



# Short Incisional Double-Eyelid Blepharoplasty for Asian Patients



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**Background:** The author found that nonexcisional techniques commonly used to create a double eyelid in Asian patients did not create a natural-looking fold, while most transcutaneous double-lid procedures involved unnecessary excision of eyelid skin and orbicularis muscle, which could increase tension on the scar and make it more noticeable.

**Objective:** The author describes a technique for creation of a double eyelid, based in part on new anatomic findings, that uses a short incision to minimize the scar.

**Methods:** The thick orbital septum was opened, the supratarsal tendon was divided, the central fat compartment was removed, and the dermis was fixed to the tarsal plate.

**Results:** Between January 2000 and December 2004, 652 patients were operated using this technique. The mean age of the patients was 24 years. There were no serious complications. Four hundred twenty patients (64.4%) were followed up to 2 months, and 162 patients (24.8%) had 1-year follow-up. All had satisfactory results, except for 8 patients who underwent a second procedure to correct unequal folds 2 months postoperatively. Ten patients lost their supratarsal folds within 1 year postoperatively; all had satisfactory results after reoperation.

**Conclusions:** The short incisional technique for creation of a double eyelid described here provides excellent results with no visible scar and no serious complications. (Aesthetic Surg J 2006;26:280-286.)

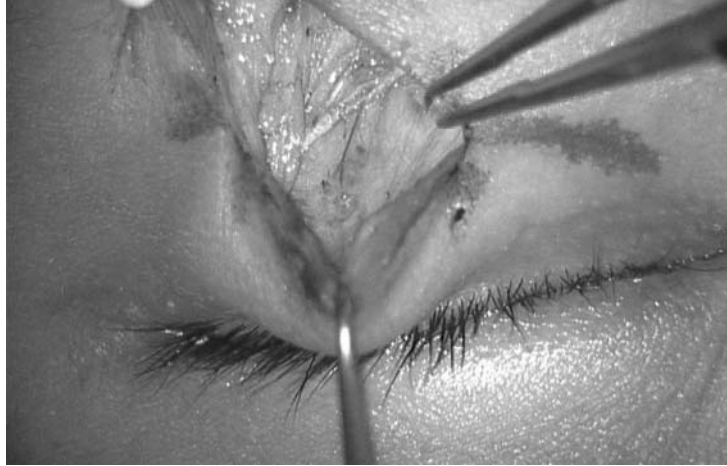
The characteristics of the Asian upper eyelid include the lack of or low supratarsal fold, excessive fat, laxity of pretarsal skin, and a medial epicanthal fold.<sup>1</sup> These features are components of traditional standards of facial beauty in the Asian culture. However, recently these standards have been changing under the impact of Western aesthetic standards. Consequently, creation of a supratarsal fold or double eyelid has become one of the most common aesthetic surgical procedures performed for Asian patients, although most of these patients do not want to look entirely Western.<sup>2</sup>

According to the literature, the causes of absent supratarsal fold among Asians include both a lack of levator aponeurosis extension to the dermis or orbicularis muscle of the pretarsal area,<sup>3,4</sup> and the fusion of the orbital septum and levator aponeurosis close to the lid margin.<sup>5</sup> The many techniques reported for creating a supratarsal fold fall into 2 main categories: anchoring the dermis to the levator aponeurosis or tarsus, with or without skin incision,<sup>1,3,6-9</sup> or resection of pretarsal tissue and anchoring the dermis to the levator aponeurosis with eyelid skin excision.<sup>5,10,11</sup>

