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Assessment of Quality of Life of Csom Patients Before and After Type 1 Tympanoplasty Using Com-5 Questionnaire

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Abstract:- The patients suffering from chronic suppurative otitis media (CSOM) experience a drastic decrease in the quality of life due to the various symptoms of the disease. Hence, they are subjected to surgery as a measure to offer them some relief. A study was carried out at the Department Otorhinolaryngology at Saveetha Medical College and Hospital to assess the difference in quality of life of patients having tubotympanic disease after type 1 tympanoplasty by using the Chronic Otitis Media – 5 (COM-5) questionnaire.

I. INTRODUCTION

Chronic suppurative otitis media (CSOM) is chronic inflammation of middle ear and mastoid cavity. It may clinically present as persistent ear discharge through a tympanic perforation.[1] According to a study regarding the ossicular chain status in CSOM patients, it was found that out of 150 selected patients, 94 (64%) of them were found to have safe type of CSOM and the remaining 54 (36%) had unsafe type of CSOM.[2] The intermittent otorrhoea is typically painless, not foul-smelling and associated with hearing loss (mostly conductive). The size and site of perforation, status of ossicles, and degree of repercussion in the inner ear also influence the severity of hearing loss.[3]

CSOM is a common cause of hearing loss that can be prevented, observed mainly in developing countries.[4] Type 1 tympanoplasty, otherwise known as myringoplasty, is a technique for the surgical management of tubotympanic type of CSOM. It involves the repair of the tympanic perforation without ossicular chain reconstruction. The aim of the procedure is to close the perforation with a dry stable graft and to improve hearing. Temporalis fascia is used as a graft since it is a thin tissue that does not shrink, it has a low metabolic rate and it is similar in texture and structure to the tympanic membrane.[3]

Tragal perichondrium, periosteum, fascia lata, cartilage and fat can also be used as graft material.[5] It has been observed that the subjective experience of patients is not seen based on assessing survival rates or functional diagnostics. Thus, in clinical medicine, there is a steady increase in the importance of measuring subjectively assessed quality of life (QOL).[5]

II. MATERIALS AND METHODS

This study was conducted in the Department of Otorhinolaryngology at Saveetha Medical College and Hospital. Prospectively collected data in CSOM patients for a period of 8 months was retrospectively analysed. Fifty CSOM patients of tubotympanic type having perforations were taken. The site and size of the perforation was made note of. The Otitis Media-6 (OM-6) questionnaire, described and used by Rosenfield et al.[6] for paediatric patients was modified to create the COM-5 questionnaire by Habesoglu et al[7]. The 50 selected patients were asked to describe the symptoms using the Visual Analogue Scale (VAS). Type 1 tympanoplasty was performed on all the patients. Local anaesthesia was used for surgery. In all the cases, temporalis fascia was grafted. Intraoperative assessment of whether or not the ossicular chain was intact was done and documented. Patients were followed up after 6 months, following surgery. Status of graft was noted. Surgical success was defined by an intact graft and those cases were included in the study. Symptoms were rated using the VAS and hearing was assessed by pure tone audiometry. The results were then compared to those obtained before surgery.

- *Inclusion Criteria*

CSOM patients of tubotympanic disease with perforations dry for a minimum of 3 months.

- *Exclusion Criteria*

CSOM patients of atticoantral type with cholesteatoma, air bone gap > 45 dB, mixed hearing loss, patients > 45 years of age

III. STATISTICAL ANALYSIS

Statistical analysis of the data was done using Microsoft Excel. Paired samples t test was used for to analyse the statistical significance in preoperative and postoperative scores. A p value of <0.05 was considered statistically significant.

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IV. RESULTS

Out of 50 patients, 47 (94%) of them had an intact graft 6 months post-operatively. The study comprised of 25 females and 25 males. Surgery was done in the right ear for 19 patients and in the left ear for 31 patients. 31 patients (62%) had central perforations, 6 (12%) had in anterior quadrant, 4 (8%) had in posterior quadrant, 9 (18%) had subtotal perforations.

