• Clinical Research •

Surgical outcome and patient satisfaction after Z-epicanthoplasty and blepharoplasty

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Abstract

• AIM: To evaluate surgical outcomes of modified Z-epicanthoplasty with blepharoplasty that we previously reported from the patient's perspective using patient-reported outcome measures (PROMs) and patient satisfaction scores.

• METHODS: A total of patients (*n*=180) who underwent the surgery between January 2013 and June 2016 were randomly selected. Standardized patient satisfaction forms (total score, 40) and validated PROMs questionnaires (total score, 12) were sent to patients for completion. PROMs assesses the severity of scarring, pain and asymmetry, as well as functional and appearance issues.

• RESULTS: All patients were female, ranging from 18 to 35 years old (mean=24). The response rate was 73.3% (*n*=132). The majority of patients reported good or excellent outcomes based on PROM analysis. Patients reported minimum or non-visible scarring at both the double eyelid surgical scar (85.6%) and the inner canthus (80.3%). Issues concerning function and appearance were minimal as 80.3% reported satisfaction with both domains. Notably, the majority of patients reported either a high or very high satisfaction rate to yield a mean score of 104 out of 120 (*P*<0.05).

• CONCLUSION: Integration of our modified Z-epicanthoplasty with blepharoplasty produces good outcomes based on PROM results, which shows a positive linear relationship with patient satisfaction scores.

• KEYWORDS: surgical outcome; patient satisfaction; patient-reported outcome measures; Z-epicanthoplasty; blepharoplasty

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INTRODUCTION

Blepharoplasty is one of the most commonly performed procedures among Asian patients[1-3]. A wider palpebral fissure with a parallel supratarsal crease and fully exposed canthus and lacrimal caruncle is considered more appealing. We have previously reported consistently unfavorable outcomes with this surgical technique[4]. Approaches to achieve these features could increase self-perception, psychological well-being and quality of life. As such, evaluation of post-operative outcomes and patient satisfaction is of great importance. Patient-reported outcomes (PROs) are defined by the Cochrane Collaboration as "reports coming directly from patients about how they feel or function in relation to a health condition and its therapy without interpretation by healthcare professionals or anyone else". Although the importance of patient perspectives in measuring health intervention outcomes is being increasingly acknowledged worldwide[5-6], most double eyelid surgery outcomes are evaluated from a clinical perspective. The lack of PROs in the literature could be due to a lack of a suitable "instrument", namely patient-reported outcome measures (PROMs) that are specifically tailored to measure such outcomes. The aim of this study is to use our newly developed standardized PROM instrument after double eyelid surgery to evaluate patient PROs for double eyelid surgery using our previously reported surgical technique involving modified Z-epicanthoplasty with blepharoplasty.

SUBJECTS AND METHODS

A retrospective study was carried out on a cohort of simple randomly selected patients (*n*=180) who underwent surgery using our previously reported double eyelid surgical techniques. A standardized, validated questionnaire was used to evaluate PROs. A patient satisfaction questionnaire (total score, 40) was used to reinforce PROM validity. Non-responders were followed up with telephone reminders 4wk after the material was sent to maximize the response rate. The Ethical Standards Board approval was obtained (No.10023201504022). The study protocol was in accordance with Declaration of Helsinki. PROMs consisted of domains to assess the severity of scarring, pain, and asymmetry, as well as functional and appearance issues. The questionnaire included 8 questions with maximum total score of 12. For scarring, scar hypertrophy at the upper eyelid and inner canthus was scored as 0 if the patient presented

with a painful and unpleasant scar, whereas a score of 3 indicated no visible scar. The domain assessing functional and appearances issues had one question each (6 total) to assess asymmetry, triple or multifold, too wide or narrow fold, depression of the upper lids, disappearance of the eyelid fold, and recurrence of epicanthal fold. For each factor, respondents answered either YES (score 0) or NO (score 1). The satisfaction domain contained 4 questions, with a scale ranging from 1-10, with scores of 1 and 10 indicating the lowest and highest satisfaction respectively. The 4 questions including: 1) If you could make the decision again, how likely would you be to undergo this surgery? 2) Will you recommend this surgery to others? 3) Overall, how satisfied are you with the appearance of your eyes? 4) Overall, how satisfied are you with the function of your eyes? To yield comparable PROMs and satisfaction rate scores, the maximum score for each form was set to 120 points. The scores were divided into five levels: 1) ≤25: very poor outcome/very low satisfaction rate; 2) 26-50: poor outcome/low satisfaction rate; 3) 51-75: average outcome/average satisfaction rate; 4) 76-100: good outcome/high satisfaction rate; 5) 101-120: excellent outcome/very high satisfaction rate.

