

Re-positioning pretarsal tissue layers for double-eyelid surgery

6-year experience

Er Pan, MD^{a,b,*}, Bu-Lin Wang, MM^a, Sheng-Chang Zhang, MM^a, Jian-Gang Yu, BS^a, Yi Chen, MM^b, Zhi-Hong Liu, MM^c

Abstract

Double-eyelid surgery is a very common practice in East Asian patients. The differential distribution of pretarsal tissue layers is considered to be the anatomical mechanism of natural Asiatic single eyelid, it is possible to form double-eyelid crease by re-positioning the pretarsal structure layers. The author presents a new double-eyelid surgery based on re-positioning of the pretarsal structure layers without tissue removal. Over a 6-year period, 1440 patients underwent new double-eyelid surgeries. With the pretarsal orbicularis oculi muscle incised, the pre-pretarsal levator aponeurosis fascia fibroadipose was first dissected to form a fibroadipose flap, and then repositioned with the eyelid lower lip orbicularis oculi muscle flap. The new composite structure was anchored at 3 points on the pretarsal levator aponeurosis fascia; the skin was sutured to form a smooth crease. Post-operative outcome and follow-up data were analyzed. Patients were followed up for an average of 2 years. esthetic outcomes were satisfactory for 97.91% of patients, who enjoyed new double upper eyelids with smooth creases and invisible incision lines. Outcomes were unsatisfactory for 2.08% of patients (double-eyelid regression, 0.76%; asymmetric creases, 1.32%). All patients who were not satisfied with their esthetic outcomes underwent second correction surgery. This new Pan-flap technique focuses on the correct dissection and repositioning of differentially thickened pre-pretarsal levator aponeurosis fascia fibroadipose tissue in East Asian patients. This new technique can generate broader and tighter attachment between pretarsal orbicularis oculi muscle and levator aponeurosis fascia, and form smooth double-eyelid crease without pretarsal soft tissue removal.

Keywords: 6-year experience double-eyelid surgery, pretarsal tissue layers, repositioning, the lower lip orbicularis oculi muscle flap, the pre-pretarsal levator aponeurosis fascia fibroadipose flap

1. Introduction

In contrast to individuals of white ethnicity, many East Asian individuals are born with a single upper eyelid. With concurrence of the Mongoloid fold, puffiness may combine with a narrow palpebral fissure to make patients look as if they are depressed.^[1–4] Esthetic double-eyelid surgery has been popular.^[5–12] So far, a wide spectrum of esthetic double-eyelid surgeries (including non-incision and incisional techniques) have been practiced. During natural double-eyelid formation, extended insertion of levator palpebrae superioris fascia fibers into the pretarsal orbicularis oculi muscle and dermis contributes to the formation of a double-eyelid. The conventional incisional double-eyelid surgery was modified to fuse the orbicularis oculi muscle with pretarsal levator aponeurosis fascia and/or tarsal plate by removing sufficient subcutaneous tissue

and/or pretarsal fibroadipose tissue, and even preseptal fat. Millard and Bang^[13,14] reported that anchoring of the skin with levator palpebrae superioris fascia was not essential, and that the removal of a sufficient volume of subcutaneous tissue and pretarsal adipose tissue allowed sufficient space for the eyelid lower lip of the new crease to fold in to form the new crease.

Anatomically, East Asian individuals have thickened pretarsal soft tissue, which hinders the insertion of levator palpebrae superioris fascia into the pretarsal skin, thus preventing the formation of a natural double eyelid.^[2,3] Thickened pretarsal tissues are common in the upper eyelids of most Chinese individuals; inadequate removal of pretarsal soft tissue may result in a visible, caved, or uneven incision line, a wrinkled eyelid lower lip, an unnatural double eyelid, and/or a significant trapezoidal crease. More detailed anatomical analyses of Asian eyelids

The authors have no funding and conflicts of interest to disclose.

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

This study was approved by medical ethics committee of Yichun University. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Supplemental Digital Content is available for this article.

^a Department of Aesthetic Plastic Surgery, Guangzhou Eye-Nose-Face Aesthetic Plastic Surgery Hospital, Guangzhou, China, ^b Aesthetic Medical School, Yichun University, Yichun, China, ^c Department of Obstetrics and Gynecology, Guangzhou Women and Children's Medical Center, Guangzhou, China.

*Correspondence: Er Pan, Department of Aesthetic Plastic Surgery, Guangzhou Eye-Nose-Face Aesthetic Plastic Surgery Hospital, 5 Tianyuan Road, Guangzhou,

Guangdong, China and Aesthetic Medical School, Yichun University, 576 Xuefu Road, Yichun, Jiangxi, China (e-mail: panger2005@163.com).

