was 36.67.

**Table 1: Age distribution of patients (n=60).**

| Age group (in years) | No. of patients | % of patients |
|----------------------|-----------------|---------------|
| 0-20                 | 12              | 20.0          |
| 21-30                | 11              | 18.3          |
| 31-40                | 16              | 26.7          |
| 41-50                | 7               | 11.7          |
| More than 50         | 14              | 23.3          |
| <b>Total</b>         | <b>60</b>       | <b>100.0</b>  |

n = total number of patients, % = percentage of patients.

**Table 2: Gender distribution of patients (n=60).**

| Gender       | No. of patients | % of patients |
|--------------|-----------------|---------------|
| Female       | 34              | 56.7          |
| Male         | 26              | 43.3          |
| <b>Total</b> | <b>60</b>       | <b>100.0</b>  |

Female patients outnumbered male patients and constituted 56.7% of study population. Male patients were 43.3%. Maximum number of male and female patients were seen in the age group of 31-40 years. The selection of patients was random and irrespective of gender.

Most of the female patients were seen to have chronic suppurative otitis media (safe type) which shows the ignorance and delay in taking otologic consultation.

**Table 3: Socio economic status (n=60).**

| Area  | No. of patients | % of patients |
|-------|-----------------|---------------|
| Rural | 41              | 68.3          |
| Urban | 19              | 31.7          |

In our study on 60 patients, 41 (68.3%) patients had a rural and 19 (31.7%) an urban background. Reflecting lack of proper referral services from rural areas to specialized centres and illiteracy regarding the disease and its sequelae.

## DISCUSSION

Chronic suppurative otitis media is a persistent disease, insidious in onset, causing severe destruction with irreversible sequelae.<sup>13</sup> Chronic suppurative otitis media manifests with deafness and discharge commonly seen in younger age group with lower socio-economic status, poor living conditions, overcrowding, poor hygiene and nutrition.<sup>14</sup> Tympanic membrane perforation may be traumatic in origin but more often results from acute suppurative otitis media which may not heal

spontaneously, leading to recurrent discharge from the ear and hearing impairment, thus protection of round window from sound is lost.<sup>15</sup>

### **Pediatric patients**

The higher incidence of upper respiratory tract infections and the unpredictable function of the eustachian tube are thought to contribute to the lower graft take rate in children. The current opinion is that any child in whom chronic infections and otorrhoea pose a risk to hearing or (substantially) to quality of life should be considered for myringoplasty. Others: such as surgical dexterity, revision surgery, age of patient. Raine et al in a retrospective analysis of 114 tympanoplasties in children of the age group of 7 to 16 demonstrated a significant higher rate of failure in younger children given by them was due to increased incidence of upper respiratory tract infection and immature Eustachian tube dysfunction.<sup>15</sup> They advocated deferring surgery till 12 years. Strahan et al documented that the incidence of failure and failure to restore hearing were higher in older age group same finding was seen in our study.<sup>16</sup> In the study there was slight female preponderance. There were 16 female (53.33%) cases in the series as against the 14 male cases (46.66%). In the present study maximum patients were in the age group of 31-40 years (26.7%), followed by age group of >50 years (23.3%). Minimum age among these patients was 11 years and maximum 65 years. Mean age was 36.67. Graft failure was in 2 patients, 1 lies under age group 31-40 years and other was in more than 50 years group. Female patients constituted 56.7% and male patients were 43.3% in our study population. Graft uptake was 93% in females and 100% in males. Most of the female patients were seen to have chronic suppurative otitis media (safe type) which shows the ignorance and delay in taking otologic consultation. In our study on 60 patients, 41 (68.3%) patients had a rural and 19 (31.7%) an urban background. Reflecting lack of proper referral services from rural areas to specialized centres and illiteracy regarding the disease.

### **CONCLUSION**

Age does not affect the results of tympanoplasty, whatever flap maybe utilised. Awareness in rural population regarding reconstructive ear surgery is there nowadays though there is still gender discrimination, with less number of ladies opting for this elective surgery.

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