Infrabrow Excision Blepharoplasty: Applications and Outcomes in Upper Blepharoplasty in Asian Women

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Background: To avoid the somewhat operated look while effectively resolving shortcomings inherent in the conventional blepharoplasty technique, the authors propose an infrabrow excision blepharoplasty as a satisfying and useful alternative. The authors’ experience during a 3-year period is presented and reviewed.

Methods: Sixty-four patients were operated on by infrabrow excision blepharoplasty. The indications for the procedure included those patients with one or more of the following criteria: (1) prior infrabrow excision, (2) desire to preserve inborn lid crease lines, (3) multiple prior lid operations related to double-eyelid operation, (4) lateral lid hooding being the primary concern for wanting blepharoplasty, (5) planned or preexisting cosmetic tattoo of the eyebrows, and (6) age group in the late 30s through mid-50s, thus excluding the most severe forms of blepharochalasia. The mean postoperative follow-up period was 13 months, and the photographic results were collected retrospectively and evaluated.

Results: There was no complication related to surgery in terms of the resulting scar and periorbital sensory change. The mean operative time was 35 minutes. Significant flattening of the eyebrow or lid crease discrepancy necessitating additional surgery was not observed. Patient satisfaction was very high in terms of both the aesthetic outcome and patient comfort.

Conclusion: Infrabrow excision blepharoplasty can be an easy and satisfying alternative that achieves the same goals as a conventional blepharoplasty in a selected group of patients. (Plast. Reconstr. Surg. 122: 1199, 2008.)

With increasing socioeconomic standards and lifespan, upper blepharoplasty is becoming one of the most commonly performed rejuvenation operations in Asia. Upper blepharoplasty in itself entails simple excision of redundant skin and muscle with or without creation of a new lid fold, and has been the mainstream solution to the common problem of blepharochalasia. However, evaluation of shortcomings in the postoperative results of blepharoplasty has escaped the attention of many plastic surgeons. A somewhat unnatural operated appearance after blepharoplasty often results from violation or recreation of a lid fold at this late age. It is commonly observed that as the width of skin excision increases, thin pretarsal skin is bound to be sutured to an upper flap that is thick. This discrepancy in the nature and thickness of skin that meets along the crease line then accentuates the overhanging appearance of the upper flap on the crease line. The result is actual resolution of the skin redundancy, whereas the appearance only worsens regarding the upper lid fullness in contrast to the thin pretarsal skin and crease. In the same context, lateral hooding deformity, which paradoxically is exacerbated with overzealous lateral skin and muscle excision in an attempt to eliminate it is another example of shortcomings inherent in the classic blepharoplasty operation.

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Received for publication December 28, 2007; accepted February 20, 2008.
Copyright ©2008 by the American Society of Plastic Surgeons
DOI: 10.1097/PRS.0b013e3181858fc0

Disclosure: None of the authors has a financial interest in any of the products, devices, or drugs mentioned in this article.
Infrabrow excision blepharoplasty addresses these shortcomings of the conventional blepharoplasty operation in a very straightforward and simple manner. The technique was first introduced in the ear, nose, and throat literature by Parkes et al.1 in the mid-1970s, although many Japanese and Korean practitioners widely used the technique in private practice for years even before then (private communications). The idea rests on alleviation of the lid redundancy through excision of infrabrow skin, subcutaneous tissue, and orbital orbicularis as opposed to that of the upper lid or the suprabrow area.

PATIENTS AND METHODS

One-hundred twenty-eight lids in 64 patients were subjected to this operation from March of 2004 to August of 2007. All of the patients were women, and the average patient age was 45.6 years. The primary indications for the procedure included (1) preexisting scar from prior infrabrow excision; (2) not wanting to violate inborn natural lid crease lines; (3) multiple prior lid operations for unsatisfactory lid crease and/or blepharoplasty operation, for the correction of high fold, or related to lid ptosis; (4) lateral lid hooding being the primary concern for wanting repeat blepharoplasty; (5) planned or preexisting cosmetic tattoo of the eyebrows; and (6) age group in the late 30s through mid-50s, thereby excluding the most severe forms of blepharochalasia (Table 1). Patients were evaluated for the extent of visible scar, sensory abnormalities, and postoperative outcome in terms of lateral hooding, impaired visual field, skin sloughs from intertrigo at lateral lid fold, and inapparent lid crease.

