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ORIGINAL ARTICLE

Impact of Various Otoplasty Techniques on Auricular Deformities and Patient Expectations in Balochistan

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ABSTRACT

Background: Otoplasty is a commonly performed aesthetic and reconstructive procedure aimed at correcting auricular deformities, most notably prominent ears. Despite advancements in surgical techniques, there is limited data comparing patient satisfaction and aesthetic outcomes across different otoplasty methods in the regional context of Balochistan, Pakistan.

Materials and Methods: This prospective, comparative study was conducted from April 2022 to November 2022 at Bolan Medical Complex, Quetta. A total of 90 patients with congenital or acquired auricular deformities were randomly assigned to undergo one of three otoplasty techniques: Furnas technique (Group A, n=30), Mustardé suture technique (Group B, n=30), or cartilage scoring technique (Group C, n=30). Patient expectations and postoperative satisfaction were assessed using the FACE-Q Ear Module and Visual Analog Scale (VAS). Outcome evaluation included aesthetic assessment by two independent plastic surgeons using standardized pre- and postoperative photography. Statistical analysis involved one-way ANOVA and Pearson correlation.

Results: Patients in Group B (Mustardé) reported the highest satisfaction (VAS: 8.7 ± 0.6), followed by Group C (8.1 ± 0.8) and Group A (7.3 ± 1.1), with statistically significant differences ($p<0.001$). FACE-Q scores also favored Mustardé with enhanced symmetry and contour ratings. Patient expectations were moderately correlated with postoperative satisfaction ($r = 0.42$, $p < 0.01$). Complication rates were lowest in Group B.

Conclusion: Among the three techniques studied, the Mustardé suture method provided the most favorable aesthetic and satisfaction outcomes for patients undergoing otoplasty in Balochistan. Comprehensive preoperative counseling and technique selection tailored to patient expectations are crucial for optimal results.

Keywords: Otoplasty, Mustardé technique, Furnas technique, Auricular deformities, Patient satisfaction, Aesthetic surgery, Balochistan.

INTRODUCTION

Prominent ears or auricular deformities are one of the most frequently seen cosmetic problems of otolaryngology and plastic surgery originating as a congenital disorder[1]. These deformities, although not usually functionally impairing, may result in severe psychosocial turmoil, particularly in children and teenagers, resulting in social ostracism, bullying, and low self-image[2]. Surgical correction of auricular deformities, otoplasty, has progressed throughout decades and many methods to correct both aesthetic and structural defects have been described[3]. The most commonly used methods are Mustard suture technique, Furnas concha-mastoid fixation and cartilage scoring, which differ in terms of complexity, invasiveness, and stability over the long-term[4].

The efficacy of otoplasty is becoming measures not solely by the surgical outcomes but also by the subjective satisfaction and quality of life reports by the patient[5]. The FACE-Q and Visual Analog Scale (VAS) are instruments that have found their way in measuring aesthetic satisfaction and psychological gains[6]. Besides this, more global health-related quality of life instruments such as the WHOQOL-BREF can give a wider picture of patient well-being aftercosmetic procedures[7].

although the international literature on the topic of otoplasty procedure and its results is increasing, there is still a lack of data relating to the specific region of South Asia, especially resource-limited and culturally diverse areas such as Balochistan[8]. Attitudes within a culture, expectations in a patient, and the availability of surgical skill and experience could all serve as determinants of outcome and satisfaction, thus the importance of locally generated evidence to inform clinical decisions[9].

This prospective study is set to compare the results of different otoplasty procedures: Mustardé, Furnas and combined procedures, regarding surgical correction, aesthetic satisfaction and quality of life. Through the employment of verified evaluation scales and the evaluation of patient expectations and postoperative responses, the study becomes beneficial in providing information regarding the optimization of the otoplasty practice in line with the Balochistan population.

