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Original Research Article

Impact of secondary surgical correction on self-perception, function and psychosocial outcomes in cleft lip and palate patients evaluated with the cleft-Q

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ABSTRACT

Background: Cleft lip and/or palate (CLP) is associated with persistent aesthetic and psychosocial sequelae. While secondary corrections aim to improve appearance and function, their impact on patient-reported outcomes (PROMs) remains variable. This study compares facial self-image, functional outcomes and psychosocial well-being between CLP patients with and without secondary aesthetic correction.
Methods: A cross-sectional study was conducted using the CLEFT-Q instrument. Patients were divided into two groups based on their history of secondary aesthetic correction (Yes/No). Scores for facial self-image, function and psychosocial well-being were compared using Student's t-tests, with significance set at $p<0.05$.
Results: Sixty-nine patients were included (n=29 Yes; n=40 No). Patients who underwent secondary correction reported significantly higher scores in facial self-image (2.37 vs. 1.95; p=0.015) and psychosocial well-being (2.96 vs. 2.69; p=0.019). No significant difference was found in functional outcomes (2.86 vs. 2.61; p=0.11).
Conclusions: Secondary correction significantly improves facial self-image and psychosocial well-being in CLP patients. These findings underscore the clinical value of secondary revisions as an essential component of comprehensive cleft care, demonstrating that benefits extend beyond anatomical reconstruction to significantly impact patient quality of life.

Keywords: Cleft lip and palate, CLEFT-Q, Secondary correction, Patient

INTRODUCTION

Cleft lip and/or palate (CLP) is the most prevalent congenital craniofacial anomaly, featuring a multifactorial etiology that requires prolonged interdisciplinary management.[1,2] Despite advances in primary surgical techniques, a significant proportion of patients reach adolescence and adulthood with residual stigmata that affect nasal and labial symmetry.[3,4] Current literature emphasizes that treatment success should not be measured solely by anatomical correction, but by the individual's psychosocial integration.[5-8] Sequelae such as philtral deficiency, nasal alar asymmetry and hypertrophic scarring act as constant reminders of the congenital condition, increasing the risk of social anxiety and low self-esteem.[9,10] Secondary correction including secondary rhinoplasty, scar revision and revision cheiloplasty aims to mitigate these effect.[11] Recently, the use of patient-reported outcome measures (PROMs) has become the gold standard for evaluating the effectiveness of craniofacial

interventions.[12,13] The CLEFT-Q is an internationally validated instrument that allows for a multidimensional assessment of the patient experience.[6,14] In the context of overburdened healthcare systems, understanding the real impact of revision surgeries is fundamental for prioritizing resources and optimizing care protocols.[15,16] The objective of this study was to compare, using the CLEFT-Q, the impact of secondary correction on self-image, function and psychosocial well-being in a Mexican population.

METHODS

A prospective, analytical, and comparative cross-sectional study was conducted at the Hospital General de México "Dr. Eduardo Liceaga." The study period spanned from January 2024 to December 2025.

Selection criteria

Patients were recruited based on predefined criteria. The inclusion criteria comprised patients aged 8 to 29 years with a diagnosis of cleft lip and/or palate (CLP) who presented clinical indications for secondary surgical correction according to the treatment algorithm of the cleft lip and palate clinic (Figure 1). The exclusion criteria included patients outside the age range of 8-29 years, to ensure the validity of the CLEFT-Q instrument, as well as those who declined to participate in the study. The elimination criteria included patients with incomplete questionnaires or those who could not be reached during remote follow-up.

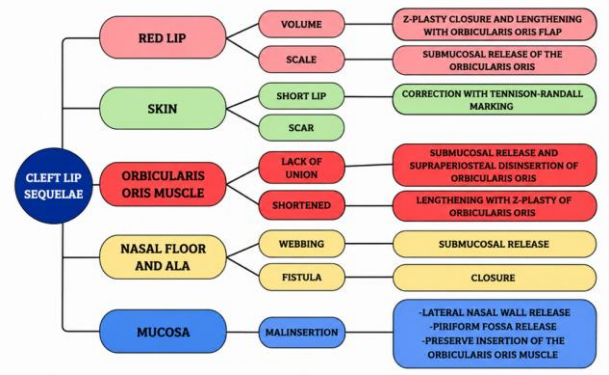

Figure 1: Treatment algorithm for cleft lip sequelae.

The study population was divided into two groups: the Operated Group, consisting of patients who underwent secondary aesthetic correction and the Non-operated Group, comprising patients on the surgical waiting list. To ensure comparability, a three-year database was analyzed to confirm that both groups shared similar demographic and clinical characteristics, including gender, socioeconomic status and severity of sequelae.

Official authorization for the use of the CLEFT-Q questionnaire was obtained from McMaster University. The instrument was administered in both printed and digital formats (via Google Forms). For the operated group, the survey was completed three months post-surgery, while the non-operated group was evaluated during their initial clinical assessment.

