

Asian Upper Blepharoplasty in Women: A Comprehensive Approach for a Natural and Aesthetically Pleasing Outcome

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Abstract

Background: Asian upper blepharoplasty is the most popular cosmetic procedure for Asian women. However, there is no standardized approach to this procedure and suboptimal results are still common.

Objectives: The aim of this article was to describe a comprehensive approach to Asian upper blepharoplasty in women and report the clinical outcomes obtained with this approach.

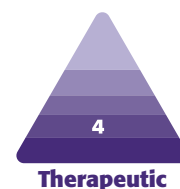
Methods: The comprehensive approach described here for Asian upper blepharoplasty in women includes: (1) determining the height and length of the upper eyelid skin crease; (2) creating a more optimal anatomy of the upper eyelid by removing excess eyelid skin, a portion of the orbicularis oculi muscle, and septal fat; (3) reconstructing the desired anatomic structures of the upper eyelid skin crease through plication of the levator aponeurosis, if necessary, and closure of the upper eyelid skin incision through the septum and the mobile portion of the levator aponeurosis; (4) adding a medial epicanthoplasty if needed to enhance final cosmetic results.

Results: Over a 5-year period, 332 Asian women underwent upper blepharoplasty for creation of double eyelids, or conversion from less visible to more ideal double eyelids, with the above comprehensive approach. There were no surgical complications postoperatively and 326 patients (98.2%) rated their outcome satisfactory over a 5-year follow-up. Only 6 patients (1.8%) required surgical revision for asymmetry or suboptimal shape of the upper eyelid.

Conclusions: The comprehensive approach to Asian upper blepharoplasty described here can be used for Asian women and produces a natural and aesthetically pleasing outcome and low revision rates.

Level of Evidence: 4

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Asian upper blepharoplasty is commonly referred as “double eyelid” surgery and is the most common cosmetic surgical procedure performed in East Asian countries, especially for women, because approximately half of all Asian women have a single fold to their upper eyelid.^{1,2} The primary goal of Asian upper blepharoplasty is to create a well-defined supratarsal skin crease so that the eye appears more open and more aesthetically pleasing. Most Asian women desire a “natural look” to their eyes that still respects their cultural identity rather than a more “Westernized” appearance.² For years, Asian upper blepharoplasty has been considered as

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a relatively simple procedure as long as the supratarsal skin crease for each upper eyelid is symmetrically created after surgery.^{3,4}

Because there are several differences in upper eyelid anatomy between Caucasians and Asians, a surgeon performing Asian upper blepharoplasty should also address several other anatomic features of the Asian upper eyelid, such as the epicanthal fold, ptosis or pseudoptosis, eyelash inversion, and excess fat of the upper eyelid in addition to minimizing scar formation after surgery.⁵⁻⁷

Suboptimal outcomes remain relatively common after Asian upper blepharoplasty. Patients often seek revision surgery from a second surgeon who may be from a different region or even country.^{8,9} At least one of the main reasons for suboptimal results after Asian upper blepharoplasty is the failure to address other anatomic structures of the upper Asian eyelid, thus resulting in unnatural and less aesthetically pleasing outcomes.^{6,7} This is especially true when a good result after Asian upper blepharoplasty is judged both statically and dynamically in terms of its look and beauty.

Several techniques for Asian upper blepharoplasty have been reported in the literature; some appear to be simple, whereas others appear to be complex with a steep learning curve.^{3,4,6,7,10,11} There is lack of a standardized technique in the current literature that is relatively easy to follow, yet comprehensive enough to address all relevant structures of Asian upper eyelids to achieve a natural and aesthetically pleasing result. Over the last decade, we have developed a comprehensive approach addressing all anatomic structures of the Asian upper eyelid for Asian upper blepharoplasty. With this approach, our patients can obtain a natural and aesthetically attractive appearance to the overall look of their eyes when their eyes are open but without a visible scar when their eyes are closed. Here, we introduce our comprehensive approach for Asian upper blepharoplasty in women. We describe in detail our preoperative design and step-by-step surgical technique for Asian upper blepharoplasty in women. In addition, we report our outcome based on 332 patients and also present several case demonstrations.

METHODS

Unique Anatomy of Asian Upper Eyelid

Asian upper eyelids, especially of the Mongolian type, exhibit significant differences in anatomy compared with those of Caucasians: absent supratarsal skin crease, low tarsal height, abundant preseptal fat, eyelash ptosis, and presence of a medial epicanthal fold. The preseptal fat may often prolapse into the pretarsal region and the insertion of the levator is usually beneath the upper tarsal

border or at the superior tarsal edge¹² (Figure 1A,B). The combined Asian eyelid anatomy can give the appearance of “droopy” eyelids, bloated eyes, invisible eyelid skin fold, or a single eyelid or even epicanthus. Although the primary goal of Asian upper blepharoplasty is to create a supratarsal skin crease, the other anatomic structures should also be addressed in order to obtain a natural and aesthetically pleasing result in both static and dynamic expressions after the procedure.^{13,14}

Indications and Contraindications

Because the ultimate goal for Asian upper blepharoplasty is to create a natural-looking double eyelid, the procedure itself can be indicated for all ages of Asian women. It can also be indicated for patients with less noticeable supratarsal folds or even a less desirable shape of the fold. There is no absolute contraindication for the procedure as long as patients have good motivation and realistic expectations for the procedure but do not present with any other underlying diseases such as hepatitis or HIV, bleeding tendency, or significant psychological problems. A history of hypertrophic scar or keloid formation may be a relative contraindication for the procedure.