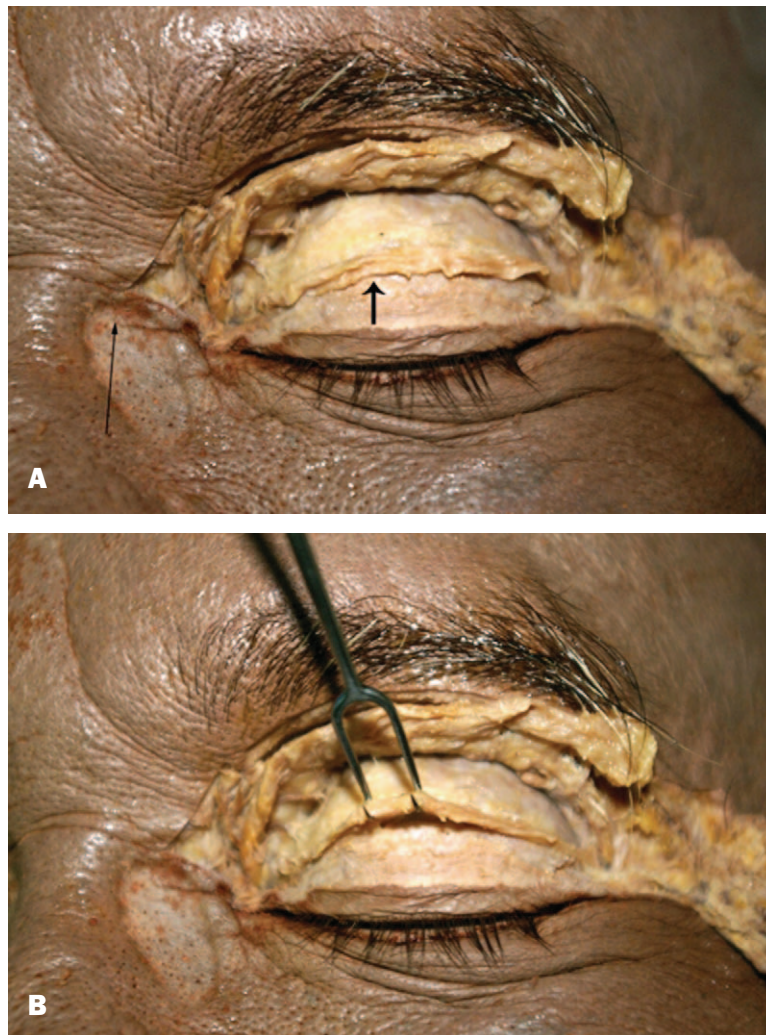
Most of the transcutaneous methods resulted in creation of a scar that ran from the medial to the lateral part of the eyelid that was noticeable at the medial and lateral ends of the eyelid, particularly in younger patients. While nonincisional or transconjunctival methods could reduce the scar, postoperative edema or ecchymosis might be worse than that following use of a transcutaneous approach if the vascular arcade at the superior border of the tarsus were injured.<sup>1</sup>

In the course of performing double-eyelid procedures, the author found 2 more characteristics of the Asian eyelid that had not been previously mentioned in the literature or addressed during double-lid operations: (1) the orbital septum is quite thick, and (2) there is a tiny transverse band of fascia running across from the medial canthal area to the lateral orbital wall at the superior border of the tarsal plate (Figure 1). This finding was confirmed by cadaver dissection (Figure 2). These 2 findings might be other causes of a nonexistent or low supratarsal fold in Asians.

In this paper, the author describes a technique for creation of the double-eyelid operation using a short incision and applied anatomy, and reports on the results of this technique.



**Figure 1.** The pretarsal tendon runs from the medial canthal area to the lateral orbital wall. This tendon was found in 40% of cases.



**Figure 2. A,** Cadaver dissection of the supratarsal tendon. Long arrow points to the medial canthal area; short arrow points to the supratarsal tendon. **B,** The tendon was lifted by a double hook.



