



# Subbrow Blepharoplasty for Upper Eyelid Rejuvenation in Asians

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**BACKGROUND:** Classical blepharoplasty removes supratarsal upper eyelid skin rather than subbrow skin. It does not adequately address the redundant skin of lateral hooding. Asians tend to have higher eyebrows than whites. For Asian women who have tattooed eyebrows with redundant upper lateral eyelid skin and who request a rejuvenating upper eyelid procedure, subbrow blepharoplasty (SBB) is an additional option to consider.

**OBJECTIVE:** This study evaluated the role of a less commonly employed blepharoplasty technique in rejuvenating the upper eyelid in carefully selected patients. The value of this technique was judged by patient-reported ratings.

**METHODS:** This was a prospective study. Patients presenting to our clinic between January 1997 and September 2008 for the excision of redundant upper eyelid skin were interviewed and examined for suitability for SBB. In this 11-year period, 804 patients underwent upper blepharoplasty. Of these patients, 101 (12.6%) were deemed suitable and were selected for SBB. Criteria for inclusion into the study were those who had dermatochalasis of the upper eyelids with lateral hooding.

**RESULTS:** The aesthetic improvements were judged by the patients' subjective impressions (either satisfactory or unsatisfactory). All ratings were collected at four weeks postsurgery. Ninety-two patients (91.1%) rated their results as satisfactory, and nine patients (8.9%) rated their results as unsatisfactory.

**CONCLUSIONS:** SBB is a useful operation to rejuvenate the upper eyelids in selected patients while maintaining harmony with their ethnic facial features. This refinement overcomes some of the shortcomings of other upper blepharoplasty methods employed for the same purpose. (*Aesthetic Surg J* 2009;29:284–289.)

In classical blepharoplasty, the removal of redundant upper eyelid skin or dermatochalasis of lateral hooding tends to produce a lengthy excision. The resultant scar will extend beyond the lateral canthus; otherwise, there is a tendency for the most lateral aspect of the supratarsal fold to take on a dog-ear formation (Figure 1). Irrespective of ethnic origins, an aesthetic eyebrow extends laterally to the lateral canthus.<sup>1,2</sup> If the patient has tattooed eyebrows, an incision placed at the lower edge of the tattoo tends to produce a scar that is less conspicuous over the long term.

Dermatochalasis is a cause of lateral hooding of upper eyelid skin. Other causes of lateral hooding (such as thick upper eyelid skin, brow ptosis, substantial postseptal fat, prominent orbital rim, bulky orbicularis oculi muscles, and prolapsed lacrimal gland) should be excluded. An alternative approach or an ancillary procedure is required to address defects other than dermatochalasis.

## ETHNIC DIFFERENCES IN ANATOMY

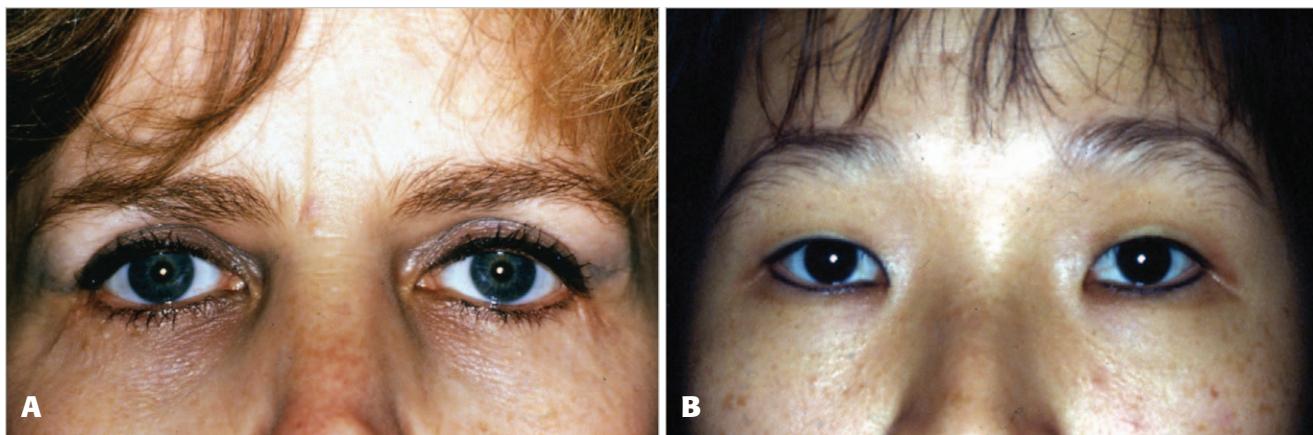
Asians tend to have higher eyebrows than whites (Figure 2). This may be related to an overactive fore-

