A modified mini-incisional technique for double-eyelid blepharoplasty

Xiaogen Hu MD, Haihuan Ma MD, Zhiqiang Xue MD, Huijie Qi MD, Bo Chen MD, Yang Zhou MD, Wengang Huang MD

BACKGROUND: Double-eyelid blepharoplasty is one of the most popular cosmetic surgeries in Asia.

OBJECTIVE: To introduce a modified mini-incisional technique to form a double eyelid.

METHODS: A total of 372 patients (325 women, 47 men) were involved in the study between July 2008 and August 2014. Their age ranged from 16 to 34 years, with a mean age of 24 years. All patients underwent the modified mini-incisional upper blepharoplasty. In the technique, four 2 mm incisions were made along the designed fold. The orbicularis muscle overlying the levator aponeurosis was removed. The removal of the lateral fat pad was completed accordingly. The medial fat pad was also removed if necessary. Suture was used to fix the skin to pretarsal fascia along the double-eyelid line. The double-eyelid crease was formed after the operation.

RESULTS: The follow-up period was three to 12 months (mean nine months). Most of the double eyelids were natural. During the follow-up period, 92% (342 of 372) patients were satisfied with the blepharoplasty. The most common complications were swelling within first week after the operation, which subsided spontaneously. Asymmetries occurred in 17 patients; six patients had multiple eyelids and seven patients experienced shifting of the fold. These were corrected six months after the operation. Disappearance of the fold was not observed. The scars of the stab incision became invisible after one full year of recovery. No other severe complications were found.

CONCLUSION: The four mini-incisional blepharoplasty technique was successful for the formation of a natural-appearing and long-lasting double eyelid. Except for individuals with obvious skin redundancy, patients with a single eyelid are suitable candidates for the technique.

Key Words: Double eyelid; Modified mini-incisional technique; Single eyelid

It is commonly accepted that double-eyelid surgery results in larger-appearing eyes, a soft and womanly appearance, clear-cut features and a refreshed appearance to the face (1). Upper eyelid blepharoplasty is one of the most popular cosmetic surgeries in Asia because nearly one-half of the Asian population lacks a supratarsal fold (2). The first cutaneous suture technique was devised by Mikamo (reported by Lam [3]). Various methods have been described, broadly including the incisional, nonincisional and mini-incisional methods (4). The present article introduces a modified mini-incisional technique.

METHODS

A total of 372 patients (325 women and 47 men) were involved in the study between July 2008 and August 2014. Their age ranged from 16 to 34 years (mean 24 years of age), and all underwent the modified mini-incisional upper blepharoplasty. Bilateral surgeries were performed in 341 patients and unilateral procedures in 31 patients. The follow-up period was three to 12 months (mean nine months) to evaluate the effect. Patient satisfaction was evaluated three months postoperatively. Satisfactory results indicated no multiple eyelids, no shifting or disappearance of the fold, and symmetrical heights of the fold when the difference between the bilateral heights was <1 mm. Complications were recorded.

Preoperative evaluation

The desires of the patients were understood during consultation and they were taken into consideration before the operative design. With the patient sitting, the height and shape of the desired double-eyelid line were simulated. A probe was used to push the upper eyelid upward to form a crease in front of a mirror. The crease position was confirmed when the patient was satisfied with the simulated crease, which was usually approximately 7 mm to 10 mm above the ciliary margin. The symmetry of the line on the bilateral upper eyelid was verified. The proposed double-eyelid line was marked using a marker pen. All patients were photographed pre- and postoperatively.

Surgical procedure

The operation was performed under local anesthesia. 1% lidocaine (5 mL) containing 1:100,000 of epinephrine was injected into each eyelid. Four 2 mm incisions were made along the double-eyelid line. Point A was approximately 5 mm lateral to the medial canthus. Point D

ORIGINAL ARTICLE

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**RESULTS**

Most of the double eyelids were natural after complete recovery. During the follow-up period, the satisfaction rate was 92% (342 of 372) (Table 1). Representative cases are shown in Figures 3 to 7. Asymmetries occurred in 17 patients. Six patients had multiple asymmetries.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female sex</td>
<td>325 (87)</td>
</tr>
<tr>
<td>Male sex</td>
<td>47 (13)</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>342 (92)</td>
</tr>
<tr>
<td>Dissatisfaction</td>
<td>30 (8)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TABLE 1</th>
<th>Patient (n=372) satisfaction rate three months postoperatively</th>
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**DISCUSSION**

Upper-eyelid blepharoplasty is a very common procedure in aesthetic plastic surgery. The anatomical structural difference between the single and double eyelids is established. Siegel (5) showed that in the single eyelid, the orbital septum was fused to the levator aponeurosis below the superior tarsal border, whereas fusion was above the superior tarsal border in the double eyelid. Descent of the orbital septum and retro-orbicular fat prevent the fibres of the aponeurosis from extending to the skin; therefore, no supratarsal fold is formed (6). Establishing a firm connection of skin and supratarsal aponeurosis is essential for the formation of the double eyelid. Thus, the goal of double-eyelid operations is to create a link between the skin and levator aponeurosis or tarsal plate (7).

There are many types of procedures to create the double eyelid. Techniques for double-eyelid surgery can be roughly classified into open, nonincisional and semi-open procedures (8). These methods have different advantages and disadvantages.

Lam (3) described the Mikamo method (circa 1986), and Uchida (9) published his technique in 1926. The nonincisional technique currently exists in many forms. The essence is to create a loop that 'bites' into the tarsal plate and the overlying dermis to create a 'fixation' point that allows the eyelid skin to fold when the eyes are open. The nonincisional technique is easy, has a fast recovery and produces no visible scar (10,11). Nevertheless, the skin is fixed to the levator aponeurosis by suture; however, the connection is not as secure as the incisional technique and, for this reason, the fold is usually not durable. Moreover, excessive orbital fat may migrate to the area of fixation and jeopardize the effect of suturing (12). The fold disappearance rate for nonincisional blepharoplasty varies from 1.3% to 16.8% (13).
Our modified four mini-incisional technique has more benefits than the usual mini-incisional techniques. The four mini-incisional blepharoplasty technique is successful in formation of a natural-looking and long-lasting double eyelid. Except for individuals with obvious skin redundancy, patients with the single eyelid are suitable candidates for the technique.

**REFERENCES**


**TABLE 2**

<table>
<thead>
<tr>
<th>Complication</th>
<th>Occurrence, n (%)</th>
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<tbody>
<tr>
<td>Asymmetry</td>
<td>17 (4.6)</td>
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<tr>
<td>Shifting of the fold</td>
<td>7 (1.9)</td>
</tr>
<tr>
<td>Multiple eyelids</td>
<td>6 (1.6)</td>
</tr>
<tr>
<td>Disappearance of the fold</td>
<td>0 (0)</td>
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<tr>
<td>Subsequent bleeding</td>
<td>26 (7.0)</td>
</tr>
<tr>
<td>Prolonged edema (&gt;3 months)</td>
<td>12 (3.1)</td>
</tr>
<tr>
<td>Obvious scars</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Infection</td>
<td>0 (0)</td>
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</tbody>
</table>

**Tables:**

**Figure 6** A 26-year-old woman before (left) and 3 weeks after (right) the operation

**Figure 7** A 21-year-old woman before (left) and 1 year after (right) the operation

**Figure 8** Preoperative view (left). One year after operation, the scar was invisible when the eye was closed (centre). The double eyelid was natural and satisfactory (right)

**DISCLOSURES:** The authors have no financial disclosures or conflicts of interest to declare.