**Figure 3.** *The line of the incision was marked at the middle portion.*



**Figure 4.** *The central compartment of orbital fat was removed.*

### Materials and Methods

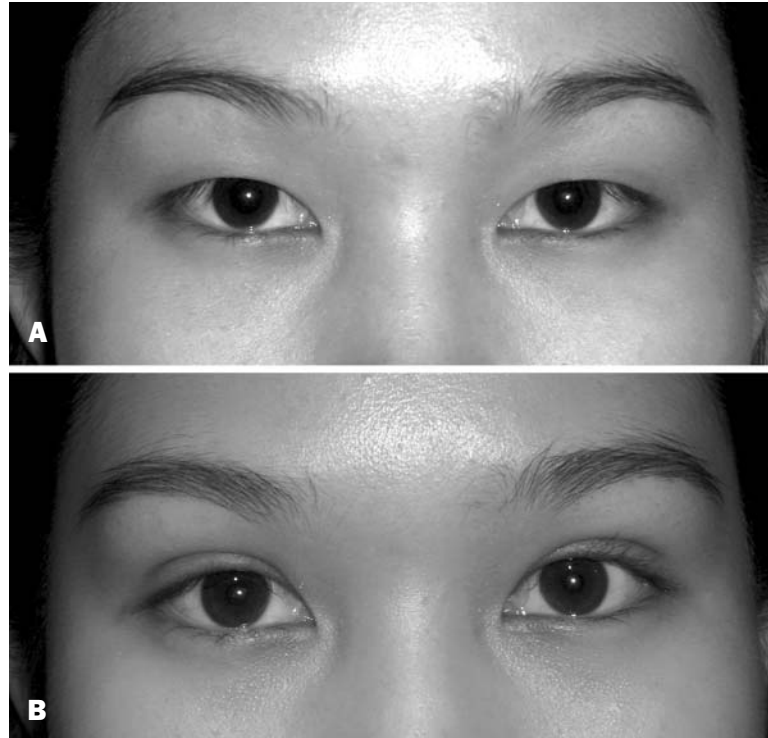
Between January 2000 and December 2004, a total of 652 patients underwent the procedure. Before the operation a thorough physical examination was conducted, and patients' wishes, including the desired height of the supratarsal fold for each individual patient, was discussed in detail. Asymmetry of the lid fold and eyebrow, eyelid ptosis, and visual acuity were recorded. Tattooing of the lid margin was investigated because it could cause problems after the operation.

### Operative Technique

Under sterile technique, a line was marked at 6 to 8 mm above the eyelash in the central portion of the eyelid. The medial end of this mark came close to the lid margin. The lateral end of the mark remained at the same height as the central part. The middle portion of this line, about 1 to 1.3 cm in length, was delineated as the line of incision (Figure 3). Because

the eyelid skin was not excised, the skin would fold over the incision line so that the visible supratarsal fold would be 2 to 3 mm above the eyelash after postoperative edema subsided. Lidocaine with adrenaline (1%, 2.5 mL) was injected subcutaneously. The skin was cut with a No. 15 blade. A fine-point bipolar cautery was used to cut the orbicularis muscle and orbital septum. The latter was incised from the medial to the lateral end of the eyelid. Fat in the central compartment was removed (Figure 4). The lateral angular vessel was coagulated and severed to prevent bleeding. If the patient had a low supratarsal fold, conjoint insertion of the orbital septum to the levator aponeurosis expansion was cut. Two fixation stitches of the dermis of the lower incision edge to the upper border of the tarsal plate were performed using clear 6-0 undyed nylon at the sites perpendicular to the pupil and lateral limbus of the corneal level. Hemostasis was completed. The skin was closed with 6-0 undyed nylon.