head musculature mechanism. Asians have more pretarsal fat and suborbicularis fat,<sup>3–5</sup> which projects inferiorly and tends to make their eyes puffy. On the other hand, whites tend to have more prominent supraorbital rims, relatively lower-set eyebrows, less postseptal fat, and thinner upper eyelid skin. This ethnic distinction of relatively lower-set eyebrows makes whites in general less suitable for subbrow blepharoplasty (SBB), and probably more suitable for forehead lift and suprabrow blepharoplasty.

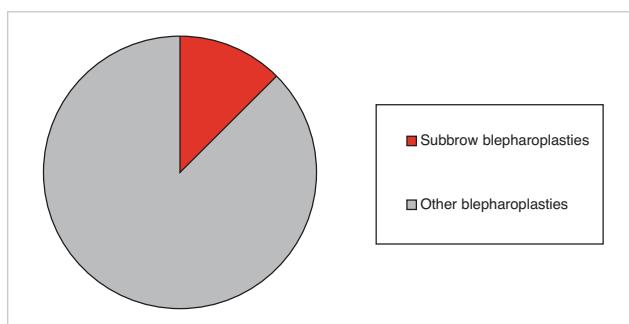


**Figure 1.** A relatively lengthy lateral scar on the upper eyelid.

Drs. Lee and Law are plastic surgeons in private practice in Hong Kong.



**Figure 2.** **A**, Whites typically have lower eyebrows. **B**, Asians typically have higher eyebrows.



**Figure 3.** Proportion of patients having subbrow blepharoplasty. Of the 804 patients undergoing upper blepharoplasty in our clinic, 101 patients (12.6%) were deemed suitable for and were selected to undergo subbrow blepharoplasty.

## PATIENT SELECTION

Of the 804 patients who underwent upper blepharoplasty at our clinic from January 1997 to September 2008, all were interviewed and examined for suitability for the subbrow approach before surgery. Out of the 804 patients, 101 candidates (12.6%) were deemed suitable and were selected (Figure 3).

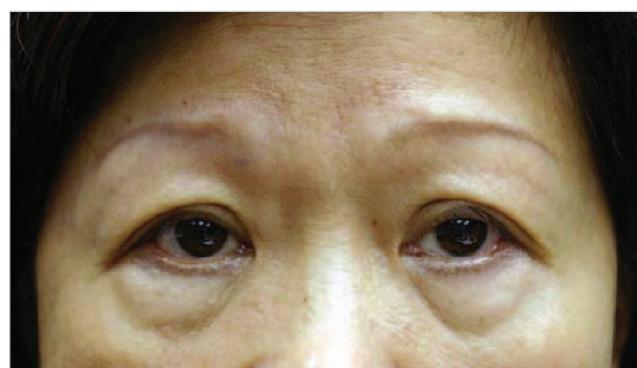
The ideal patient for SBB is one who has upper lid dermatochalasis with lateral hooding (Figure 4). Preferably, the patient should have tattooed eyebrows and preexisting supratarsal folds. A patient who wishes to revise the eyebrow contour and/or tattoo or who cannot tolerate a lengthy lateral upper eyelid scar is also an ideal patient.