Preoperative Design and Marking

Based on our understanding of the applied anatomy of the Asian upper eyelid, as well as our patients' desired aesthetic goal to maintain their cultural distinction, we have developed a comprehensive approach to Asian upper blepharoplasty. The standard measurement of a beautiful eye for Far East Asian women has been described and should be considered as a reference for every single patient (Figure 2). With use of small forceps or a special double eyelid instrument to mimic the effect of fan-shaped, crescent-shaped, or parallel double eyelid, the preferred shape of the new double eyelid is confirmed with the patient.

The height of the upper eyelid skin crease is marked from the edge of the eyelid with the patient in a supine position and the eye closed. In general, the optimal height for Asian women is 6 to 8 mm above the eyelid margin from the center of the upper eyelid. The new height of the upper eyelid skin crease can be adjusted according to the patient's desired result and the distance from the eyebrow to the eyelid margin. The length of the upper eyelid crease can be determined based on a 1:3 or 1:4 ratio between the height and length of the upper eyelid skin crease. Once the central height of the upper eyelid skin crease is determined, a skin pinch test is done to determine the amount of the upper eyelid skin that can be removed. In general, a maximal skin resection of 3 to 5 mm is needed to produce

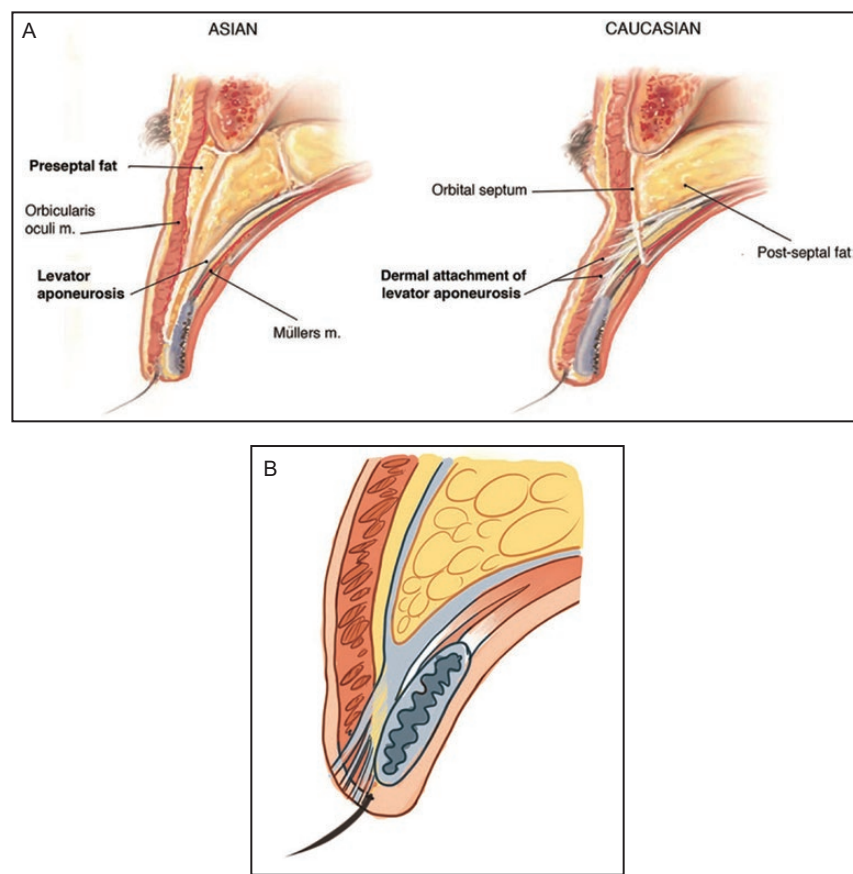


Figure 1. (A) A schematic diagram showing the differences of anatomic structures between Asian and Caucasian upper eyelids. (Part A was reproduced from Wang and Pu 2016,¹² by permission of Oxford University Press on behalf of The Aesthetic Society.) (B) A schematic diagram, in sagittal view, showing a typical Asian upper eyelid anatomy before surgery. The illustration in Part B was created by artist Dan Xu, who granted permission for publication in this article.

the effect of eyelash elevation but without causing eyelid ectropion. A skin incision marking can then be finalized (Figure 3A,B). If medial canthoplasty is indicated, the medial upper eyelid incision is extended to a Z-plasty or in V-to-Y fashion in the medial canthal area (Figure 4A,B).

Surgical Techniques

Creating More Optimal Anatomy of the Upper Eyelid

All upper blepharoplasty is performed under local anesthesia in an outpatient operating room. A total of 1 to 1.5 mL 0.5% lidocaine with 1:100,000 epinephrine is precisely infiltrated into the proposed skin incisions of each upper eyelid from skin to tarsus. It takes at least 7 minutes to achieve full anesthetic and vasoconstrictive effects.