Copyright © 2022 the Author(s). Published by Wolters Kluwer Health, Inc. This is an open-access article distributed under the terms of the Creative Commons Attribution-Non Commercial License 4.0 (CCBY-NC), where it is permissible to download, share, remix, transform, and buildup the work provided it is properly cited. The work cannot be used commercially without permission from the journal.

How to cite this article: Pan E, Wang B-L, Zhang S-C, Yu J-G, Chen Y, Liu Z-H. Re-positioning pretarsal tissue layers for double-eyelid surgery: 6-year experience. *Medicine* 2022;101:35(e30409).

Received: 31 December 2020 / Received in final form: 12 November 2021 / Accepted: 26 July 2022

<http://dx.doi.org/10.1097/MD.000000000030409>

have revealed no significant structural differences between those born with single versus double eyelids,^[4,15,16] and the differential distribution of pretarsal tissue layers may contribute to the formation of single and double eyelid in Asian infants. We hypothesize that re-organization of pretarsal structure layers without the removal of pretarsal soft tissue allows the surgeon to create a double-eyelid crease with a smooth incision line. Here, we report our 6-year experience of a new approach to double-eyelid surgery that involves repositioning of the pretarsal tissue layers without the removal of pretarsal tissue.

2. Materials and Methods

From October 2013 to October 2019, patients born with single upper eyelids were admitted to our clinic. All patients included in the study had single upper eyelids with no history of double-eyelid surgery. A preoperative consultation was scheduled to discuss personal preferences related to the new crease, such as the height and width of the new double eyelid. All patients provided their written consent to participate in the study and to adhere to the post-surgery follow-up plan. This study was approved by the medical ethics committee of Yichun University.

2.1. Surgical procedure

2.1.1. Incision line design. The new crease line was designed 6 to 8 mm from the middle point of the anterior palpebral margin. The length of the skin incision depends on whether or not the redundant skin should be removed. When skin tissue does not need to be removed, as in the case of younger individuals, a

short incision should be used. The shortest incision line was 1.5 cm. In cases with redundant skin removal, the incision line was extended accordingly. Under local anesthesia using 1% lidocaine with adrenaline subcutaneously, the skin incision was created so as to expose the orbicularis oculi muscle.

2.1.2. Dissection of pretarsal tissue layers. With the eyes looking downward (to smooth out the pretarsal tissue), the surgeon cut the orbicularis oculi muscle vertically at 1 mm from the lower skin incision edge to expose the orbicularis oculi muscle. The length of the incision in the orbicularis oculi muscle does not need to be equivalent to the length of the skin incision, with a maximum limit of 2/3 the length of the eyelid. The surgeon elevated the orbicularis oculi muscle and skin, then dissected beneath the orbicularis oculi muscle toward the palpebral margin to form an orbicularis oculi muscle/skin flap (Fig. 1A). With the edge of the fibroadipose tissue exposed beneath the orbicularis oculi muscle, the surgeon picked up the tissue end and dissected upwards to the upper edge of the tarsal plate, at the plane of the levator aponeurosis, until the crease line had been transposed. This step did not separate the levator aponeurosis. This formed a pre-pretarsal levator aponeurosis fascia fibroadipose flap between the orbicularis oculi muscle and the pretarsal levator palpebrae superioris fascia (Fig. 1B). Clinically, some of these flaps are extremely thick, similar to a continuation of the orbital septum, but some are thin, just a layer of sliding tissue, tightly bound. In this study, we refer to the tissue between the inferior orbicularis oculi muscle and the pretarsal levator aponeurosis fascia as “the pre-pretarsal levator aponeurosis fascia fibroadipose flap”. The corresponding flap is referred to as the pre-pretarsal levator aponeurosis fascia fibroadipose flap.