SBB also affords the plastic surgeon the chance to revise undesirable eyebrow shapes and asymmetrically tattooed eyebrows. All patients have a preoperative clinical photograph taken of the front view of their eyes both for documentation and for future reference.

All patients were questioned on whether they habitually consumed aspirin, nonsteroidal antiinflammatory drugs, or certain Chinese herbs. Patients who took these medications were asked to stop taking them for 10 days before their scheduled operation.

## PROCEDURE

All patients were given an local anesthetic and intravenously sedated. A variable length and width of sub-



**Figure 4.** The ideal patient has upper lid dermatochalasis with lateral hooding.

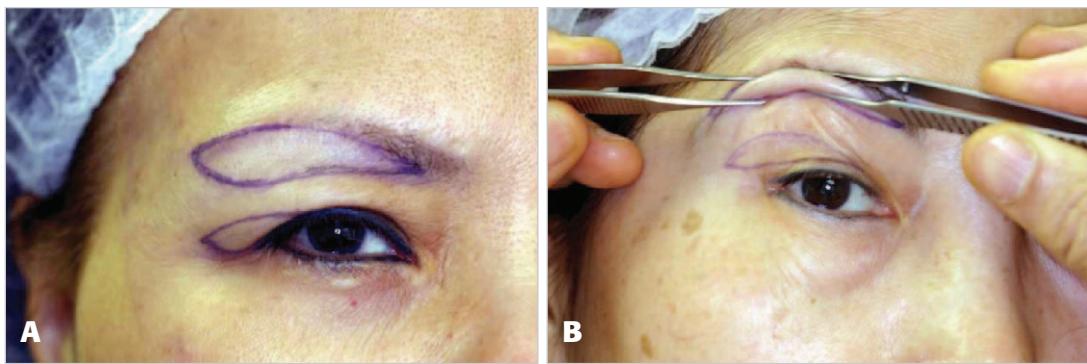
brow upper eyelid was precisely marked (Figure 5); the marked region can be pinched to simulate the postoperative result. The design and therefore the incision should not extend to the medial brow aspect, because the scars in this region tend to heal unfavorably.

The mean length of subbrow skin excised was 42 mm (Figure 6,A). The mean of the maximum width of subbrow skin excised was 10 mm. The upper incision of the ellipse should be beveled to minimize trauma to the hair follicles. Unequal amounts of skin may be tailored away from either side of the subbrow region in order to address a patients' asymmetric features. Hemostasis was followed by wound closure. Wounds were closed in two layers using 6-0 polyglycolic (Vicryl; Ethicon, Somerville, NJ) and 6-0 nylon sutures (Figure 6,B).

## RESULTS

All patients were followed up on postoperative days two or three, and the stitches were removed on day five. Patients were reassessed again at two, four (Figure 7), and eight weeks postoperatively. The aesthetic improvements in the periorbital region were judged by patients' subjective impressions (either satisfactory or unsatisfactory).

At four weeks postoperatively, 92 patients (91.1%) rated their aesthetic results as satisfactory and nine patients (8.9%) rated their aesthetic results as unsatisfactory. The operating surgeon fully concurred with the patients' ratings.



**Figure 5.** **A**, The skin has been marked for subbrow blepharoplasty. **B**, The marked skin is pinched to simulate the postoperative results.



**Figure 6.** **A**, Intraoperative view of the subbrow blepharoplasty wound. **B**, Wound closure after subbrow blepharoplasty.

## COMPLICATIONS

The specific possible complications of SBB include scarring of the upper eyelids, damage to the supraorbital neurovascular bundles, asymmetry of the eyebrows and supratarsal folds, and lid lag and lagophthalmos from aggressive skin resection.

In our study, of the nine patients whose results were unsatisfactory, five patients had hypertrophic scarring and four patients had asymmetry of the brows. Hypertrophic scarring was managed conservatively with the application of silicone gel and/or intralesional steroid injection. Brow asymmetries were managed with revision surgery performed at three to four weeks later.