A substantial improvement was observed in the scores postoperatively (Table 1) – the mean score was 2.42 ± 1.55 and the maximum score was 5. Complaints of difficulty in hearing words had a mean score of 3.1 ± 1.53 and a maximum score of 6 before surgery. The scores reduced to a mean score of 2.04 ± 0.83 and a maximum score of 4, thus implying a great improvement in the perception of hearing improvement subjectively after surgery. A significant difference was observed in terms of emotional distress caused by disease - from a preoperative mean score of 2.88 ± 0.98 to a postoperative mean score of 2.16 ± 0.82 on the Visual Analogue Scale. There was a slight difference in the preoperative and postoperative mean scores regarding activity limitation which were found to be 2.62 ± 1.19 and 1.86 ± 0.76 respectively (Table 1).

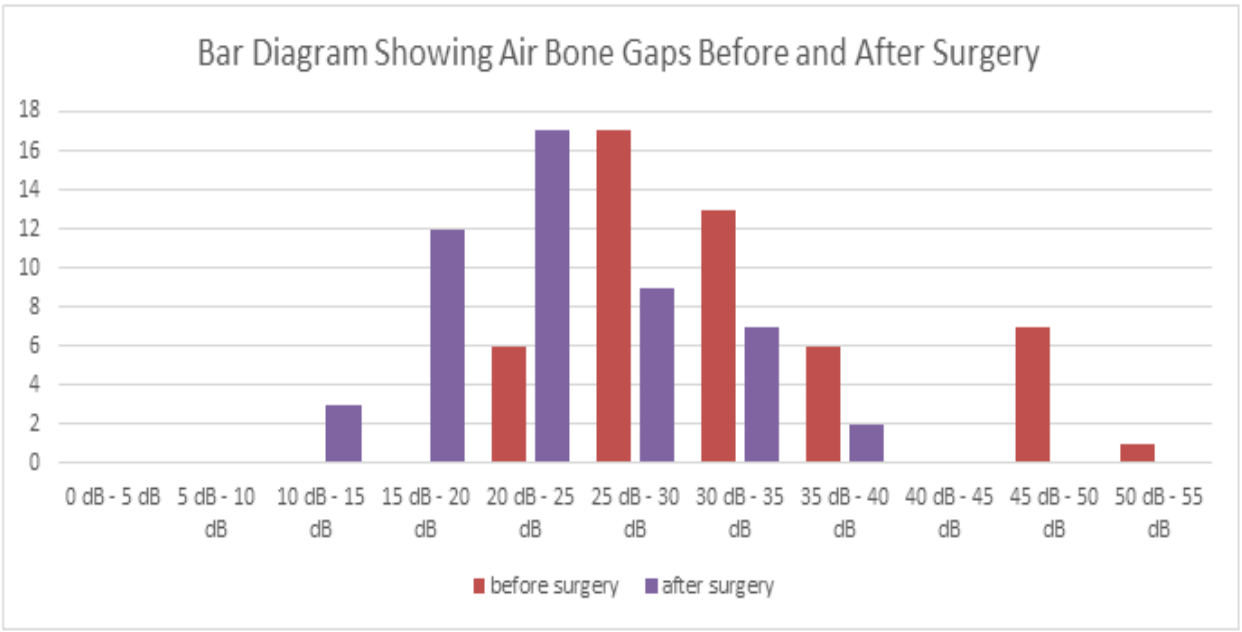

Fig 1:- Figure showing air bone gap values before and after tympanoplasty

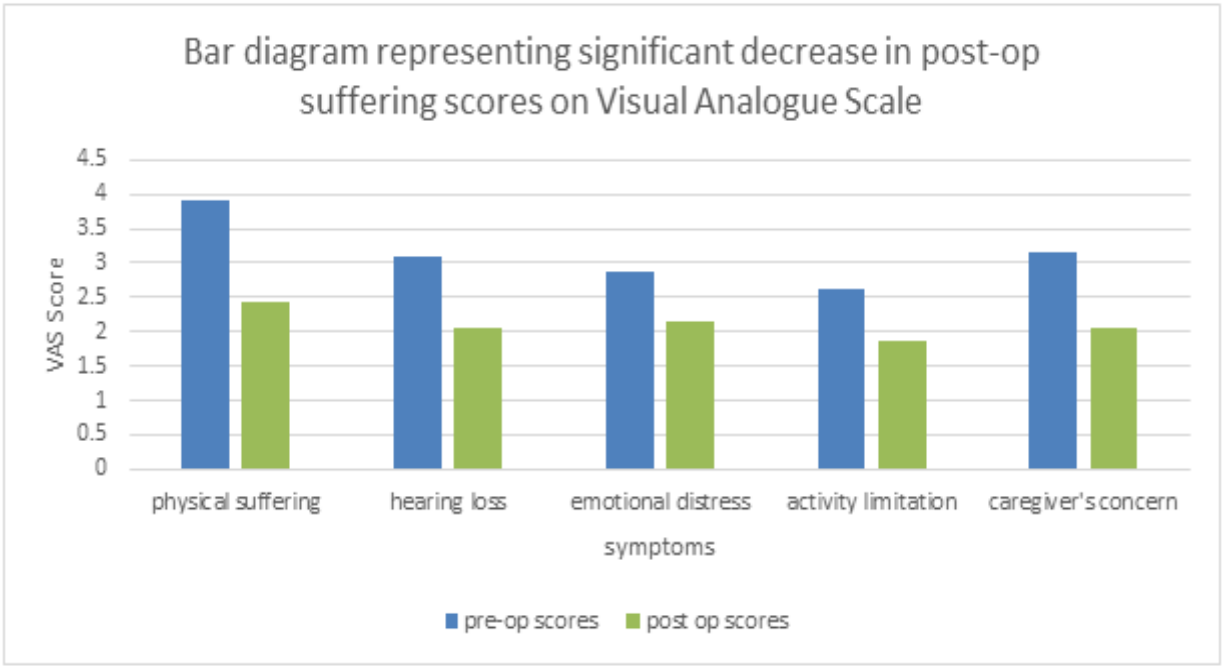

Fig 2:- Bar diagram showing VAS score before and after surgery

V. DISCUSSION

In this study, 94% (47/50) patients had an intact graft after 6 months as compared to the study by Habesoglu et al. [7], in which 80.3% of the patients (45/56) had successful graft uptake, and that of Khyati et al., where the graft uptake 82% (37/45). In this study, 50 patients were taken with a mean age of 30.36 ± 9.07 , with a range of 12-45 years as compared to Habesoglu et al., where the mean age was 14.1 ± 2.20 with a range of 