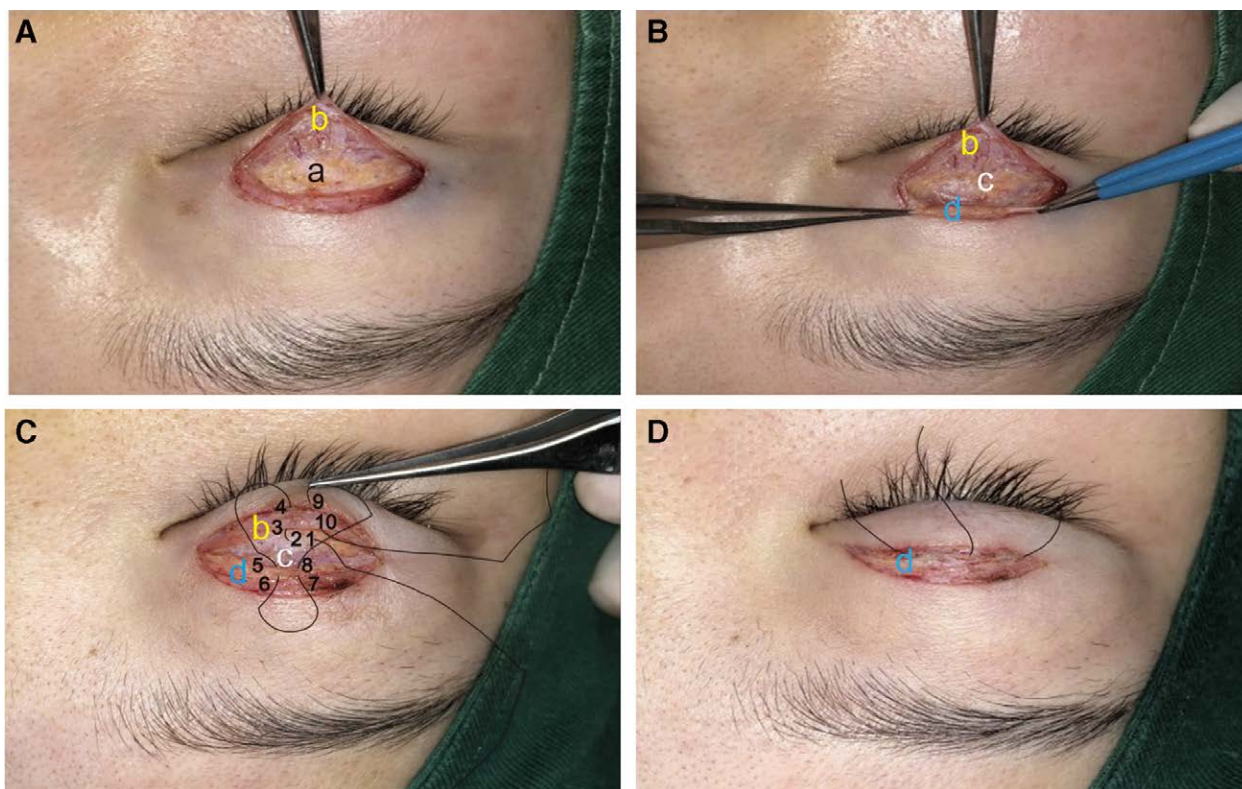


Figure 1. (A) Dissection of the orbicularis oculi muscle flap of the eyelid lower lip and exposure of the fibroadipose tissue beneath the sub-orbicularis oculi muscle. (a. the fibroadipose tissue beneath the orbicularis oculi muscle, b. the orbicularis oculi muscle flap) (B) The dissected eyelid lower lip of the orbicularis oculi muscle flap and pre-pretarsal levator aponeurosis fascia fibroadipose flap. (b. the orbicularis oculi muscle flap, c. the pretarsal levator aponeurosis fascia, d. the pre-pretarsal levator aponeurosis fascia fibroadipose flap. (C) 3-point anchoring of re-positioned layers with a 1 to 10 suturing sequence. (b. the orbicularis oculi muscle flap, c. the pretarsal levator aponeurosis fascia, d. the pre-pretarsal levator aponeurosis fascia fibroadipose flap. (D) Finished 3-point anchoring suture. (d. the pre-pretarsal levator aponeurosis fascia fibroadipose flap. Note: These images are not from the same patient, but the operative procedures are the same.

2.1.3. Re-positioning of tissue flaps. The pre-pretarsal levator aponeurosis fascia fibroadipose flap was lifted to allow for insertion and smooth coverage of the eyelid lower lip of the orbicularis oculi muscle flap. The switched composite layers were then anchored on pretarsal levator aponeurosis fascia using 7-0 nylon sutures at medial, middle, and lateral positions (3-point fixing) (Fig. 1C, D). This procedure allowed the structure layers to be switched, and the pre-pretarsal levator aponeurosis fascia fibroadipose tissue was re-positioned between the incised orbicularis oculi muscle. The pre-pretarsal levator aponeurosis fascia fibroadipose flap should not be tightened when switching (Fig. 2). Finally, the skin incision was closed with 8-0 nylon sutures to form the new double-eyelid crease. If the pre-pretarsal levator aponeurosis fascia fibroadipose flap was longer than the skin edge, it can be properly trimmed. The re-positioning of tissue flaps has been captured in detail in video format (Supplementary file, Supplemental Digital Content, <http://links.lww.com/md/h195>).