Table 1. Primary Indications for Infrabrow Excision Blepharoplasty

<table>
<thead>
<tr>
<th>Category</th>
<th>Indications</th>
<th>No. of Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secondary blepharoplasty</td>
<td>Preexisting scar from prior infrabrow excision</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Multiple prior lid operations</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Lateral lid hooding being the primary concern for wanting repeat blepharoplasty</td>
<td>27</td>
</tr>
<tr>
<td>Nonsecondary blepharoplasty</td>
<td>Not wanting to violate inborn natural lid crease</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Planned or preexcision cosmetic tattoo of the eyebrows</td>
<td>5</td>
</tr>
<tr>
<td>General indication</td>
<td>Age groups on the late 30s through mid-50s</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stable arched brow with lateral hooding</td>
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</table>

Surgical Technique

Preoperative Design

With the patient supine on the operating table, a line is drawn following the lower edge of the eyebrow starting very slightly medial to the medial limbus axis line to approximately 1.0 cm lateral to the tail of the brow. It is very important to keep this upper incision precisely at the lower margin of the brow to obtain an inconspicuous scar. If the patient tends to pluck the lower portions of the eyebrow, they are asked to shape the brow as usual before surgery. The lateralmost extension of the excision should roughly parallel the slightly downward curvature of the brow lateral to its apex, and not slant upward as is often seen in blepharoplasty excision design. The lower incision line is a lazy-S shape so that tapered excision medially is a concave line that convexes out as the width of excision increases laterally. The shape of skin ellipse thus designed should be approximately 12 to 14 mm at its greatest width at the midpoint between the lateral canthus and the lateral limbus. On the horizontal plane, the point of maximum excision should fall roughly at the horizontal level of the medial brow (Fig. 1).

Operative Technique

The procedure is performed under local anesthesia using 2% lidocaine with epinephrine. The operative field is infiltrated and sufficient time is allowed to elapse to promote the hemostatic effect to take place. An incision is made with a no. 15 blade and deepened to the subcutaneous...
level. The excision should start laterally and proceed medially. In the lateral two-thirds of the skin ellipse, the plane of en bloc excision should be just deep enough to incorporate orbital portions of orbicularis muscle in the excision (Fig. 2). As one proceeds medially to the medial one-third, the excision plane should taper superficially to leave a trace of the subcutaneous fat layer on the base. Hemostasis is obtained with bipolar cauterization.

Repair of the resulting defect is performed with 4-0 Vicryl sutures. Laterally, where some orbicularis has been excised in partial thickness, deep sutures are placed so that the orbicularis on both sides of the incision lines are plicated. After deep sutures, subcutaneous sutures are placed with 6-0 Monocryl and the skin is repaired with interrupted and continuous sutures. Skin sutures are removed on the fifth postoperative day.

**RESULTS**

During the past 3 years, we performed 128 infrabrow excision blepharoplasties in 64 female patients. Patients ranged in age from 32 to 61 years. The follow-up period was 6 months to 2 years, with an average of 13 months. Mean operation time was 35 minutes. All patients were satisfied with the result and no complications were observed related to sensory abnormalities and visible scars. When questioned regarding the postoperative outcome and comfort, patients reported improvement in the visual field, a lightened feeling of the lateral lids, improvement in skin sloughs from intertrigo at the lateral lid fold, and disclosure and revival of the lid crease of youth. Patients were informed preoperatively of the possibility of slight flattening of the brows, possibly necessitating makeup-assisted shaping of the brow in selected cases. Interestingly, no patient complained or was concerned or aware of any change in the brow position or shape.

**CASE REPORTS**

**Case 1**

A 50-year-old patient presented with aging eyelids. The patient complained of annoying intertrigo and tear spillage along the drooped lid folds of the lateral canthal area. The patient had undergone a double-eyelid operation some 30 years previously in youth, and did not want to undergo operation on the lid crease or a drastic change in periorbital expression. An infrabrow excision blepharoplasty was recommended. The results achieved at 6 months postoperatively show resolution of the lateral lid hooding and some uncovering of the ciliary margin. Note also the preoperative brow tattoos. Eyebrow tattoos are usually designed with a lateral apex well above the original brow hairline or orbital rim. Because the tattoo lines are respected in the infrabrow excision design, the lower hair-bearing portion of the lateral brows is excised in an infrabrow excision (Fig. 3).