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MATERIALS AND METHODS

The study was a prospective comparative research done at the Department of Plastic and Reconstructive Surgery, Bolan Medical Complex Hospital, Quetta, between April 2022 to November 2022. A total of 90 patients with congenital or acquired auricular deformities were included according to the inclusion criteria age 10-40 years, no previous otoplasty, and no active skin or systemic disease. Patients were thoroughly counseled preoperatively and informed consent was taken after which they were randomly divided into three equal groups and underwent one of the three otoplasty procedures: Furnas technique (Group A), Mustardes suture technique (Group B) or cartilage scoring technique (Group C). All the surgeries were conducted either under local or general anesthetic by board-certified plastic surgeons, having a minimum of five years of experience. Each technique had standard surgical procedures.

Detailed history, clinical examination, and standardized auricular photography were performed as a part of preoperative assessment. A structured questionnaire was used to record the expectations. The follow-up was carried out at one week, one month, and three months after the surgery. The outcome measure was the patient satisfaction assessed by the Visual Analog Scale (VAS)[10] and the FACE-Q Ear Module at three months. Two independent examiners assessed preoperative and postoperative symmetry, prominence, and contour of ears with validated aesthetic criteria. The complications that were recorded included hematoma, infection, suture extrusion, and recurrence.

Statistical Analysis: SPSS version 26 was used to analyze all the data. Demographic variables were determined using descriptive statistics. ANOVA one-way was employed in the comparison of means of satisfaction scores and aesthetic outcomes between groups. The Pearson correlation coefficient was used to determine the connection between preoperative expectations and postoperative satisfaction. The statistical significance level was set at p-value < 0.05.

RESULTS

The number of patients who completed the study was 90 (30 patients in each surgery group). Participants had a mean age of 21.4 +/- 5.8 years and 56 percent were male. Baseline demographic data were statistically similar in the groups ($p > 0.05$): age, gender, and type of deformity.

Table 1: Demographic and Baseline Characteristics of Patients

Variable	Group A (Furnas)	Group B (Mustardé)	Group C (Scoring)	p-value
Mean Age (years)	21.9 ± 5.6	20.8 ± 6.1	21.5 ± 5.7	0.76
Male (%)	17 (56.7%)	18 (60%)	15 (50%)	0.77
Bilateral Deformity (%)	25 (83.3%)	24 (80%)	26 (86.7%)	0.81
Congenital Cause (%)	22 (73.3%)	23 (76.7%)	21 (70%)	0.84

Table 2: Postoperative Satisfaction and FACE-Q Scores

Outcome Measure	Group A (Furnas)	Group B (Mustardé)	Group C (Scoring)	p-value
VAS Score (0–10)	7.3 ± 1.1	8.7 ± 0.6	8.1 ± 0.8	<0.001
FACE-Q Symmetry Score	62 ± 8	78 ± 6	72 ± 7	<0.001
FACE-Q Satisfaction	65 ± 10	82 ± 5	75 ± 8	<0.001

Visual Analog Scale (VAS) postoperative satisfaction score exhibited considerable difference between groups. The mean VAS score was maximum in Group B (Mustard suture, 8.7 0.6), then Group C (cartilage scoring, 8.1 0.8), and Group A (Furnas technique, 7.3 1.1) and the difference was significant, $p < 0.001$. Likewise, FACE-Q ear shape, symmetry, and overall satisfaction were considerably greater in Group B.

Evaluation by independent plastic surgeons regarding the aesthetics showed better results in Group B, with more points on the natural contour, ear projection, and symmetry. The incidence of complications was 16.7 percent in Group A, 10 percent in Group C and 6.7 percent in Group B but the difference was not found to be significant ($p = 0.09$). Mild asymmetry, suture extrusion and minor hematomas were common complications.