Data Collection The goal of the PROMs was to represent patient perspectives. As such, the questionnaires were self-completed by the patients who were not observed or assisted by the clinical team to maintain independence from any views held by clinical team members. Patient feedback was stored in a database for statistical analysis. Correlations between patient outcome reports and satisfaction were analyzed by linear correlation analysis.

RESULTS

Among the 180 patients, 132 could be contacted and were able to complete the questionnaire, to yield a response rate of 73.3%. All enrolled patients were female, ranging from 18 to 35 years old (mean=24y). The follow up period ranged from 7 to 49mo (mean=26mo).

Patients reported minimal or non-visible scarring at the double eyelid surgical scar (85.6%) and inner canthus (80.3%; Figure 1). Functional and appearance issues were also minimal as 80.3% reported satisfaction with these domains (Figure 2). Patients reported concerns mainly about asymmetry (12.9% of patients reported bilateral asymmetry) and the double fold width (19.7% of the patients that the supratarsal crease was either too wide or too narrow).

Notably, 81.8% of study patients reported either good or excellent outcome with a mean score of 96/120 based on analysis of PROM results, whereas 82.6% of patients reported either high or very high satisfaction, with a mean score of 104/120 for the patient satisfaction assessment (Figure 3). PROMs and patient satisfaction scores showed a positive linear correlation (P<0.05).

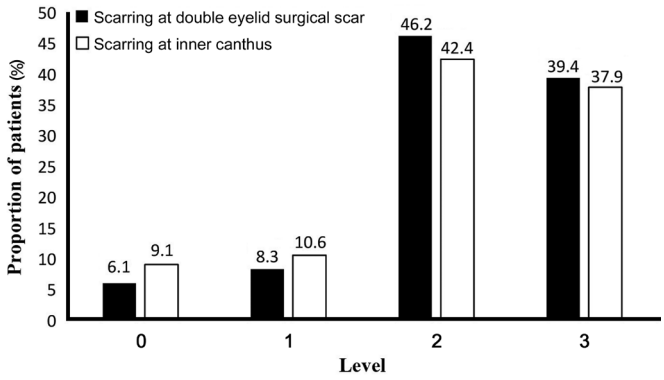

Figure 1 PROs for surgical scarring The majority of patients reported mild or non-visible scarring at the double eyelid surgical scar and at the inner canthus.

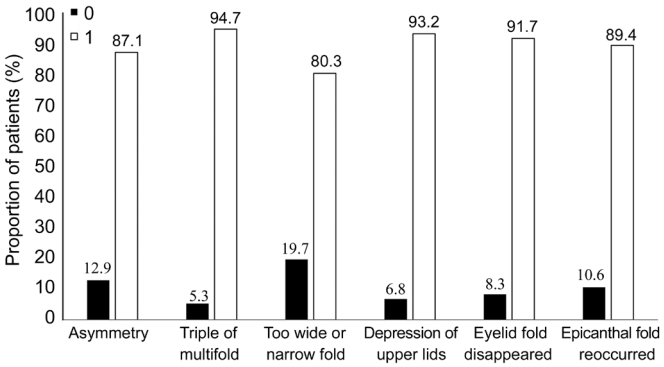

Figure 2 PROs for functional and appearance issues.

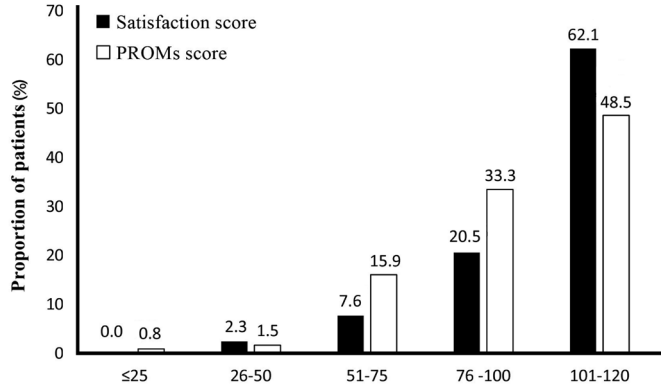

Figure 3 Final scores for PROMs and satisfaction surveys.