**Case 2**

A 37-year-old patient presented with supratarsal hollowness and lateral drooping of the eyelids. She had undergone double-eyelid surgery at the age of 19, and excessive fat removal began to show with age. Infrabrow excision blepharoplasty was performed. To correct the sunken look, a 1.5-cc microfat injection was performed concomitantly. The fat graft was performed through a separate lateral brow stab incision using the Coleman needle, immediately below the orbital rim in the deep plane (submuscular/supraperiosteal plane). Fat grafting was performed twice with a 6-month interval to compensate for resorption. One-year postoperative view shows an excellent result, giving her a revived peri-orbital look. Interestingly, fat injection seems to lower and deepen the apparent lid crease line (Fig. 4).

**Case 3**

A 46-year-old patient with an Asian lid requested blepharoplasty. The patient did not wish to have lid creases created. Infrabrow excision blepharoplasty was performed. The postoperative result at 8 months shows improvement in the overhanging appearance of the upper lid. Note that the general configuration of the eye aperture has changed to a more open and youthful one, especially in the lateral canthal zone (Fig. 5).

**Case 4**

A 52-year-old patient presented with a moderate degree of aging eyelids. The patient had undergone double-eyelid surgery in her youth. Infrabrow excision blepharoplasty was performed concomitant with lower blepharoplasty. One-year postoperative view shows natural appearing improvement. Note the level of the nevus on her right lateral upper lid and how it has moved up postoperatively (Fig. 6).

**DISCUSSION**

When blepharoplasty becomes a secondary procedure, it warrants special attention concern-
Planning of skin excision and the impact of such procedures on the upper lid crease. The problem is further complicated if the remote double-eyelid operation performed in youth involved significant manipulation of the aponeurotic mechanism for relevant past situations such as eyelid ptosis or for unsatisfactory fold correction. In those patients with an Asian eyelid with no lid crease, lid crease creation at the time of blepharoplasty brings about a significant change in the periorbital expression and general appearance of the aged patient, even in the most experienced hands. Therefore, lid crease creation at this late age concomitant with blepharoplasty may not be so desirable. In fact, many patients have come to me requesting alleviation of the lateral hooding and bothersome intertrigo without the need for a blepharoplasty operation out of fear of a changed appearance at this late age. Infrabrow excision blepharoplasty stems from such requirements so that the goal in blepharoplasty should be attained with a less demanding procedure on the part of both the patient and the surgeon. Having performed the procedure for several years, it became increasingly clear that this method actually has a definite place among techniques used for periorbital rejuvenation surgery. Some points should be made in relation to each of our indications.

Preexisting Scar from Prior Infrabrow Excision

It seems only logical to perform a repeat excision if a corresponding scar exists. Interestingly, I have come across a number of patients in Korea and neighboring Japan who had undergone a previous infrabrow excision blepharoplasty, and discovered that in fact the procedure has been used more than commonly perceived by plastic surgeons.

Even the Korean domestic literature lacks a single report of the procedure. The only report was by Parkes et al. in 1976, where a similar technique was introduced. It was pointed out in the article that this method was particularly efficacious in revisionary upper blepharoplasty. They specifically restricted the indication to those patients exhibiting elevated levels of the brow in relation to the supraorbital ridge, along with photographic examples of such candidates. However, the report did not show surgical results, and some technical points differ from those reported here.

Of note, our previous experience with the supraorbrow excision tended to yield rather poor scars.
that require many months to mature and fade, whereas the infrabrow scar is virtually inconspicuous. The difference in the healing characteristic seems to reflect the different nature and quality of skin in those two areas.

Not Wanting to Violate Inborn Natural Lid Crease Lines

Many patients who have inborn lid crease lines from youth experience gradual concealment of the lid crease line as aging progresses. This is especially evident in the Asian population, where the tarsal plate and lid crease heights tend to be small, so that apparent fold height decreases with age. With the infrabrow excision blepharoplasty, this concealed fold becomes apparent and thus reanimates the eyelid conformation of the individual at youth. No other lid crease surgically created at this age matches the revived natural lid crease line.

Lateral Lid Hooding Being the Primary Concern for Wanting Repeated Blepharoplasty

It is well known that skin redundancy is most prominent in the lateral two-thirds of the eyelid. However, it is our experiences that lateralmost hooding of the aging lid is most difficult to correct. In blepharoplasty, as one increases the width of skin excision laterally, it can create a contrast (in skin color, texture, and thickness) between the pretarsal and infrabrow skin. This was clearly demonstrated with a cautionary note in an article by Camirand and Doucet. Although they had described the phenomenon regarding patients exhibiting brow ptosis, we feel that this is almost a universal phenomenon in standard blepharoplasty. The infrabrow excision is also very useful for those exhibiting residual lateral fullness after a conventional blepharoplasty operation.