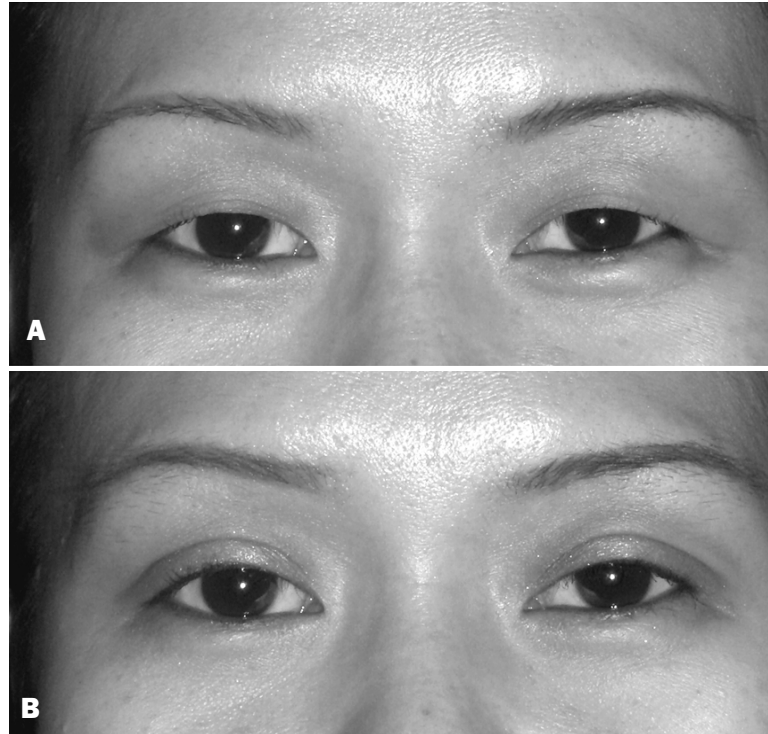




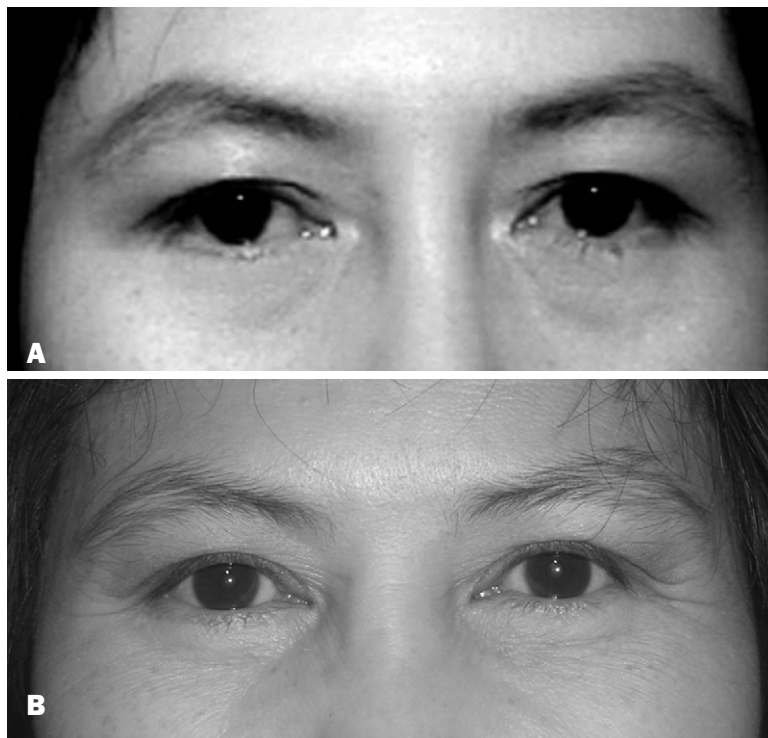
**Figure 5. A,** Preoperative view of a 21-year-old woman without a supratarsal fold. **B,** Postoperative view 3 months after double-eyelid blepharoplasty.



**Figure 6. A,** Preoperative view of a 32-year-old woman with an unequal supratarsal fold. **B,** Postoperative view 1 year after double-eyelid blepharoplasty.



**Figure 7. A,** Preoperative view of a 26-year-old woman without a supratarsal fold. **B,** Postoperative view 3 months after double-eyelid blepharoplasty.



**Figure 8. A,** Preoperative view of a 33-year-old woman with a low-hanging upper eyelid fold. **B,** Postoperative view 5 years after double-eyelid blepharoplasty. This patient underwent a lipofilling procedure along the sides of her nose 1 year before the postoperative photograph was taken.