DISCUSSION

Many patient-reported, questionnaire-based, outcome scales can be used for assessing aesthetic plastic surgery outcomes, such as the patient scar assessment[7] that measures liner scars, facial line treatment satisfaction questionnaire[8] that measures patient satisfaction with facial line snorkeling, BODY-Q[9] to assess weight loss and the FACE-Q[10-13] to measure PROs in facial aesthetic surgeries (*e.g.* face-lift, rhinoplasty). Blepharoplasty and epicanthoplasty are the most common cosmetic surgeries in China. There have been many surgical techniques introduced in other papers, while studies on postoperative outcomes and patient satisfaction are relatively deficient[14-16]. Measurements focused on the postoperative problems and a widely accepted standard to measure the outcome results of this surgery are lacking. PROMs can

provide both a means to gain insight into the ways patients perceive their cosmetic surgery outcome and an opportunity to improve outcomes. More detailed recovery process and patients' self-perception in this period can be acquired from these studies. The instrument we developed was based on substantial input from patients and physicians and shows a positive linear correlation with patient satisfaction rate. It is practical and reasonable.

PROM instrument used in this study was specifically developed to evaluate patient reported outcomes after Z-epicanthoplasty and blepharoplasty. Moreover, these PROMs can be widely used for different situations. For example, it could enable comparisons between groups of patients that were treated by different surgical techniques and allow for monitoring of changes in clinical state of a given patient. The questionnaire used in this study addressed several factors including scarring, function and appearance that patients care about most in our clinical experience. In particular, questions concerning postoperative asymmetry, triple or multifolds, too wide or too narrow folds, depression of upper lids, disappearance of the eyelid fold and recurrence of epicanthal fold, provided a comprehensive understanding of the surgical outcomes of blepharoplasty. In the PROMs, postoperative scars at the double eyelid crease and inner canthus were measured in four degrees: painful, visible, mildly visible, not visible. This measurement was simple and easy to understand, and thus could be used for patients who have no professional medical knowledge.

The scar hypertrophy is a complication that concerns patients after Z-epicanthoplasty and blepharoplasty and is a common problem in Asian women. It may be obvious until 6mo postoperatively. The surgical technique of the performer and the habitus of the patients were both influence factors of scar hypertrophy severity. Gentle operating, less tissue damage, wiping with wet gauze, and accurately apposing when suturing could minimize scar hypertrophy. Patients with a history of atopic dermatitis or asthma, even if only during childhood, must be advised that the scar will be noticeable in 70% to 80% of cases[17].

Asymmetry is one of the main causes of revision[18]. It exists before surgery in a large number of people, so the surgeon should perform a thorough check of the patient's conditions[19-20]. Differences in skin excision or tarsal plate suturing may contribute to postoperative asymmetry. Careful contrast during the surgery would be necessary to prevent it. A difference in the dose of anaesthetic drug may lead to distinctions in physical strength when opening eyes, which should also be avoided. Asymmetry can occur when the recovery process is different on the two sides, which may be common in the first few weeks after surgery.

The 19.7% of the patients complained about an excessively high or low supratarsal crease. The ideal effect cannot be achieved in some patients due to limited self-condition, so a revision surgery is not suggested for them. It is very important to communicate with patients about their desired width and shape and offer rational advice, instead of catering to the patients' requirements and designing inappropriate width.

This study does have some limitations. First, this questionnaire was self-completed by patients without observation or aid by surgeons to allow evaluation of postoperative outcomes from the patient's own perspective. Although we tried to make the questionnaire as clear as possible to patients who may have a broad range of knowledge, inclusion of medical vocabulary that may not be understood by all patients was unavoidable, which may introduce subjective errors. To address this problem, the questionnaire was sent with a sheet providing an objective explanation intended to clarify medical vocabulary. Second, although surveys conducted *via* the internet or by email can have advantages, the response rate for invitations sent by e-mail was much lower than that for face-to-face recruitment. Since some patients may not use e-mail regularly, surveys that can be viewed and completed using mobile phones could be applied for future studies.

Integration of modified Z-epicanthoplasty with blepharoplasty yielded good outcomes based on PROM results, which showed a positive linear relationship to patient satisfaction scores. We developed a construct to evaluate PROMs that are specifically tailored to patients who underwent double eyelid surgery. To the best of our knowledge, this is the first attempt to use PROMs to assess double eyelid surgery outcomes in an Asian population, and we advocate the use of PROMs to standardize the evaluation of post-operative outcomes.

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Authors' contributions: Jing-Yi Zhao and Xiao-Shuang Guo were responsible for reference searching, clinical data extraction, data analysis and manuscript composing. Guo-Dong Song and Xiao-Nan Yang were responsible for clinical photographs and statistic analysis of this study. Xian-Lei Zong and Le Du were responsible for patients' telephone survey. Chen-Zhi Lai helped in data collection. Zuo-Liang Qi participated in the review and revision of the manuscript. Xiao-Lei Jin made substantial contributions to conception and design. He conceived and generally supervised of this study, and gave final approval of the version to be published.

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