Several innovative techniques for specifically dealing with lateral fullness after blepharoplasty have been reported. Widgerow has advocated an extended lateral segmental orbicularis excision concomitant with upper blepharoplasty. In his depiction of the surgical technique, a 1.5 × 1.0- to 1.5-cm ellipse of orbicularis muscle was undermined separately and excised through the blepharoplasty incision. In the same context, Har-Shai and Hirshowitz’s extended upper blepharoplasty...
for lateral hooing of the upper eyelid, using a scalpel-shaped excision, places more emphasis on the importance of debulking the thick skin and subcutaneous fat laterally, to obtain a pleasing postoperative open appearance to the eyes.4 In the infrabrow excision blepharoplasty, en bloc and segmental resection of infrabrow skin, subcutaneous fat, and orbital orbicularis is followed by layer-by-layer approximation of the structures with no undermining. Although a simple procedure in itself, this seems to confer a direct and effective lifting of the lateral eyelids.

Planned or Preexisting Cosmetic Tattoo of the Eyebrows

It is most convenient if the infrabrow excision design conforms to a preexisting eyebrow tattoo, as is the case in many individuals in Asia. Eyebrow tattoos usually have an accentuated midlateral apex above the natural brow line. Conversely, this may be recreated postoperatively through a tattoo or with makeup if lowering of the lateral eyebrow is observed.

Age Groups in the Late 30s through Mid-50s, Thereby Excluding the Most Severe Forms of Blepharochalasia

Severe forms of blepharochalasia with fine and wrinkled pretarsal skin are better subjected to conventional blepharoplasty. It is prudent to perform the infrabrow excision in patients with significant brow ptosis. Brow to ciliary distance had not been our primary concern in performing the infrabrow excision blepharoplasty. However, it remains without question that brow aesthetics should be taken into consideration in performing this procedure. Although we have experienced some flattening of the brow peaks, patients were not particularly concerned or aware of this. In fact, we felt that the change in brow shape was tolerable as opposed to a “surprised look,” a stigma of brow-lift surgery where the medial brow shows excessive widening and elevation because of detachment of the medial retaining ligaments. A similar opinion was advocated by Freund and Nolan5 in their study of aesthetic ideals for brow height and shape in women following brow lifts. The change in the relative position of the lateral brow reflected the tendency of the medial brow to move up with brow-lift surgery. Related to this phenomenon, Sullivan et al.6 defined three important retaining ligaments of the medial brow that become detached in conventional brow-lift surgery.

Of note is a recent article where it was nicely pointed out that the brow height of an attractive young model is a lot lower than what many are creating through brow lifts today.7 In his definition of an attractive and young appearance, special emphasis was placed on lower position of the medial brow relative to the lateral brow. In an infrabrow excision, the medial and the lateral ligamentous structures are untouched. However, in light of the weaker nature of the lateral ligamentous attachments relative to the medial retaining ligaments, some lowering of the lateral brow seems inevitable. Therefore, a stable high brow is a prerequisite in considering this technique. In a similar context, prominence of the supraorbital rim may confer certain advantages, as is often the case in most Caucasians. How it affects the periorbital topography in the occidental face warrants further study. To expand application of infrabrow excision blepharoplasty in patients with relatively lax brows, we are currently modifying our infrabrow excision blepharoplasty to control the lateral brow height in patients with significant lateral brow ptosis. One is suture fixation of the lower skin and muscle flap to a supraorbital peri-
osteal attachment before suture approximation of the excision. Another possibility lies in Endotine TransBleph (Coapt Systems, Inc., Palo Alto, Calif.) fixation of the lateral brow through the excision wound.

CONCLUSIONS

As shown in the preoperative and postoperative photographs, the result of the operation is in fact very subtle. One has to focus on the “undiscovering” of the upper ciliary line and the improvement in the lateral aspect of the upper lid to truly appreciate the result. On the contrary, the subjective well-being and satisfaction of the patients far exceeds what we had anticipated at the initial application of this surgical technique. According to responses to a questionnaire, every patient who had undergone the procedure chose to have the operation performed instead of other procedures and would recommend it to an acquaintance without hesitation. Functionally, patients report improvement in visual field, lightened feeling of the lids at opening, and amelioration of tear spillage at the intertrigo at the lateral palpebral fold area. Cosmetically, avoidance of the operated look and regaining the natural lid lines of youth add to patient satisfaction. From the surgeon’s perspective, the procedure is quick, easy, and provides consistent results.