2.1.4. Post-surgical care and follow-up. An icepack was applied to reduce post-surgical edema. Sutures were removed 5 days after surgery, and patients were followed up postoperatively

at 3 months, 6 months, and 1, 1.5, and 2 years. Pictures and satisfaction questionnaires were obtained for analysis.

2.1.5. Satisfaction evaluation. A questionnaire based on patient satisfaction with esthetic outcomes and images were collected. Overall satisfaction was graded as:

Very satisfied: The double eyelid appears natural and symmetric. The incision line was smooth and invisible, and the patient was very satisfied.

Satisfied: The double eyelid appeared natural, with a smooth crease at the optimal height and slight asymmetry. The incision line was slightly visible but smooth, and the patient was satisfied.

Dissatisfied: The double eyelid shows regression and obvious asymmetry. The incision line was smooth but visible. The patient was dissatisfied, and correction surgery was required.

3. Results

This study included 1440 cases (1305 females, 135 males, age range: 16–65 years) of double-eyelid surgery performed with

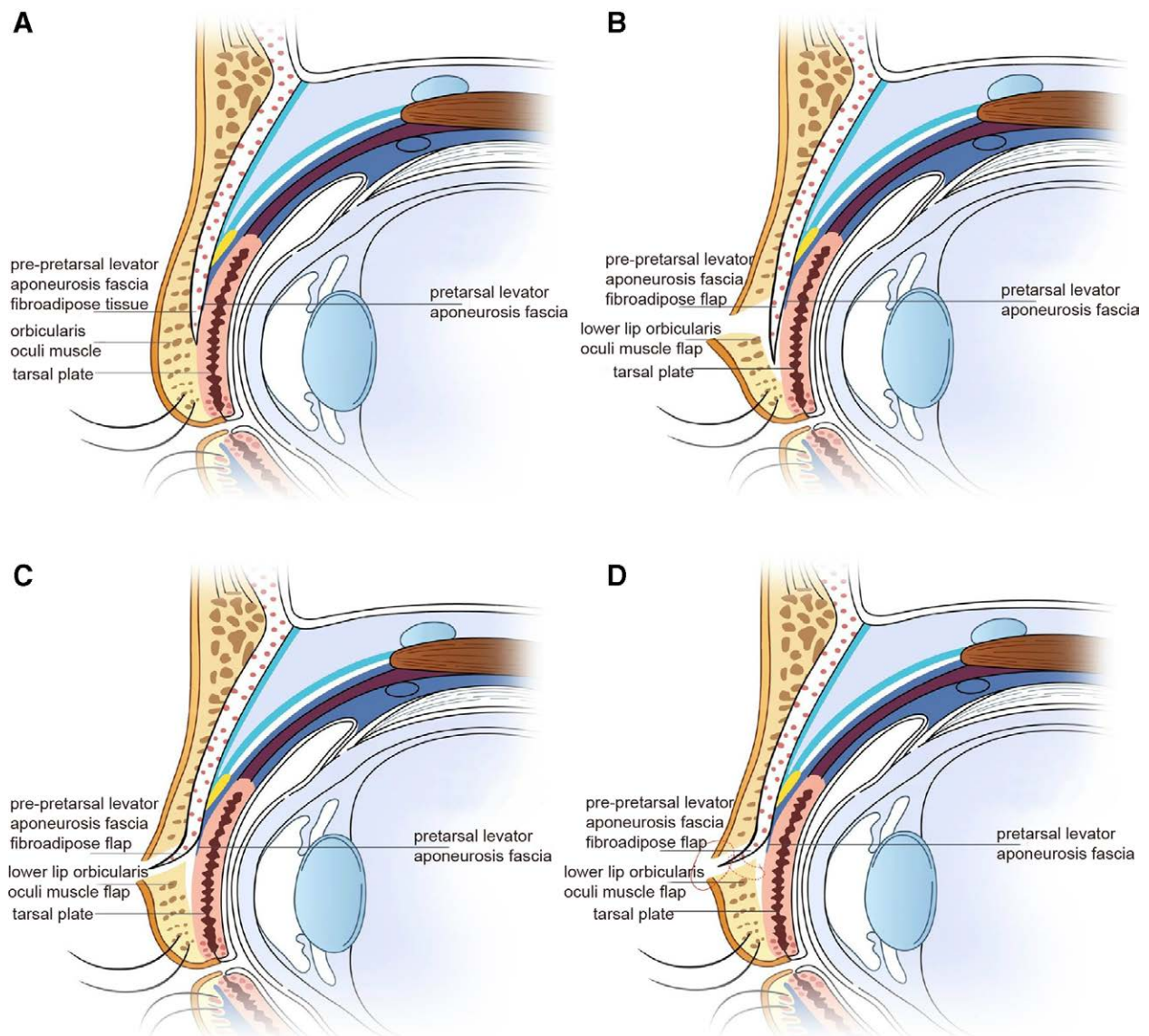


Figure 2. Schematic diagram of pretarsal layer repositioning with the pre-pretarsal levator aponeurosis fascia fibroadipose flap. (A) Normal structure. (B) Dissection of the eyelid lower lip of the orbicularis oculi muscle flap and the pre-pretarsal levator aponeurosis fascia fibroadipose flap. (C) Re-positioning of the pre-pretarsal levator aponeurosis fascia fibroadipose flap. (D) Anchoring of switched composite layers and closure of the skin incision.

the pretarsal tissue layer switch technique, during the period from October 2013 to October 2019. Patients were followed up postoperatively from 6 months to 6 years, with average follow-up time of 2 years. With 590 very satisfied and 820 satisfied cases, the combined satisfaction rate was 97.91% (1410/1440). Among 30 dissatisfied cases (2.08%), 11 cases (0.76%) showed crease regression or disappearing and 19 cases (1.32%) showed upper eyelid asymmetry (Table 1). Above 30 unsatisfied cases were resolved by a second correction surgery. Besides, 10 cases (0.69%) experienced scar hypertrophy in the early post-operative period. But all of the scars gradually faded without any particular treatment (Table 2).

After the gradual disappearance of post-surgical edema, a new crease formed, and the incision line gradually became largely invisible. The new double eyelids looked natural, as shown in 2 typical cases at 1.5 (Fig. 3) and 4.5 years postoperatively (Fig. 4).

Table 1**Patient satisfaction with the surgery (n = 1440).**

Satisfaction grades	% (Cases)
Very satisfied	40.97 (590)