9–16 years. In the study by Khyati et al. 45 patients with the mean age of 23.87 ± 6.96 and a range of 14-45 years were included. In our study, the mean preoperative air bone gap (ABG) scores were 33.09 ± 7.80 whereas in the Habesoglu et al. study, the mean scores were 25.33 ± 3.90 and in the Khyati et al. study the scores were 30.95 ± 8.81. The mean postoperative ABG scores were 24.37 ± 5.77 in our study in constrast to 16.22 ± 5.45 for both Habesoglu et al. as well as Khyati et al. studies.

The scores obtained in the COM-5 questionnaire has been compared with those in the studies by Khyati et al. and Habesoglu et al. (Table 3). The scores obtained for physical suffering were found to be almost same. It was observed that activity limitation scores slightly greater than the values obtained in the study conducted by Khyati et al. and significantly less than the values obtained in thestudy by Habesoglu et al. This could be due to the fact that swimming is not a usual activity for the poor urban population which forms majority of the patients who have taken part in our study. Hearing loss scores in all three studies were found to be similar. The scores for emotional distress were found to be slightly greater than the values observed in the study by Khyati et al. However, there was a significant difference between the values in our studied when compared to the study by Habesoglu et al. Thus, it can be inferred that the Indian population is emotionally affected by the disease process.