The upper eyelid skin incision is made with a knife through the subcutaneous tissue down to the orbicularis oculi muscle. A strip of the excess upper eyelid skin (usually 3-5 mm) is excised. However, in older patients with more excess skin, a wide strip of upper eyelid skin (usually 5-7 mm) can be excised. With scissor dissection, the

underlying orbicularis oculi muscle is excised to explore the septum (Figure 5A,B). The lower part of the eyelid skin in front of the orbicularis oculi muscle and tarsus are dissected free. The thinning of this part of the eyelid is performed by removing a portion of the upper two-thirds of the orbicularis oculi muscle in front of the tarsus but preserving the full layer of the orbicularis oculi muscle in the lower third of the anterior tarsus (Figure 6A,B). This is followed by excision of the preseptal fat and an appropriate amount of the septal fat in the central compartment once the septum is opened (Figure 7). We agree with Weng's recommendation that the amount of fat to be excised is determined by the degree of eyelid fullness in each patient.¹ However, aggressive excision should be avoided. Based on preoperative evaluation, the fat in the medial compartment can also be excised but the amount of fat removal should be correlated with the amount from the central compartment. In this way, the "optimal anatomy" of the upper eyelid in Asians can be created by removing "excess" preseptal fat, septal fat, and orbicularis oculi muscle.

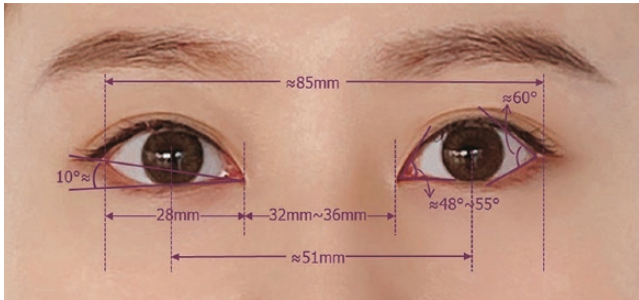


Figure 2. A schematic diagram of a 28-year-old patient showing ideal and standard measurements of periorbital aesthetics in Asian women.

Reconstructing Desirable Anatomic Structures of the Upper Eyelid Skin Crease

After the above tissue removal, the levator aponeurosis is then identified and its function is evaluated intraoperatively. If the upper eyelid margin needs to be raised, its proper position can be adjusted with plication of the levator aponeurosis above the upper edge of the tarsus with 7-0 nylon interrupted sutures. This procedure may be common for relatively older patients or patients with preexisting eyelid ptosis or pseudoptosis. The degree of levator aponeurosis suspension can be determined intraoperatively by the range of movement for the created upper eyelid skin crease and is set so that the upper eyelid margin rests at the superior limbus and covers 0.5 to 1.0 mm of the upper cornea. The eyelashes can also be everted after this maneuver. In this way, the desirable anatomic position of the tarsus in an upper eyelid can be created (Figure 8). The upper eyelid skin incision is then closed precisely through the septum and the mobile portion of the levator aponeurosis 3 to 5 mm above the upper edge of the tarsus with 7-0 nylon suture in an interrupted fashion once the proper shape of the incision closure and the proper degree of eyelash elevation are determined to be optimal (Figure 9A,B). The symmetry

and shape for each incision closure can be adjusted by removing more eyelid skin as needed. The resulting scar after incision closure can create a natural supratarsal skin crease or “double eyelid.”

Medial Epicanthoplasty as Needed

Because of the unique anatomy of the upper eyelid in Asians, medial epicanthoplasty is often needed to enhance the cosmetic result for Asian upper blepharoplasty. In our practice, about 50% of patients need a medial epicanthoplasty in conjunction with their upper blepharoplasty. The skin incision can be designed in either Z-plasty (Figure 4) or in Y-to-V fashion. The ectopic superficial orbicularis oculi muscle and the fibers of the superficial medial ligament fibers are transected to form double opposite triangular skin cross flaps or a Y-to-V advancement flap. Attention should be paid to ensuring that the skin closure after medial epicanthoplasty can match the skin closure after upper blepharoplasty incision (Figure 10).

Postoperative Care

The incision is covered with small vasoline gauze and a light pressure dressing. Immediately postoperatively, the patient is asked to elevate their head and to use an icepack on the incision site during the first night. Oral antibiotics are given for the first 3 days. The suture is usually removed about 1 week postoperatively. The average recovery time for our procedure is about 1 week and swelling in the upper eyelid usually lasts about 5 to 7 days. Each patient is followed for at least 1 year after surgery, and as needed after that.

RESULTS

Between July 2014 and June 2019, a total of 332 consecutive Chinese women (mean age, 32 years; range, 16-60 years) underwent upper blepharoplasty for creation