Satisfied	56.94 (820)
Dissatisfied	2.08 (30)
Total	100 (1440)

Table 2**Dissatisfied cases or postoperative complications (n = 30).**

Complications	(Cases)
Crease regression or disappearing	0.76 (11)
Upper eyelid asymmetry	1.32 (19)
Scar hypertrophy	0.69 (10)
Total	2.08 (30)

4. Discussion

Conventional double-eyelid surgery typically involves extended insertion of the pretarsal levator aponeurosis fascia into the pretarsal skin of the lower lip of a double eyelid. Sufficient excision of pretarsal tissues such as redundant skin, fibroadipose tissue, and even palpebral orbicularis oculi muscle is necessary for surgical fixation of the pretarsal skin and tarsal plate. Park^[17,18] further described the accordion-like effect of the pretarsal skin/orbicularis oculi muscle and invented a new double-eyelid surgery by fixing the pretarsal levator aponeurosis fascia with orbicularis oculi muscle, without removing pretarsal skin or orbicularis oculi muscle. Compared to conventional double-eyelid surgery, this levator-orbicularis fixation technique can overcome some disadvantages, such as an uneven incision line and/or a wrinkled double-eyelid lower lip. As most East Asian individuals prefer lower-to-middle height double,^[5,19] this fixation technique may form an unnatural, deep double-eyelid in Chinese patients, with high relapse rates in patients with thickened pretarsal tissue.

Jeong et al^[3] compared eyelid structure between white and East Asian individuals. The results of this analysis showed that the reasons for double-eyelid crease formation are lowered orbital septum fusion, preaponeurotic fat pad protrusion, presence of a thick subcutaneous fat layer, and a low point of levator aponeurosis/orbicularis oculi muscle insertion. Hisatomi and Fujino^[20] thought that the over extrusion of both the pre-orbital septum fat and the orbital septum plate prevents double eyelid formation in East Asian patients. Doxanas and Anderson^[21] also described the overextended pretarsal tissue in East Asian patients as something that stops the insertion of levator aponeurosis fascia into the dermis of pretarsal skin. Further anatomical analysis of natural single and double eyelids in East Asian individuals revealed no significant difference in pretarsal tissue structure, and suggested that the formation of a natural Asiatic double eyelid is more likely to result from differential pretarsal tissue distribution.^[4,15,16,22] In addition to the surgical anchoring of levator aponeurosis fascia and pretarsal skin, the correct management of pretarsal soft tissue located between the levator aponeurosis fascia and pretarsal skin is believed to be important in double-eyelid surgery.