**Table. Patient age ranges**

Age range (y)	Number of patients
15-19	84
20-24	292
25-29	164
30-35	112
Total	652

## Results

Between January 2000 and December 2004, a total of 652 patients underwent the procedure, including 634 women (97%) and 18 men (Figures 5 to 8). Patient ages ranged from 16 to 35 years; the mean age was 24 years (Table).

There were no serious complications. Unequal folds were observed in 23 patients (3.5%) 1 month postoperatively; 14 of these cases improved without further surgery, whereas 8 patients underwent reoperation 2 months postoperatively. One patient was lost to follow-up after the first follow-up appointment. Follow-up appointments at 1, 2, and 6 months were made with all patients; however, many patients were lost to follow-up because they were from distant parts of the country or from abroad. Four hundred twenty patients (64.4%) were followed up to 2 months. One hundred sixty-two patients (24.8%) had 1-year follow-up. All had satisfactory results. Ten patients (1.5%) lost their supratarsal folds within 1 year after the operation but had satisfactory results after reoperation. Two-year follow-up was obtained in 107 patients, of whom 104 (98%) were satisfied with the results.

## Discussion

Most patients who requested the double-lid operation were young. They sought an improved, natural-looking improvement with a minimal recovery period.

The surgical goals should be as follows:

- A natural-looking supratarsal fold 2 to 3 mm above the eyelid
- No bulging of pretarsal tissue and no puffy eyelid
- A reduced epicanthal fold
- No visible scar
- Minimal recovery period

Many authors have described the nonincisional method aimed at avoiding a scar and providing a shorter recovery period.<sup>1,7-9</sup> The author found that this method could not create a natural-looking fold and, at times, resulted in hematomas caused by unnoticed injury to blood vessels.

Most transcutaneous double-lid procedures involve excision of eyelid skin and orbicularis muscle,<sup>4-6,11</sup> which may not be suitable for younger patients. Such procedures unnecessarily excise the thin skin of the eyelid, which could increase tension on the scar and make it more noticeable.

During blepharoplasty procedures, the author found that not only low insertion of orbital septum to levator expansion and orbital fat, but also the presence of a thick orbital septum and supra-tarsal tendon could cause the lack of a supratarsal fold or a low supratarsal fold. This orbital septum, in addition to the supratarsal tendon, must be cut entirely from the medial to the lateral end of the eyelid to allow the eyelid skin to fold easily and possibly prevent loosening of the fixation suture.

The important features of the technique are as follows:

- Keep the incision line within the limbus area, which is about 1 to 1.3 cm in length. An incision beyond the lateral orbital wall and/or at the medial canthal area could be noticeable.
- The size of the visible supratarsal fold should vary according to the patient's desire (usually 2-3 mm.). The incision should be marked at 6 to 8 mm from the lid margin because the eyelid skin will fold and hang down to create a visible supratarsal fold at the desired height.
- No excision of the skin or orbicularis muscle is necessary.
- The orbital septum should be opened entirely at the incision level, from medial end of the eyelid to the lateral orbital rim, to allow the skin to fold in easily.
- Pretarsal tissue should not be removed to avoid postoperative edema.<sup>11</sup>
- The epicanthal fold can be minimized by incision at the orbicularis muscle and excision of the pretarsal tendon in that area.<sup>12</sup> An unnatural appearance and a conspicuous scar may result if the epicanthal fold is totally eliminated in Asian patients.
- The medial fat compartment should not be removed in this group of patients; otherwise, a sunken eyelid will occur. Postoperatively, unequal folds should be observed until postoperative edema completely subsides. Reoperation should be considered if the inequality persists after 2 to 3 months postoperatively.

## Conclusion

The short incisional technique for creation of a double eyelid in Asians, based on the anatomy described, can pro-

vide excellent results for the patient, with no visible scar, minimal complications, and a short recovery period. ■

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