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REFERENCES

Extended Infrabrow Excision Blepharoplasty for Dermatochalasis in Asians

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Objective: To describe extended infrabrow excision blepharoplasty (IBEB), whereby skin excision is extended to a substantial part of infrabrow skin and the infrabrow incision is made perpendicular to the hair shaft.

Methods: A total of 194 Asian patients with moderate to severe dermatochalasis underwent extended IBEB. The mean width of excised skin at its widest was 12.8 mm (range, 6-22 mm).

Results: Extended IBEB significantly reduced eyelid laxity but produced a natural-looking eyelid because it did not damage the eyelid framework. With application of eyebrow makeup by women, routine social activity was resumed soon after surgery. Infrabrow scarring became inconspicuous in patients with thick eyebrows after regrowth.

Conclusions: Extended IBEB is recommended for middle-aged and older Asian women with moderate to severe dermatochalasis. With precise incision and fine suturing, regrowth alleviates eyebrow reduction and scarring among Asians who do not use makeup (male patients and young female patients).

Arch Facial Plast Surg. 2011;13(5):327-331

Infrabrow excision blepharoplasty (IBEB) is common in Asians with dermatochalasis, although the method is debated by surgeons. Despite its popularity in Japan and Korea, acceptance of the usefulness of IBEB in Asians was protracted. Described in 1954 as an option for dermatochalasis in patients of white race/ethnicity, this method has only recently been widely accepted for use among Asians. To our knowledge, Sugimoto’s 1991 study first documented the use of IBEB in Asian patients.

In selected patients, IBEB has several advantages. It can remove redundant thick skin in the upper eyelid, while preserving its original features (especially the eyelid crease) and resulting in a natural and youthful eyelid. Early resumption of social activity is assured because postoperative swelling of the eyelid rarely lasts long and the scar is easily disguised with application of makeup. Therefore, IBEB is a good option for rhytidectomy of the upper eyelid for middle-aged and older Asian women.

Despite its advantages, the use of conventional IBEB is restricted by several inherent problems, such as infrabrow scarring, eyebrow reduction or distortion, postoperative descent of the eyebrow, and limitation in the amount of infrabrow excised skin to preserve eyelid and eyebrow proportions. Slight improvement has been demonstrated in some patients undergoing conventional IBEB when the amount of excised skin is insufficient to eliminate redundancy in the eyelid and upper orbit. Therefore, conventional IBEB is not indicated for individuals with severe dermatochalasis, for patients with moderate to severe brow ptosis, or for those who regard a scar or eyebrow reduction as unacceptable, usually male patients, young female patients, or women who do not use eyebrow makeup.

To counter such problems and to increase applicability to various patient groups, we have introduced some modifications to conventional IBEB. Herein, we describe extended IBEB, whereby skin excision is extended to a substantial part of infrabrow skin and the infrabrow incision is made perpendicular to the hair shaft. Postoperative regrowth of the eyebrow through the scar covers the incision location and alleviates eyebrow reduction. Although extended IBEB has many advantages, it has some shortcomings. The objective of this study was to describe the effectiveness, appropriate procedures, and drawbacks of extended IBEB for dermatochalasis in Asians.
METHODS