The CLEFT-Q instrument evaluated three primary domains: appearance, function, and psychosocial well-being. The appearance domain assessed the face, lips, nose, nostrils, jaw, teeth and scar. The function domain evaluated speech and eating/drinking abilities. The psychosocial well-being domain measured psychological status as well as school and social functioning.Scores were standardized (1-4 points) according to the CLEFT-Q manual, where higher scores represent better outcomes and higher satisfaction.

Statistical analysis

Descriptive statistics were used to summarize demographic data. Data distribution normality was assessed using the Kolmogorov-Smirnov test. Differences between the operated and non-operated groups were analyzed using Student's t-test for independent samples. All statistical procedures were performed using SPSS software version 26.0 (IBM Corp., Armonk, NY, USA). A p value of <0.05 was established as the threshold for statistical significance.

RESULTS

A total of 69 patients with cleft lip and/or palate were included. The gender distribution showed 37 female (53%) and 32 male (46%) patients. The distribution by sex was similar between both groups (p=0.431). 29 (42%) underwent secondary correction at our institution, whereas 40 (58%) patients did not, Figure 2.

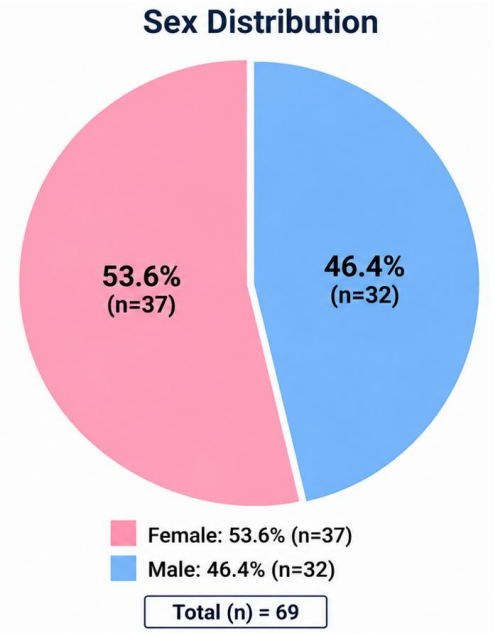

Figure 2: Age distribution.

The average age was 19.9±9.7 years. Patients with secondary correction had a mean age of 17.8±6.6 years, compared to 21.1±11.1 years in those without secondary correction, with no statistically significant differences (p=0.303), Figure 3. The most frequent type of sequalae was short lip, present in 17 (24%) patients, followed by nasal deformity (17%) and palatal cleft persistency (16%). The most common previous surgical procedure performed was cheiloplasty with palatoplasty in 37% of the cases, followed by same procedures performed separately.

Regarding the most frequent correction procedure performed by our group, secondary cheiloplasty was found in 17 (58%) patients, followed by cheiloplasty with secondary palatoplasty in 5 cases (17%), in the rest of the patients, isolated secondary palatoplasty, rhinoplasty and gingivoperiostoplasty were performed to a lesser extent. As seen in Table 1.

Table 1: Demographic characteristics of participants.

Variable	N	%
Age (years)		
Mean±SD	19.4±9.4	
Median (range)	18.0 (2-47)	
Age groups (years)		
0-9	7	10.1
10-17	24	34.8
18-25	23	33.3
26-35	9	13.0
36 or older	6	8.7
Sex		
Female	37	53.6
Male	32	46.4
Type of séquela		
Short lip	17	24.6
Nasal deformity	12	17.4
Persistent palatal cleft	11	15.9
Palatal fissure	6	8.7
Long lip	3	4.3
Hypertrophic scar	2	2.9
Breathing difficulty	2	2.9
Oronasal fistula	2	2.9
Velopharyngeal insufficiency	1	1.4
Phoneme limitation	1	1.4
Surgical procedures performed		
Cheiloplasty + palatoplasty	26	37.7
Cheiloplasty (lip repair)	20	29.0
Palatoplasty (palate repair)	13	18.8
Cheiloplasty + palatoplasty + rhinoplasty	5	7.2
Palatoplasty + rhinoplasty	1	1.4
Cheiloplasty + rhinoplasty	1	1.4

Three CLEFT-Q domains were constructed: facial self-image, function, and psychosocial impact. Patients who underwent secondary correction demonstrated significantly higher self-image scores compared with those without correction (2.37±0.64 vs. 1.95±0.56; p=0.015), indicating improved self-perception. Likewise, psychosocial impact scores were significantly better in the corrected group (2.96 vs. 2.69; p=0.019). No statistically significant differences were identified in the functional domain (p=0.11) (Table 2). This study evaluated patient-reported outcomes in individuals with cleft lip and/or palate using the CLEFT-Q questionnaire, comparing patients with and without secondary aesthetic correction. The principal finding was a trend toward improved facial self-image among patients who underwent secondary correction, which significantly influenced self-perception and psychosocial well-being.