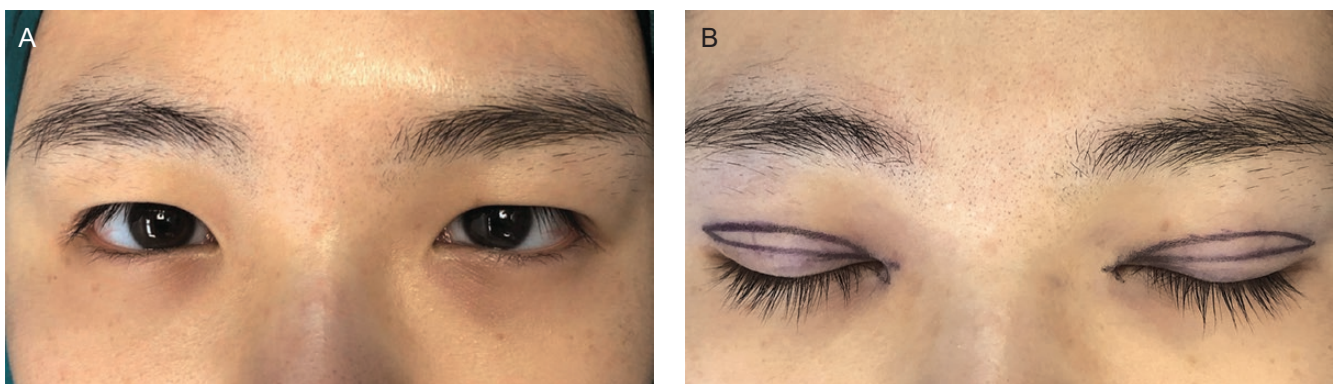


Figure 3. An intraoperative view showing (A) before and (B) after markings of each eyelid skin incision and its extended medial epicanthoplasty incision in a 28-year-old Asian woman.

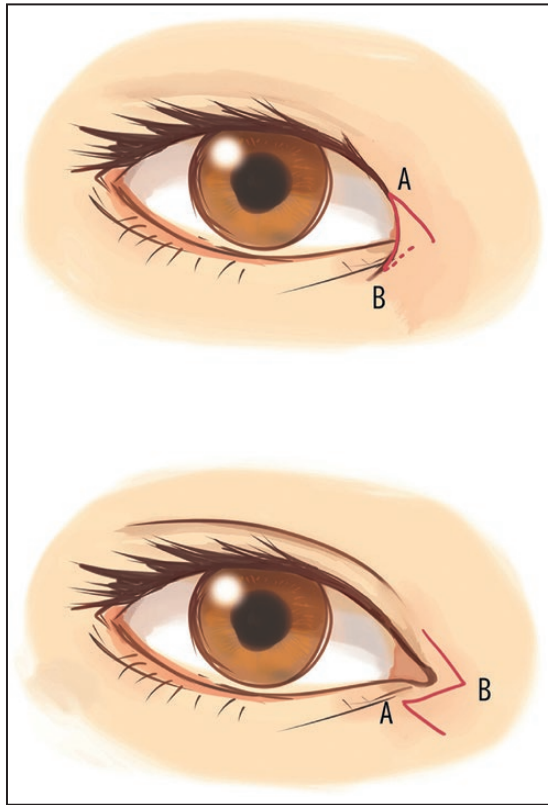


Figure 4. Schematic diagrams showing preoperative marking of a Z-plasty design for extended medial epicanthoplasty incisions. Illustration created by artist Dan Xu, who granted permission for publication in this article.

of double eyelid or conversion from less visible to more optimal double eyelid; all procedures were performed by the authors according to the aforementioned comprehensive approach. All operations were performed under local anesthesia as an outpatient procedure. The average operating time for bilateral upper blepharoplasty in our practice was 1.5 hours. The surgical outcomes, including patient satisfaction and postoperative complications, were retrospectively reviewed by clinical documentation and postoperative photographs for each patient. The study was approved by the IRB of the Dermatologic Institute, Southern Medical University, Guangzhou, China. Minimum follow-up time was 1 year, with an average of 2.5 years (range, 1-5 years) postoperatively. Photographs were taken at the follow-up visit. Each patient was asked whether she felt satisfactory about the aesthetic outcome after her upper blepharoplasty. Responses from each patient were documented in the chart.

No surgical complications that required reoperation were observed in this series during the follow-up period. Three hundred and twenty-six patients (98.2%) rated their result as satisfactory and were happy with the outcome after their procedure, both at the 1-year and up to the 5-year follow-up. Only 6 patients (1.8%) required surgical revision for minor asymmetry (4 patients, 1.2%) or suboptimal shape of the upper eyelid (2 patients, 0.6%). However, after minor revision surgery, these patients also rated their result as satisfactory and were happy with the final outcome after revision. No prolonged swelling in the upper eyelid was observed in

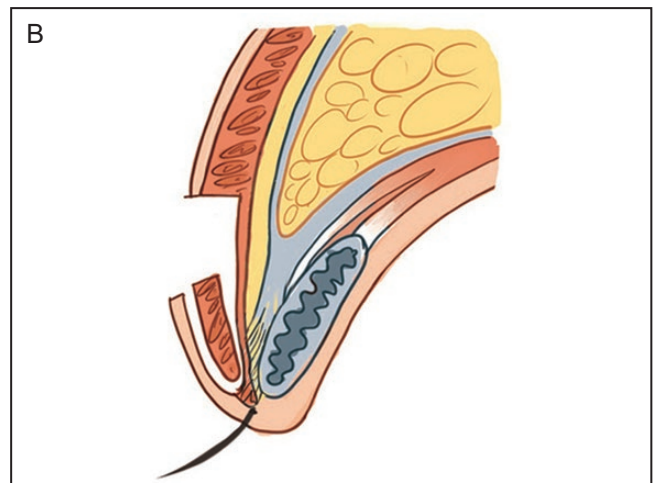


Figure 5. (A) An intraoperative view showing the extent of the eyelid skin excision and the initial orbicularis ocular muscle resection in the same patient shown in Figure 3A. (B) A schematic diagram, in sagittal view, showing the extent of the eyelid skin excision and the initial orbicularis ocular muscle resection. The illustration in Part B was created by artist Dan Xu, who granted permission for publication in this article.