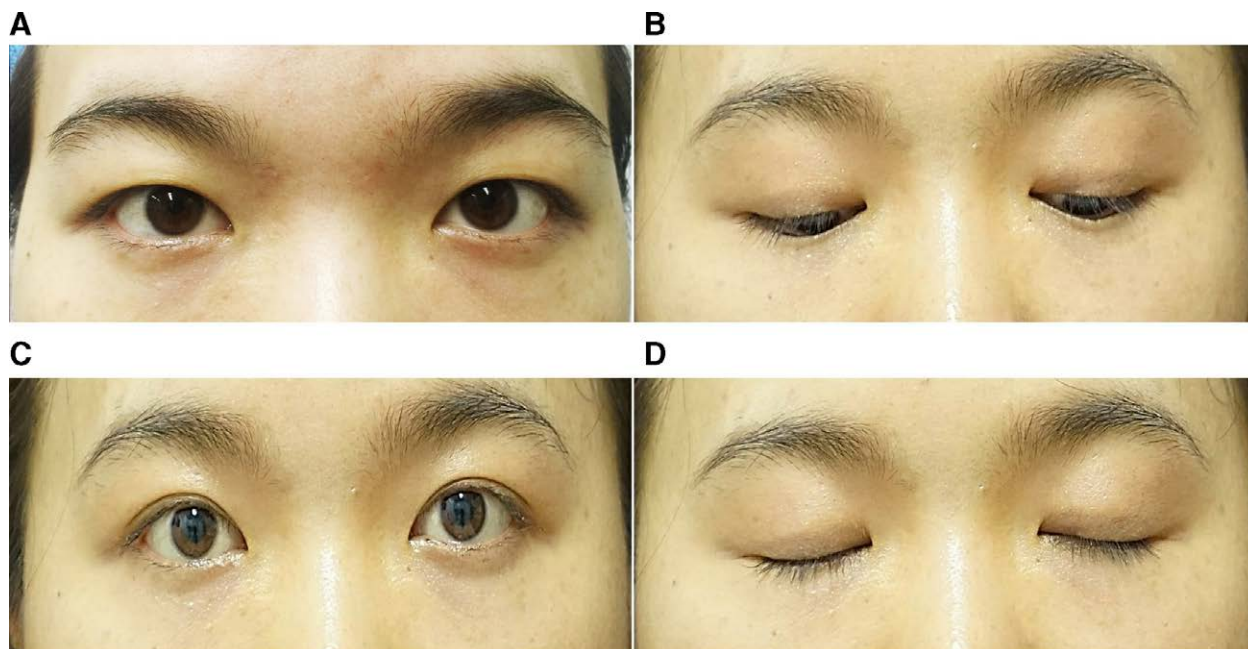


Figure 3. Follow-up for case (female, 25 years old, follow-up: 1.5 years). (A) Pre-operative view. (B) Eyes looking downward. (C) Opened eyes looking straight forward. (D) Closed eyes.



Figure 4. Follow-up for case (female, 42 years old, follow-up: 4.5 years). (A) Pre-operative view. (B) Eyes looking downward. (C) Opened eyes looking straight forward. (D) Closed eyes.

To minimize the disadvantages of removing pretarsal tissue during double-eyelid surgery on East Asian patients (e.g., uneven incision line, wrinkled lower lip, deep unnatural crease), we recommend that the surgeon needs to create a double eyelid by manipulating pretarsal structural tissue, without removing any of it. Similar procedures without the removal of pretarsal tissue were reported with different modifications. In 2010, Choi and Eo^[23] performed a similar procedure by fixing multiple mini-stripped flaps of pretarsal levator aponeurosis fascia with subcutaneous tissue from the lower lip of the double eyelid without removing tissue. Even though it is suggested to fix the mini-flaps at the base, this somewhat complicated procedure is not suitable for surgeons who lack experience and may cause iatrogenic ptosis. In 2015, Wu et al^[24] performed composite fixation of pretarsal orbicularis oculi muscle, levator aponeurosis fascia, and tarsal plate in 98 cases of double-eyelid surgery. Choi and Eo^[25] also identified the outer fascia of orbicularis oculi muscle as an anchoring point for levator aponeurosis fascia. Lu et al^[26] fixed the dissected levator aponeurosis fascia flap directly with lower lip dermis, and Sun et al^[27,28] fixed the lower lip orbicularis oculi muscle directly with tarsal tissue. Li et al^[29] fixed the lower edge of the orbital septum with orbicularis oculi muscle. Those modified procedures were somewhat complicated and had to be performed by experienced surgeons.