PREOPERATIVE PLANNING AND MARKING

The tear-shaped skin pad to be excised in the infrabrow and intrabrow is marked off with the patient in the supine position (Figure 1). The medial point of the skin pad is marked at least 5 mm laterally inward from the head of the eyebrow, and the lateral point ends 5 to 10 mm laterally outward from the tail of the eyebrow. The upper margin of the skin pad is usually above the margin of the brow along its length. The skin pad includes a substantial amount of the lateral portion and some of the medial portion of the brow. Consequently, the skin pad at its vertical maximal width is at least 10 to 20 mm but slightly more in most patients. Unless the patient desires subtle changes, a width exceeding 10 mm is needed depending on the degree of redundancy in the eyelid and the forehead and based on the amount of eyebrow reduction acceptable to the patient. However, it is strongly recommended that at least a 25-mm vertical width of eyelid skin should be preserved all along its length. The skin pad is incised at an angle of 30° to the skin surface so that sufficient numbers of follicles are preserved in the dermis (Figure 2). The incision is then continued into the subcutaneous fat by changing the angle of the blade to 90° to the skin surface. Another incision is made in the lower margin of the skin pad at the same angle as that in the upper margin. The skin pad is excised from the layer above the orbicularis oculi. The subseptal fat, nasal fat, and retroorbicularis oculi fat are easily resected if necessary. Hemostasis is confirmed before wound closure. The orbicularis oculi is then tacked. The orbicularis oculi near the lower skin incision is pulled 45° upward and inward and sutured to the orbicularis oculi near the upper skin incision using two 5-0 polydioxanone sutures. The lower skin flap is rotated several millimeters medially, and the redundant skin on the medial side of the flap is used to reduce undesirable formation of the groove and fold running obliquely from the medial portion of the eyebrow to the medial canthus. This formation often occurs in patients undergoing wide skin excision or browpexy. Several stitches of dermal suture are made using 5-0 polydioxanone suture. The skin is closed using 6-0 or 7-0 black nylon so that the edges of both wound margins match precisely.

PATIENTS

Medical records were reviewed of 194 Asian patients (388 eyelids) with moderate to severe bilateral dermatochalasis who had undergone extended IBEB between January 1, 2007, and December 31, 2009. The series comprised 160 women and 34 men (mean age, 61.5 years; age range, 20-85 years). At its widest,
the mean width of the skin pad to be excised was 12.8 mm (range, 6-22 mm). Also performed were resection of the corrugator muscle in 144 eyelids and internal browpexy in 80 eyelids. The mean follow-up period ranged from 3 to 24 months. All surgical procedures were performed by one of us (A.I.).

RESULTS

Extended IBEB was effective in reducing eyelid redundancy among Asian patients with moderate to severe dermatochalasis, without major complications. Postoperative scarring was acceptable, as no patient required subsequent corrective surgery. Although some patients initially experienced slight redness, this became less conspicuous after 1 month for most patients and within 3 months for the remainder. Routine social activity was resumed approximately 1 week after surgery with the use of eyebrow makeup or glasses. Furthermore, regrowth of the eyebrow through the scar was observed in all patients with thick eyebrows, covering the incision location and disguising it a few weeks after surgery. Extended IBEB mini-
mized eyebrow reduction, with no unfavorable results even among male patients. Patients expressed a high degree of overall satisfaction and improved visual function, including enlargement of the visual field and ease in opening the eye. Transient numbness that developed in areas of the lateral and upper orbit in some patients improved gradually and was followed by sensations like tingling or itching. These sensations gradually disappeared approximately 1 month after surgery for most patients but took 3 months in 3 patients who had undergone extended IBEB with browpexy and resection of the corrugator muscle.

Exemplary cases in 2 Asian patients are shown in Figure 3 and Figure 4. Extended IBEB was performed in both.

COMMENT

Extended IBEB reduces redundancy of the eyelid in Asian patients with dermatochalasis, without a long recovery time. It preserves original features of the eyelid, espe-
cially the crease, resulting in a natural-looking and rejuvenated eyelid. Early resumption of social activity is assured after removal of the sutures; postoperative swelling of the eyelid is rarely long, and the scar is easily covered up with makeup. Regrowth of the eyebrow from follicles preserved around the scar disguises the incision location and alleviates eyebrow reduction. The patient experiences no associated social stigma, with barely detectable traces of facial rejuvenation surgery. Many patients demonstrate greater ease in opening the eye and enlargement of the upper visual field. Most patients express an overall high level of satisfaction.

A drawback to conventional IBEB in some patients is insufficient reduction in redundancy of the upper eyelid. Postoperative descent of the eyebrow may occur to a greater or lesser degree because of frontal muscle relaxation. In these patients, only subtle improvement of dermatochalasis may be demonstrated after conventional IBEB. Removal of an excessive amount of infrabrow skin is not a desirable option because it spoils upper eyelid and eyebrow proportions. After surgery, most patients change the position of the eyebrow by plucking its lower part and applying makeup. Without makeup, the surgical scar at the lower margin of the eyebrow is exposed and may become conspicuous. To counter this, the option presented herein is to extend the amount of skin to be excised to a substantial part of infrabrow skin and to avoid removal of an excessive amount of infrabrow skin. Other modalities to prevent unfavorable postoperative descent of the eyebrow are the use of internal browpexy6,7 and medial brow-lift. We rarely perform suprabrow skin excision brow-lift because the suprabrow scar becomes hypertrophic and conspicuous, especially in young or middle-aged patients (Figure 5), although it could be effective in those experiencing dermatochalasis and brow ptosis.