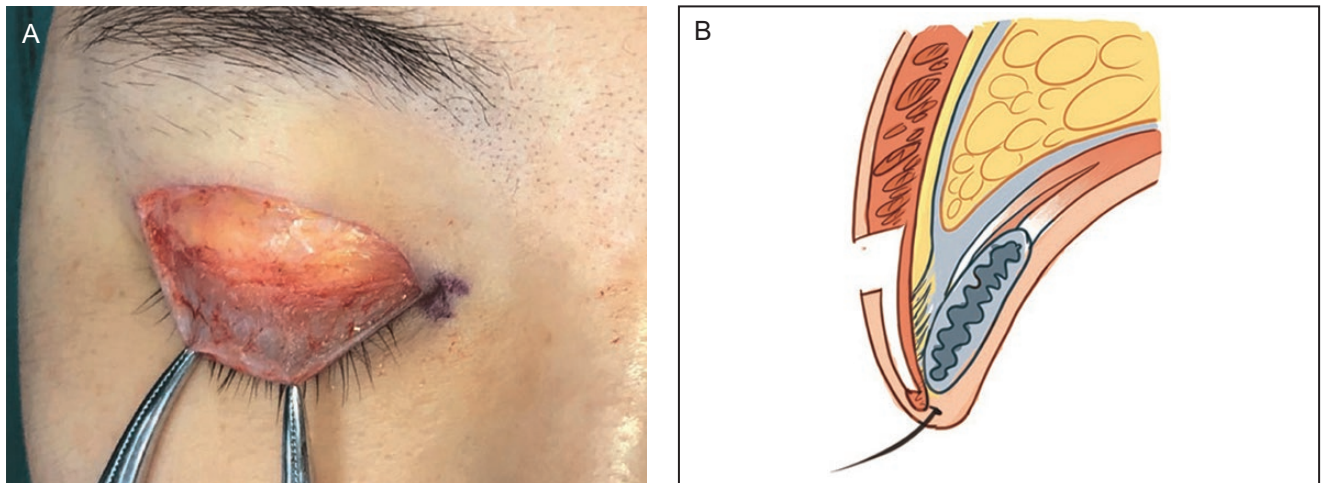


Figure 6. (A) An intraoperative view showing the excision of the orbicularis oculi muscle in front of the tarsal plate in the same patient shown in Figure 5A. (B) A schematic diagram, in sagittal view, showing the extent of the orbicularis oculi muscle resection in front of the tarsal plate. The illustration in Part B was created by artist Dan Xu, who granted permission for publication in this article.



Figure 7. An intraoperative view showing the extent of the septal fat resection in the same patient shown in Figure 5A.



Figure 8. An intraoperative view showing the completion of the levator aponeurosis plication in the same patient shown in Figure 5A.

this series and no patients ever believed that the final results would alter their cultural identity or create an unnatural appearance of their eyes during follow-up. Typical results from this case series are presented in Figures 11-13.

DISCUSSION

Asian upper blepharoplasty, often referred as a “double eyelid surgery,” creates a supratarsal skin crease in the upper eyelid. The aesthetic outcome after such a procedure is often dramatic and can change the look of one’s

periorbital region or even some features of the face. It is the most common cosmetic procedure for Asians, especially in young women.^{8,15} However, Asian upper blepharoplasty is not as simple an operation as it sounds.^{7,8} Less satisfactory results are still relatively common based on the reports from previous publications and our own observations.^{4,6,8,16} For example, the supratarsal skin crease may be unnaturally too high or too deep and the scar of the new supratarsal skin crease may be too prominent. More importantly, an unnatural look or less pleasing aesthetic results are also quite common.

Asian upper blepharoplasty is not just to create a double eyelid. Based on a good understanding of the differences