## DISCUSSION

Brow grooming is very common in Asian women. Asians tend to have higher eyebrows than other ethnic groups, like whites. Their eyebrows tend to be comprised of coarse but sparse hairs. As a result, Asian women commonly fill the gaps in their brows with colors. The many varieties of brow grooming include eyebrow tattooing, eyebrow embroidery, eyebrow feathering, and eyebrow transplant. Patients can start temporary brow grooming one week after SBB.

Asian women may also have their eyebrows tattooed because their native eyebrows are not in the desired position or shape. Therefore, many Asian women who request a rejuvenating upper eyelid pro-

cедure are potential candidates for SBB. On the other hand, as a periorbital rejuvenating procedure, the more well-known suprabrow excision may produce the “surprised look” in many Asian women who already tend to have higher than average eyebrows.<sup>6</sup>

There were 101 SBBs (12.6%) performed out of a total of 804 upper blepharoplasty patients in our clinic between January 1998 and September 2008. The specific risks of SBB include wound dehiscence, hypertrophic scarring, asymmetrical brows and/or asymmetrical supratarsal folds, and trauma to the supraorbital arteries and nerves. Overresection can also lead to lagophthalmos.

Classical blepharoplasty removes supratarsal rather than subbrow skin.<sup>7,8</sup> Eyebrows normally extend laterally to the lateral canthi. Classical blepharoplasty does not address lateral hooding related to dermatochalasis unless a lengthy excision is designed beyond the lateral canthus.<sup>9</sup> To excise upper eyelid skin and address lateral hooding, removal of an elliptical island of skin below the brow and extending laterally to the lateral canthus adequately removes the redundant skin. The advantage of SBB is that it allows more lateral upper eyelid skin to be excised. The risk of dog-ear formation is minimal and the resulting scar is best concealed at the lower edge of the tattooed brow. Further permanent eyebrow embroidery can take place six to eight weeks after surgery.

We performed SBB in our office clinic. All patients were preoperatively marked and all were given local anesthesia with supplemental intravenous light sedation.



**Figure 7.** **A**, Preoperative view of a 61-year-old woman. **B**, Four weeks after subbrow blepharoplasty (SBB). **C**, Preoperative view of a 52-year-old woman who had extended lateral scars on the upper eyelids from a previous upper blepharoplasty. **D**, Four weeks after SBB. **E**, Preoperative view of a 32-year-old woman. **F**, Four weeks after SBB. **G**, Preoperative view of a 51-year-old woman. **H**, Four weeks after SBB. **I**, Preoperative view of a 45-year-old woman. **J**, Four weeks after SBB.

SBB is the best method that the authors have found to correct lateral hooding in selected patients. Lateral hooding can be caused by dermatochalasis, thick upper eyelid skin with retroorbicularis oculi fat, bulky suborbicularis oculi muscles, brow ptosis, or a prominent orbital rim. The advantages of SBB are listed in the Table.

## CONCLUSIONS

The high percentage of favorable ratings demonstrates that SBB is a useful adjunct upper eyelid rejuvenating procedure in selected patients. When performed on Asian patients, SBB may be considered a refinement operation that compensates for the shortcomings of

**Table.** Advantages of subbrow blepharoplasty

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1. It is the best method the authors have found to correct lateral hooding and slanting of the upper eyelids
  2. It revises eyebrow contours and tattoos
  3. The initial scar is easy to conceal
  4. It avoids a lengthy lateral scar and the dog-ear formation, both of which can arise from classical blepharoplasty
  5. It enables thinning of the retroorbicularis oculi fat and internal brow suspension
  6. It enables medial brow elevation by more direct resection of brow depressors
  7. It results in natural-looking eyelid creases and contours
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classical blepharoplasty and at the same time improves periorbital aesthetics so that the brow is in harmony with ethnic features. ▶

**DISCLOSURES**

The authors have no financial interest in and received no compensation from manufacturers of products mentioned in this article.

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