We further modified the conventional double-eyelid surgery through simple repositioning of the pretarsal tissue layers, based on the specific anatomical characteristics of Chinese patients. Use of this procedure in the study population achieved a high satisfaction rate (97.91%), formed a lasting natural double eyelid with a smooth incision line, and decreased the rate of regression (0.76%). The regression cases had very thin pretarsal tissue and slight uncorrected ptosis, requiring simultaneous correction of the ptosis. This new technique focuses on the use of fibroadipose tissue between the orbicularis oculi muscle and the pretarsal levator aponeurosis fascia. This fibroadipose tissue was dissected from the lower edge of the levator aponeurosis fascia, upward to the transposing position of the designated crease line, to form a sub-orbicularis oculi muscle flap and a pre-pretarsal levator aponeurosis fascia fibroadipose flap. The orbicularis oculi muscle flap from the eyelid lower lip of the double eyelid was inserted under this fibroadipose flap to finalize repositioning of

the pretarsal tissue layers. The switched layers were anchored at 3 points on the tarsal plate using 7.0 nylon sutures, and the new double eyelid was formed with 8.0 nylon sutures. Repositioning and 3-point anchoring of the switched layers allowed for wider and more direct attachment of the eyelid lower lip orbicularis oculi muscle to the levator aponeurosis fascia, and tight connection with the pretarsal fibroadipose flap. This 2-sided attachment of the eyelid lower lip orbicularis oculi muscle can prevent regression of the double eyelid as well as double-eyelid ptosis.

This new procedure relies on the correct dissection of a pre-pretarsal levator aponeurosis fascia fibroadipose flap without damaging the levator aponeurosis fascia; damage to the levator aponeurosis fascia will cause iatrogenic ptosis. Without the removal of pretarsal tissue, we observed no cases of a sunken eyelid lower lip on the double eyelid, and the incision line was smooth when the eyes were closed. The second correction surgery will be easier in cases with regression of the double eyelid.

Our study has some limitations. For example, there is no group with conventional double-eyelid surgery, so it is impossible to compare the specific parameters between the pre-pretarsal levator aponeurosis fascia fibroadipose flap technique and conventional double-eyelid surgery.

This new Pan-flap technique uses anatomically thickened pre-pretarsal levator aponeurosis fascia fibroadipose tissue in East Asian patients, and focuses on the correct dissection and repositioning of pre-pretarsal levator aponeurosis fascia fibroadipose tissue, without the removal of pretarsal tissue. The structural switch allows for the insertion of pre-pretarsal levator aponeurosis fascia fibroadipose tissue into incised orbicularis oculi muscle, generating a wide point of attachment between the lower lip of the orbicularis oculi muscle and the pretarsal levator aponeurosis fascia, forming an esthetic, smooth double eyelid with an invisible incision line.

Author contributions

EP, B-LW and S-CZ designed/performed most of the investigation, data analysis and wrote the manuscript; J-GY provided pathological assistance; YC and Z-HL contributed to interpretation of the data and analyses. All of the authors have read and approved the manuscript.

Conceptualization: Er Pan, Bu-Lin Wang, Sheng-Chang Zhang.
Formal analysis: Er Pan, Sheng-Chang Zhang, Yi Chen, Zhi-Hong Liu.
Investigation: Er Pan, Bu-Lin Wang, Sheng-Chang Zhang.
Methodology: Er Pan, Bu-Lin Wang, Sheng-Chang Zhang, Jian-Gang Yu.
Project administration: Er Pan.
Supervision: Er Pan.
Writing – original draft: Er Pan, Bu-Lin Wang, Sheng-Chang Zhang.