The scores for caregiver's concern was found to be less in our study as compared to Habesoglu et al. but more than those from Khyati et al.

Besides the study by Khyati et al., another retrospective study was performed by Podoshin et al.[8] to study the rate of graft uptake. In our study, the rate of graft uptake was 94%, whereas the rates obtained by Podoshin et al. and Khyati et al. were 90% and 82% respectively. Thus, the success rate of our study was found to be better than the other two studies. The studies of rates of graft uptake were measured based on the site of perforation in our study (Table 4).

Hence, Type 1 tympanoplasty done in CSOM patients shows significant increase in the quality of life of the patients.

Symptoms	Pre-operative VAS scores	Post-operative VAS scores	Difference	p value
Physical suffering scores	3.92 ± 1.63	2.42 ± 0.97	1.5 ± 1.41	4.71874E-08
Hearing loss scores	3.1 ± 1.53	2.04 ± 0.83	1.04 ± 0.71	1.07878E-06
Emotional distress scores	2.88 ± 0.98	2.16 ± 0.82	0.72 ± 1.24	0.000136076
Caregiver's concern scores	2.62 ± 1.19	1.86 ± 0.76	0.76 ± 0.71	0.000206533
Activity limitation scores	3.14 ± 1.50	2.06 ± 0.93	1.08 ± 2.12	8.55396E-05

Table 1:- VAS scores obtained before and aftersurgery

	Present study	Khyati et al.	Habesoglu et al.
Preop mean air bone gap	33.09 ± 7.80	30.95 ± 8.81	25.33 ± 3.90
Postop mean air bone gap	24.37 ± 5.77	16.22 ± 5.45	16.22 ± 5.55
Mean improvement	9.28 ± 6.04	14.73 ± 8.57	9.11 ± 6.26

Table 2:- Comparison of VAS scores in the various studies

Symptoms	Present Study		Khyati et al.		Habesoglu et al.	
	Pre-operative VAS scores	Post-operative VAS scores	Pre-operative VAS scores	Post-operative VAS scores	Pre-operative VAS scores	Post-operative VAS scores
Physical suffering	3.92 ± 1.63	2.42 ± 0.97	3.65 ± 0.98	2.16 ± 0.76	4.37 ± 2.15	1.35 ± 1.22
Difficulty in hearing	3.1 ± 1.53	2.04 ± 0.83	3.19 ± 0.99	1.30 ± 0.76	4.91 ± 1.54	1.62 ± 1.26
Activity limitation	2.88 ± 0.98	2.16 ± 0.82	1.59 ± 0.89	1.00 ± 00	5.26 ± 1.80	1.71 ± 1.48
Emotional problems	2.62 ± 1.19	1.86 ± 0.76	1.86 ± 1.18	1.03 ± 0.16	4.26 ± 2.14	1.37 ± 0.81
Caregiver's concern	3.14 ± 1.50	2.06 ± 0.93	2.30 ± 0.16	1.03 ± 0.16	6.08 ± 0.94	2.02 ± 1.72

Table 3:- Comparison between Visual Analogue Scale scores assessed pre-operatively and post-operatively in our study and the studies of Khyati et al. Habesoglu et al.

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Site of perforation	Current Study			Khyati et al.	Podoshin et at.
	Total cases	Successful uptake of graft	%		
	Rate of graft uptake (%)				
Anterior	6	5	83.3	9(100)	4(100)
Posterior	4	3	75	3(100)	7(87.5)
Central	30	29	96.7	25(89.28)	186(90.3)
Subtotal	10	10	100	3(50)	34(85.0)

Table 4:- Comparison of graft uptake

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