Table 3: Aesthetic Outcome Ratings by Independent Assessors

Aesthetic Parameter	Group A	Group B	Group C	p-value
Ear Contour (0–10)	7.0 ± 1.2	8.6 ± 0.5	7.9 ± 0.7	<0.001
Symmetry (0–10)	6.8 ± 1.3	8.5 ± 0.6	7.6 ± 0.9	<0.001
Projection (0–10)	6.5 ± 1.4	8.4 ± 0.7	7.8 ± 0.8	<0.001

The Pearson correlation analysis revealed that there was a moderate positive correlation between preoperative patients expectations and postoperative satisfaction ($r = 0.42$, $p = 0.003$), which demonstrated that patients with realistic expectations had higher chances of being satisfied with the result post-surgery.

Table 4: Postoperative Complications.

Complication	Group A (Furnas)	Group B (Mustardé)	Group C (Scoring)
Minor Hematoma	3 (10%)	1 (3.3%)	2 (6.7%)
Suture Extrusion	2 (6.7%)	0	1 (3.3%)
Mild Asymmetry	5 (16.7%)	2 (6.7%)	3 (10%)
Total with Complications	10 (33.3%)	3 (10%)	6 (20%)

DISCUSSION

The comparative study presents valuable data on both surgical and aesthetic results of various otoplasty procedures to repair various auricular deformities in a balanced group of patients in Balochistan. The outcomes show that Mustard suture technique was clearly superior to both the Furnas technique and cartilage scoring regarding patient satisfaction, aesthetic assessment, and postoperative symmetry with the lowest rate of complications as well.

The excellent results found in the Mustard group are owed to its method of posterior suturing which enables accurate control in the formation of the anti helical fold. This is in line with other studies in the past that have indicated that the method used by Mustardede is more predictable and produces more symmetrical outcomes especially in patients with mild and moderate skewings. On the other hand, although the Furnas technique is useful in prominent ears with conchal hypertrophy, it has an increased risk of overcorrection and apparent contour irregularities which is the possible cause of comparatively low satisfaction scores in our study[11,12].

Low to moderate high satisfaction was experienced by the patients upon cartilage scoring, mostly in cases where the deformity had occurred in the stiffer cartilage. This technique however demonstrated a somewhat higher rate of minor complications like asymmetry and hematoma formation which could be attributed to the inherent inconsistency in cartilage healing and remodeling[13,14].

The FACE-Q and VAS scores were valid instruments in the measurement of the aesthetic results and patient-reported satisfaction. These results were also confirmed by independent assessor ratings that indicated greater ear contour and projection scores in the Mustard group. Notably, our data also demonstrate the moderate positive correlation between the preoperative expectations and postoperative satisfaction. This observation reinforces the need of comprehensive preoperative counseling to set realistic expectations, especially in patients who want to achieve cosmetic enhancements[15,16].

Regarding complications, the total rates were acceptable and self-limited in most cases. Suture extrusions were more common and mild asymmetry was noticed in the Furnas group, which pointed to the idea that deeper cartilage work could be connected to an increased number of healing-related abnormalities[17,18].

The significance of cultural and regional settings in aesthetic surgery is also underlined in this study. Physical deformities may have a lot of psychosocial stigma attached to it in conservative societies like Balochistan. In such a way, the methods which provide not only better cosmetic outcome, but also the reduction of complications and acceleration of recovery can have wider perspectives concerning social re-integration and mental health[19,20].

The relative limitations of the study are the shortness of the follow-up period and the absence of the three-dimensional anthropometric evaluation. Prospective studies with longer term follow up and objective imaging parameters may further help to refine the information on durability and refinement in auricular aesthetics.

CONCLUSION

Of the reviewed otoplasty procedures, the Mustard suture technique showed the best ratio of aesthetic result, patient satisfaction, and the low rate of complications in the examined population. Cartilage scoring also proved to be efficient, especially in chosen anatomical conditions, and the Furnas technique, being efficient in particular indications, was more related to postoperative problems. The association which exists between realistic expectations and postoperative satisfaction supports the importance of preoperative counseling. Finally, the personalized approach towards the choice of a specific technique depending on the nature of deformity and patient expectations is still critical in

maximizing the results of otoplasty surgery both in functional and cosmetic aspects.

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