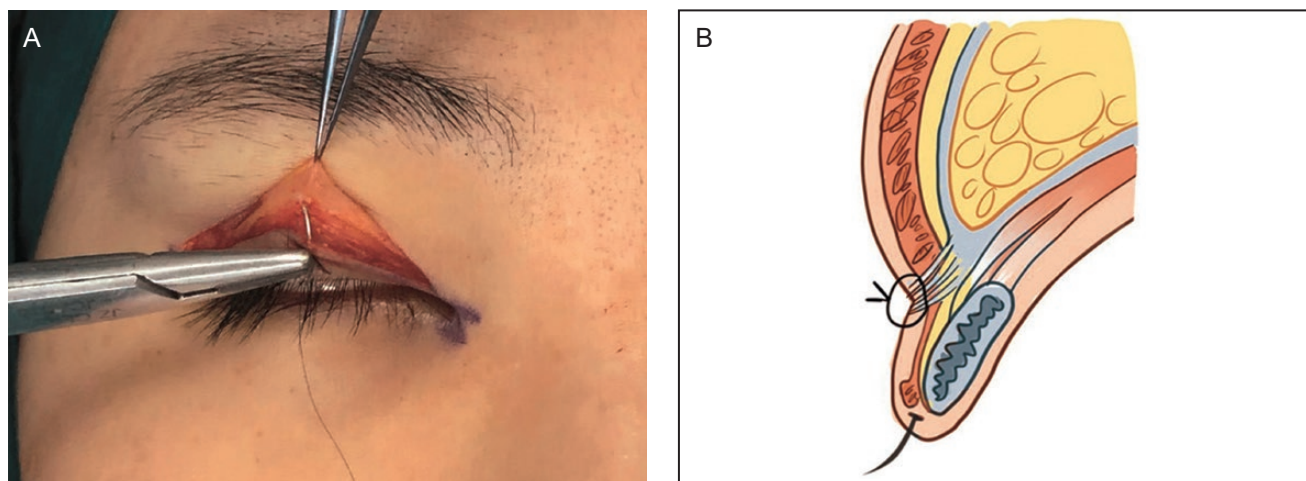


Figure 9. (A) An intraoperative view showing a “sandwich”-type skin closure through the septum and the mobile portion of the levator aponeurosis in the same patient shown in Figure 5A. (B) A schematic diagram, in sagittal view, showing a “sandwich”-type skin closure through the septum and the mobile portion of the levator aponeurosis. The illustration in Part B was created by artist Dan Xu, who granted permission for publication in this article.



Figure 10. An intraoperative view showing results immediately after upper blepharoplasty and medial epicanthoplasty in the same patient shown in Figure 5A.

for upper eyelid anatomy between Caucasians and Asians, there are several “other issues” in an Asian upper eyelid that also need to be addressed when planning an Asian upper blepharoplasty. In addition to creating a reliable dermal attachment to the levator aponeurosis through an open technique, excess skin, preseptal or septal fat, and orbicularis oculi muscle should be removed.^{9,10,13,16} In this way, the “optimal anatomy” of the upper eyelid in Asians can be created by removing all the above “excess” tissues. Thus, the newly created Asian upper eyelid is thinner, and appears less full after the procedure. Because many Asian upper eyelids have a “droopy” look, a typical feature of upper eyelid pseudoptosis,^{6,7} such a condition can be corrected by proper tightening of the levator aponeurosis via plication. This step ensures that the desirable anatomic position of the tarsus in an upper eyelid can be

created. The proper position of the tarsus often results in an overall more dynamic expression of the upper eyelid and dramatically changes the eye’s expression from a dull to an attractive look—one of the most important aesthetic features sought after by many Asian women. Furthermore, a medial epicanthal fold, if present, should also be corrected properly by a medial epicanthoplasty that can be incorporated within the medial upper blepharoplasty incision.¹⁴

Although several procedures for Asian upper blepharoplasty are described in the literature, there is lack of a comprehensive standardized approach that can result in a consistent and aesthetically pleasing result for the majority of patients.^{6,8,9,11,16} Some techniques appear to be less reliable, such as closed techniques, whereas others fail to address all anatomic areas of the Asian upper eyelid. For example, a straightforward open technique can create dermal attachment to the levator aponeurosis by scar formation but does not remove excess skin, orbicularis oculi muscle, and preseptal or septal fat. In addition, the simple open approach, commonly performed by others, may not correct pseudoptosis of the upper eyelid by repositioning the tarsus in the upper eyelid. It becomes obvious that a comprehensive approach is needed for Asian upper blepharoplasty that can clearly address all the anatomic parts of the Asian upper eyelid.

In our series of 332 Asian women of variable ages and indications, no surgical complications, such as delayed wound healing, hematoma, infection, incision separation, or prominent scar requiring reoperation, were observed during the follow-up. Final patient satisfaction was high (98.2%) after the initial procedure up to 5-year follow-up.