References

- [1] Furukawa M. Aesthetic surgery of oriental eyelids. *Aesthetic Plast Surg.* 1976;1:139–43.
- [2] Yuzuriha S, Matsuo K, Kushima H. An anatomical structure which results in puffiness of the upper eyelid and a narrow palpebral fissure in the Mongoloid eye. *British J Plas Surg.* 2000;53:466–72.
- [3] Jeong S, Lemke BN, Dortzbach RK, et al. The Asian upper eyelid: an anatomical study with comparison to the Caucasian eyelid. *Arch Ophthalmol.* 1999;117:907–12.
- [4] Saonanon P, Whipple KM. Update on asian eyelid anatomy and periocular aging change. In: *Textbook of Aging Skin.* 2017:2105–17.
- [5] Yen MT. Blepharoplasty in Asian Patients. In: *Oculofacial, Orbital, and Lacrimal Surgery.* Springer; 2019:227–33.
- [6] Hiraga Y. The double eyelid operation and augmentation rhinoplasty in the oriental patient. *Clin Plast Surg.* 1980;7:553–67.
- [7] Fernandez LR. Double eyelid operation in the oriental in Hawaii. *Plast Reconstr Surg Transplant Bull.* 1960;25:257–64.
- [8] Chua KC. Double eyelid surgery in Singapore. *Aesthetic Plast Surg.* 1982;6:221–3.
- [9] Shirakabe Y, Kinugasa T, Kawata M, et al. The double-eyelid operation in Japan: its evolution as related to cultural changes. *Ann Plast Surg.* 1985;15:224–41.
- [10] Saonanon P. The new focus on epicanthoplasty for Asian eyelids. *Curr Opin Ophthalmol.* 2016;27:457–64.
- [11] Chen WP. Techniques, principles and benchmarks in Asian blepharoplasty. *Plast Reconstr Surg Global Open.* 2019;7:e2271.
- [12] Gao Y, Niddam J, Noel W, et al. Comparison of aesthetic facial criteria between Caucasian and East Asian female populations: an esthetic surgeon's perspective. *Asian J Surg.* 2018;41:4–11.
- [13] Millard DR Jr. Oriental peregrinations. *Plast Reconstr Surg* (1946). 1955;16:319–36.
- [14] Bang YH. The double-eyelid operation without supratarsal fixation. *Plast Reconstr Surg.* 1991;88:12–7; discussion 18–19.
- [15] Saonanon P, Thongtong P, Wongwuticomjon T. Differences between single and double eyelid anatomy in Asians using ultrasound biomicroscopy. *Asia Pac J Ophthalmol (Phila).* 2016;5:335–8.
- [16] Saonanon P, Thongtong P, Wongwuticomjon T. Corrigendum: differences between single and double eyelid anatomy in Asians using ultrasound biomicroscopy. *Asia Pac J Ophthalmol (Phila).* 2018;7:364.
- [17] Park JI. Orbicularis-levator fixation in double-eyelid operation. *Arch Facial Plast Surg.* 1999;1:90–95; discussion 96.
- [18] Park JI, Park MS. Double-eyelid operation: orbicularis oculi-levator aponeurosis fixation technique. *Facial Plast Surg Clin North Am.* 2007;15:315–26, vi.
- [19] Chen WP. Asian blepharoplasty: the essential steps. In: *Manual of Oculoplastic Surgery.* Springer; 2018:145–50.
- [20] Hisatomi C, Fujino T. Anatomical considerations concerning blepharoplasty in the Oriental patient. *Adv Ophthalmic Plast Reconstr Surg.* 1983;2:151–65.
- [21] Doxanas MT, Anderson RL. Oriental eyelids. An anatomic study. *Arch Ophthalmol.* 1984;102:1232–5.
- [22] Kiranantawat K, Suhk JH, Nguyen AH. The Asian eyelid: relevant anatomy. *Semin Plast Surg.* 2015;29:158–64.
- [23] Choi Y, Eo S. A new crease fixation technique for double eyelidplasty using mini-flaps derived from pretarsal levator tissues. *Plast Reconstr Surg.* 2010;126:1048–57.
- [24] Wu LW, Ye Z, Xu Y, et al. Orbicularis-levator-tarsus composite suture technique in double-eyelid operation. *J Plast Reconstr Aesthet Surg.* 2015;68:1079–84.
- [25] Choi Y, Eo S. Outer fascia of orbicularis oculi muscle as an anchoring target tissue in double eyelid surgery. *J Craniofac Surg.* 2016;27:322–7.
- [26] Lu L, Zhu M, Luo X, et al. Using levator aponeurosis to create physiologically natural double eyelid: a new reconstruction technique based on three key factors in double eyelid formation. *Ann Plast Surg.* 2017;78:487–91.
- [27] Sun W, Wang Y, Song T, et al. Orbicularis-Tarsus fixation approach in double-eyelid blepharoplasty: a modification of Park's technique. *Aesthetic Plast Surg.* 2018;42:1582–90.
- [28] Sun W, Yin N, Song T, et al. A practical technique combining orbicularis oculi muscle resection-based epicanthoplasty and orbicularis-tarsus fixation double-eyelid plasty for cosmetic blepharoplasty. *J Plast Reconstr Aesthet Surg.* 2019;72:2009–16.
- [29] Li G, Ding W, Tan J, et al. A new method for double-eyelid blepharoplasty using orbital septum. *Ann Plast Surg.* 2018;81:633–6.