Scarring after extended IBEB becomes inconspicuous, without hypertrophic changes. However, precise incisions and fine suturing techniques are mandatory. Our series demonstrated that incision of infrabrow skin perpendicular to the hair shaft allows hair regrowth through the scar, similar to hairline incisions in facelift procedures. To our knowledge, the present study is the first documentation of this method. The technique disguises the scar at the lower margin of the eyebrow and alleviates eyebrow reduction. Careful maneuvering of the blade during incision of infrabrow skin is critical because follicles of the eyebrow are located more superficially than those of the hairline. Sutures at the edges of both wound margins must be precisely matched to render the scar inconspicuous soon after surgery. A thick eyebrow results in good regrowth of hair, but a thin eyebrow rarely does so. Nonetheless, even in patients with thin eyebrows, the technique avoids damage to hair follicles at the incision line.

In some patients who undergo extended IBEB, transient numbness develops in areas of the lateral upper orbit, followed by tingling or itching; this occurs in other patients after browpexy6,7 or resection of the corrugator muscle8 or retroorbicularis oculus fat. Abnormal sensations usually begin a few weeks after surgery but can occur as early as a few days following the procedure and gradually disappear within a few months. Careful preservation of supraorbital nerve and supratrochlear nerve branches reduces the development of these sensations. The surgeon should inform the patient that irritations are a good sign, indicating restoration of normal sensations.

Extended IBEB is a good option for middle-aged and older Asian women with moderate to severe dermatochalasis; however, it can also be used in male and young female Asians. This modality can meet the expectations of

Figure 4. A 71-year-old man who underwent extended infrabrow excision blepharoplasty. A, He reported difficulty in opening his eye and a narrow upper visual field owing to significant bilateral dermatochalasis. B, Extended infrabrow excision blepharoplasty was performed, in which the maximal width of the removed skin pad was 20 mm. C, Six months after the operation, eyelid redundancy was alleviated, and the patient was able to easily open the eye. The regrown eyebrow covered the scar and made it inconspicuous. Eyebrow reduction was acceptable.

Figure 5. Scar after suprabrow excision brow-lift. The scar becomes conspicuous in some patients after suprabrow excision brow-lift, as seen in this 71-year-old man 3 months after surgery.
patients with aesthetic concerns if the aim is simple reduction in eyelid redundancy. In fact, many patients request blepharoplasty to achieve natural rejuvenation without creation of a new double eyelid. Previously, the preferred procedure by our group was standard blepharoplasty, which created a new double eyelid, and we assumed that IBEB would be used in few patients because they would be unwilling to accept an infrabrow scar or eyebrow reduction. However, this proved to be unfounded, with the method benefiting many patients. Furthermore, extended IBEB decreases risk for failure in aesthetics and function. For most patients, we now recommend extended IBEB as a first choice, unless the patient rejects infrabrow scarring or eyebrow reduction.

In conclusion, extended IBEB extends the amount of skin to be excised to include a portion of intrabrow skin. This simple procedure provides significant reduction in eyelid redundancy among Asian patients with dermatochalasis, but some drawbacks need to be countered by well-designed precise incisions and fine suturing techniques or by adjunctive procedures when needed, such as internal browpexy or resection of the corrugator muscle. In our practice, it is performed in Asians but not in patients of white race/ethnicity because we lack experience. Nevertheless, we anticipate future application of this method to selected patients of white race/ethnicity, as the original description of IBEB was based on this patient population.

Accepted for Publication: March 15, 2011.

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Financial Disclosure: None reported.

Previous Presentations: This study was presented in part at the 51st Annual Meeting of the Japan Society of Plastic and Reconstructive Surgery; April 9-11, 2008; Nagoya, Japan; at the 10th Korea-Japan Congress of Plastic and Reconstructive Surgery; June 16-18, 2010; Busan, South Korea; and at the 16th Congress of the International Confederation for Plastic Reconstructive and Aesthetic Surgery; May 22-27, 2011; Vancouver, British Columbia, Canada.

Additional Contributions: Ryosuke Fujimori, MD, and colleagues publicized the effectiveness of conventional IBEB among Japanese patients with dermatochalasis.

REFERENCES


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