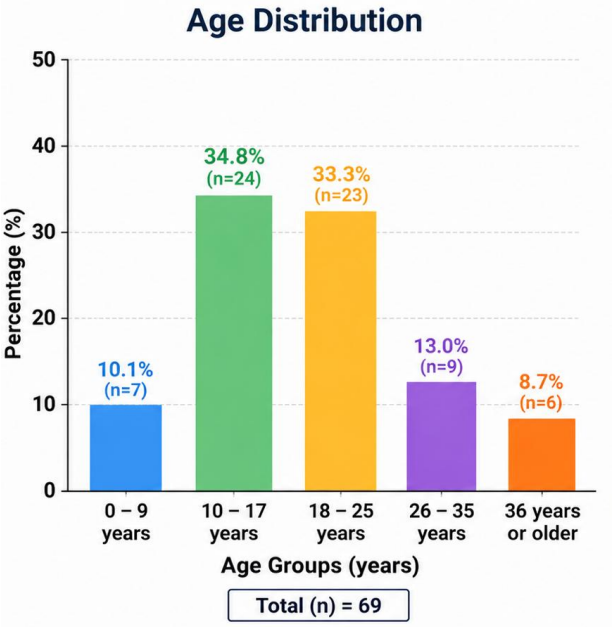

Figure 3: Distribution of study participants by age.

Table 2: Domain outcomes in both groups and comparison according to p values.

Domain	No secondary correction (n=40)	Secondary correction (n=29)	P value
Facial self-image	1.95	2.37	0.015
Function (speech/ eating)	2.61	2.86	0.11
Psychosocial well-being	2.69	2.96	0.019

Although oral function did not differ significantly, perceptions of facial appearance, confidence, and social interaction were clearly superior in corrected patients. To illustrate the spectrum of postoperative outcomes, representative photographic records are included. Figures 4A and B demonstrate cases with substantial restoration of

nasolabial symmetry and marked improvement in CLEFT-Q scores.

Figure 4 (A and B): Representative post-operative outcomes in patients who underwent secondary correction procedures.

Figure 5 (A and B): Representative outcomes in patients without secondary correction procedures.

Conversely, Figures 5A and 5B document cases with suboptimal or limited outcomes due to the absence of secondary correction, where residual cleft stigmata persisted and correlated with lower self-perception domain scores.

DISCUSSION

The findings of this study underscore the importance of secondary surgery as a fundamental pillar in the rehabilitation of patients with CLP. The significant difference observed in facial self-image is consistent with recent studies suggesting that even minor improvements in nasal and labial symmetry may exert a disproportionately positive effect on self-perception.[18,19]

Historically, surgeons have underestimated the psychological impact of minor residual deformities, often categorizing these interventions as merely "cosmetic procedures".[20] However, our findings, consistent with international CLEFT-Q-based research, demonstrate that dissatisfaction with facial appearance is a major predictor of psychological distress in this population.[21,22]

When compared with cohorts from developed countries, patients who do not receive timely secondary correction exhibit substantially lower psychosocial well-being scores, highlighting disparities in access to specialized cleft care.[23,24]

Residual deformities resulting from inadequate treatment during childhood in non-specialized centers generate multiple functional and aesthetic sequelae that contribute to social stigma and significantly impair quality of life in patients with CLP.

The results obtained in this study support the concept that secondary surgery should not be regarded as a cosmetic procedure, but rather as a reconstructive intervention directly influencing identity, self-esteem and quality of life. The absence of statistically significant differences in the functional domain reinforces the notion that the principal benefit of secondary correction is psychosocial, an aspect frequently underestimated in treatment protocols.

Our findings are consistent with previous studies indicating that body image and social stigmatization are major determinants of well-being in patients with cleft lip and palate. Future studies should consider prospective longitudinal designs with preoperative and postoperative evaluations, standardized classification of secondary procedures and stratification according to cleft phenotype and baseline severity. Such approaches may help identify patient subgroups most likely to benefit from secondary correction and provide stronger evidence to optimize comprehensive cleft care.

In patients with cleft lip and/or palate, secondary correction was associated with improved facial self-image and psychosocial well-being, without significant differences in functional outcomes. These findings reinforce the clinical relevance of secondary correction as a reconstructive intervention that may enhance self-perception and quality of life, while highlighting the importance of comprehensive, individualized, patient-centered care and longitudinal outcome assessment.

CONCLUSION

Secondary correction in patients with cleft lip and/or palate was associated with improved facial self-image and psychosocial well-being, demonstrating that the impact of these interventions extends beyond anatomical and functional reconstruction. Patients who underwent secondary procedures reported a more favourable perception of their facial appearance and better psychosocial integration compared with those awaiting surgical treatment. Although no statistically significant differences were identified in the functional domain, the findings suggest that the principal benefit of secondary

correction lies in self-perception, self-esteem and social interaction.

These findings support the importance of considering secondary surgery as an essential component of comprehensive cleft care rather than merely an adjunctive cosmetic procedure. Furthermore, the use of validated patient-reported outcome measures such as the CLEFT-Q enables a more objective and patient-centred assessment by incorporating dimensions related to quality of life, emotional well-being and satisfaction with appearance. Prospective studies with longitudinal follow-up and larger sample sizes are warranted to strengthen the evidence regarding the impact of these interventions and to optimize treatment protocols in this population.

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