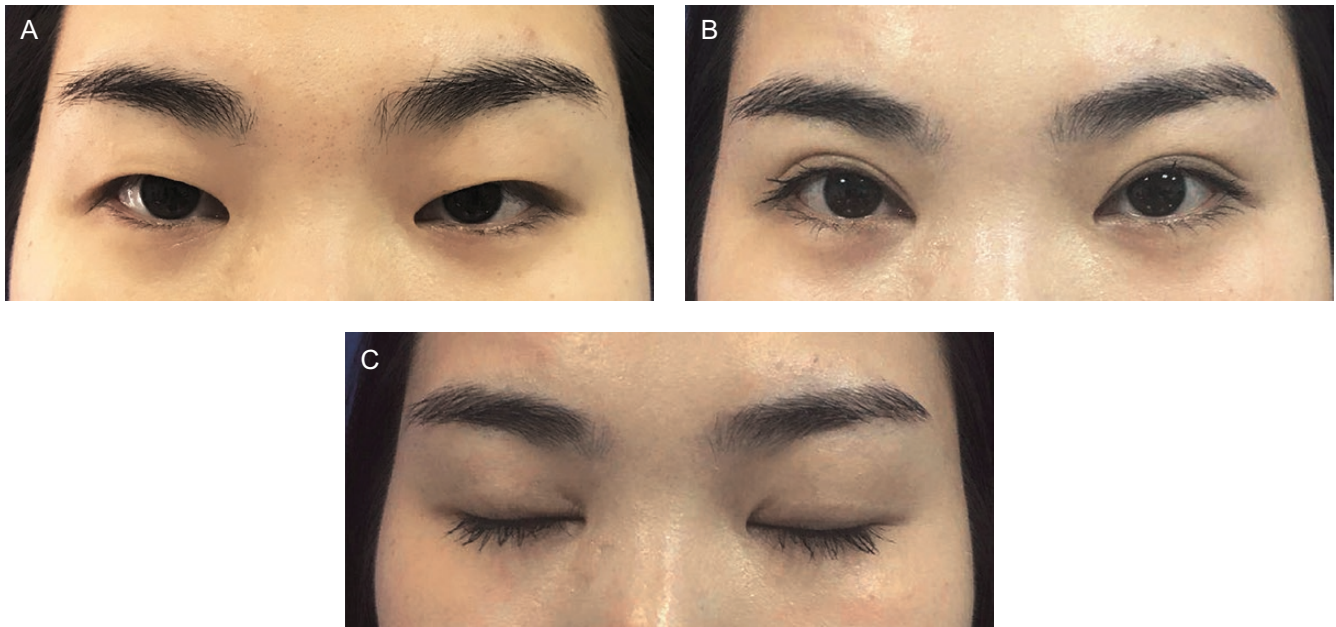


Figure 11. Preoperative (A) and 15-month postoperative (B) photographs of a 27-year-old Asian woman with no supratarsal fold who underwent upper blepharoplasty and medial epicanthoplasty for creation of “double eyelids.” The scar of her new supratarsal fold is almost invisible (C).

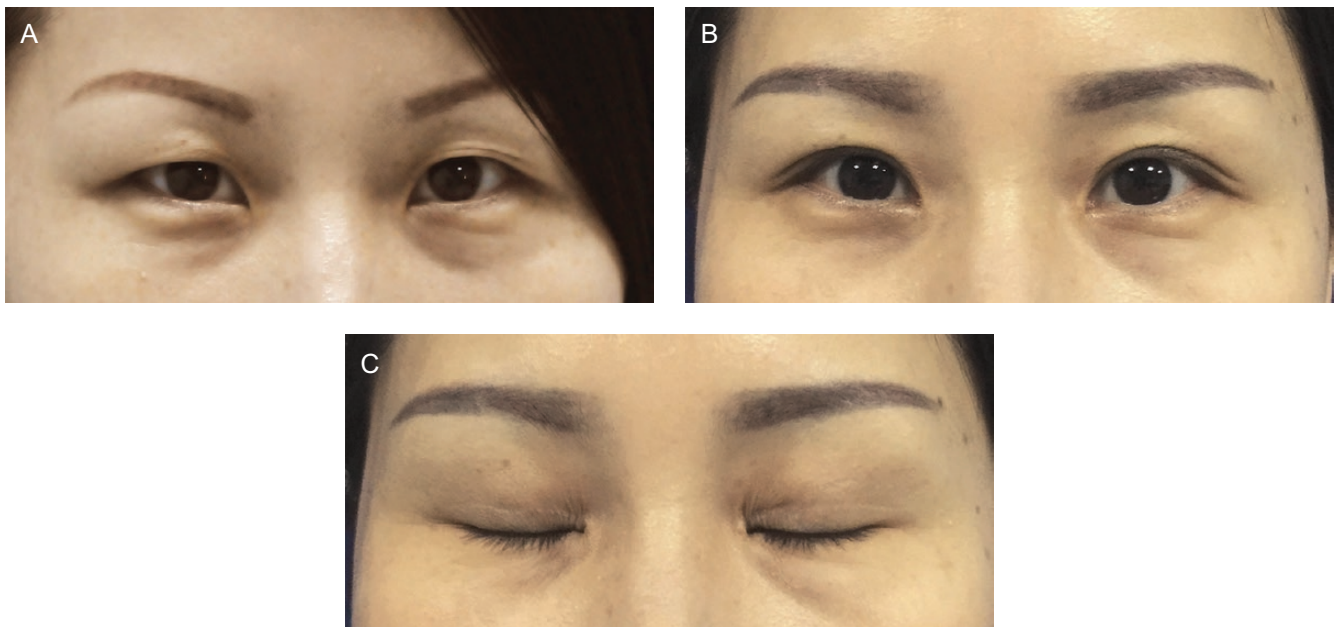


Figure 12. Preoperative (A) and 3-year postoperative (B) photographs of a 34-year-old Asian woman with no supratarsal fold who underwent Asian upper blepharoplasty and medial epicanthoplasty for creation of “double eyelids.” The scar of her new supratarsal fold is almost invisible (C).

Our revision rate was only 1.8%. The patients who desired revision surgery were for minor asymmetry or suboptimal shape of the upper eyelid. Because symmetry after upper blepharoplasty is so critical to patients, those revisions may not be entirely avoidable. Fortunately, all reoperations

were minor and only additional skin resection was performed for symmetric supratarsal height or shape of the upper eyelid, again under local anesthesia in an outpatient setting. After a minor revision procedure, those patients were also satisfied with their final outcome. In older

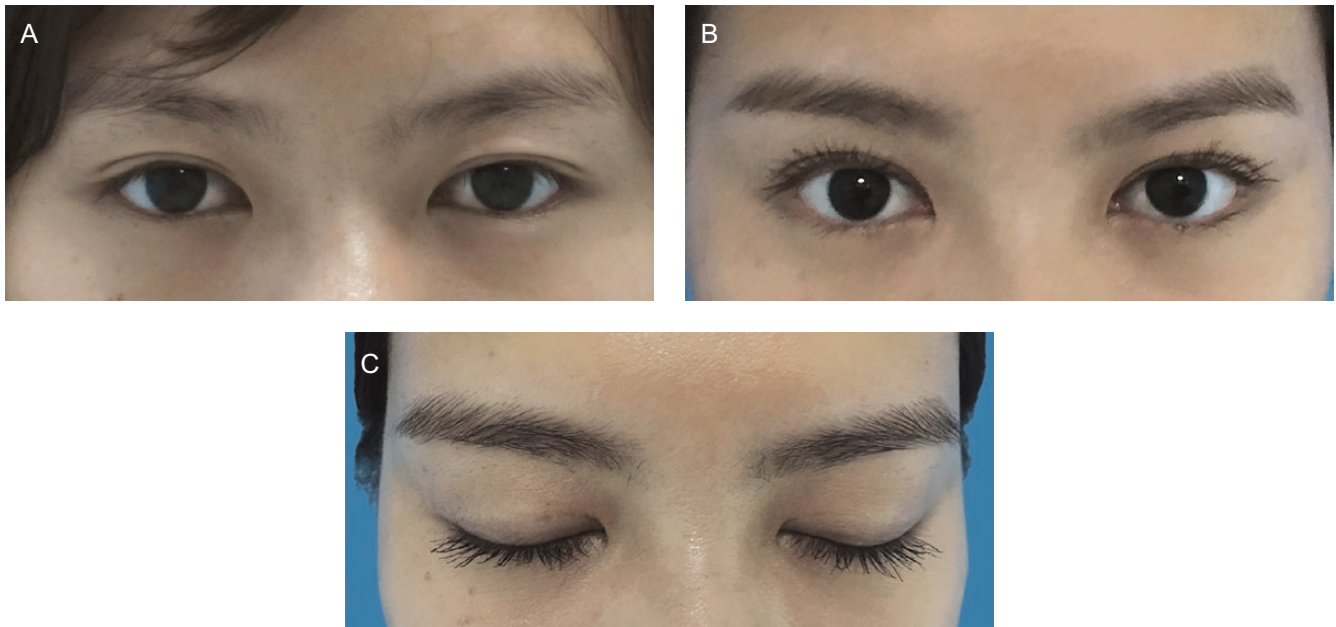


Figure 13. Preoperative (A) and 2-year postoperative (B) photographs of a 25-year-old Asian woman with previously less noticeable supratarsal fold who underwent upper blepharoplasty for creation of a more pleasing “double eyelid.” The scar of her new supratarsal fold is almost invisible (C).

patients, the amount of the skin resection may be more than in younger patients and levator plication is more frequently performed. In addition, a direct incisional brow lift may be added to enhance the final cosmetic outcome after their upper blepharoplasty. Prevention and management of complications after blepharoplasty are also described by others in recent publications.^{17,18}

We believe our comprehensive approach for Asian upper blepharoplasty may achieve a consistently higher satisfactory outcome with a very low revision rate. In our approach, each anatomic problem of the Asian upper eyelid is addressed through an open technique. In that way, a dermal attachment of levator aponeurosis can be securely established. The upper eyelid skin, orbicularis oculi muscle, and preseptal or septal fat are appropriately excised to form a more “optimal anatomy” for the Asian upper eyelid. Once the eyelid becomes thinner, the fullness of the upper eyelid can be corrected or minimized after surgery so that the cosmetic result can be enhanced. For each patient, any excess skin above the new upper eyelid skin crease can be removed as much as possible so that the eyelashes can also be raised or everted. This step may enhance the cosmetic result after Asian upper blepharoplasty and may also prevent future upper eyelid aging. Partial removal of the orbicularis oculi muscle in front of the tarsus may further thin the upper eyelid, avoid the formation of a “sausage eye,” and reduce restraints on eye opening so that the palpebral fissure becomes larger and eye opening can be accelerated. This is one of the key components of our procedure

that may improve the dynamic beauty of the eye after Asian upper blepharoplasty. Appropriate plication of the levator aponeurosis can correct pseudoptosis of the eyelid, increase corneal exposure, and enhance the overall attractiveness of the eyes. The upper eyelid skin incision is closed with an interrupted suture through the septum and the mobile part of the levator aponeurosis 3 to 5 mm above the upper edge of the tarsal plate. This can form a “sandwich”-type adhesion that makes the open eye more aesthetically pleasing and avoids a visible scar when the eyes are closed. In addition, when indicated, medial epicanthoplasty is incorporated within the upper blepharoplasty incision to correct medial epicanthal fold in order to enhance the overall cosmetic result. The limitations of our study include lack of objective measurement for anesthetic outcome after upper blepharoplasty.

CONCLUSIONS

A consistent and satisfactory outcome of Asian upper blepharoplasty can be achieved with our comprehensive approach. Our approach addresses each anatomic part of the Asian upper eyelid to create a more optimal anatomy with the proper position of the Asian upper eyelid. With incorporation of medial epicanthoplasty when needed, a more natural and aesthetically pleasing result can be achieved. Our approach may become a standard technique for Asian upper blepharoplasty in women, offering good to excellent outcomes combined with very low

revision rates. Future studies from multiple centers or surgeons may still be needed to confirm the efficacy and reproducibility of our comprehensive approach.

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