



Michael T. Yen

Introduction

Asian blepharoplasty is a term that has greater meaning than simply upper eyelid blepharoplasty in an Asian patient [1]. Historically in Western countries, the term has often referred to changing the appearance of the Asian eyelid to an Occidental eyelid [2]. This could often be achieved with the creation of a high eyelid crease and deep superior sulcus and elimination of the epicanthal fold. However, as aesthetic surgery has become more popular in Asian countries, the term now often refers to creating a “double-eyelid” appearance [1–4]. Furthermore, with the globalization of cultures and interracial relationships, traditional “Asian” eyelid features are becoming more prevalent in many regions of the world where the patients may not consider themselves to be of Asian heritage. Therefore, it is perhaps more appropriate to think of Asian blepharoplasty as surgery in an upper eyelid that has these traditionally “Asian” features characterized by an epicanthal fold, lower eyelid crease, and supratarsal fullness.

As with most surgical procedures, the key steps in successful Asian blepharoplasty occur before the first skin incision is made. The most important part of the preoperative assessment is to determine the aesthetic goals of the patient. An Occidental eyelid appearance can often result in patient dissatisfaction despite perfectly successful surgery. While this may be the desired appearance for some patients, many Asian patients do not desire the deep superior sulcus and high eyelid crease that is often associated with the Occidental eyelid. Yet when some Asian patients present for surgical evaluation, they express their desire for the “double-eyelid”

appearance to be synonymous with the Occidental eyelid. Discordant expectations between surgeon and patient can often be avoided with a thorough and thoughtful preoperative discussion with the patient that identifies their unique anatomical features and their desired postoperative appearance. This can be challenging if cultural or language barriers limit the preoperative discussion but must be accomplished if a successful outcome is to be achieved. The patient’s aesthetic goals will also dictate the surgical parameters such as the position of the eyelid crease, size of the supratarsal fold, degree of fullness in the superior sulcus, and the extent of the epicanthal fold. Additionally, differences in eyelid shape, height, contour, and anatomy require an individualistic, rather than “cookbook,” approach to surgery.

Anatomy of the Asian Eyelid

Comparisons of the characteristic Asian and Occidental upper eyelids underscore significant variations in anatomy [5]. In the Occidental eyelid, the levator aponeurosis and orbital septum intersect and insert on the superior aspect of the tarsus, some 8–10 mm above the lid margin. At a similar height, anterior projections of the levator attach to the overlying dermis creating a well-defined lid crease. In the Asian eyelid, the levator likewise inserts on the superior aspect of the tarsus. The septum, however, inserts more inferiorly along the anterior surface of the tarsus, and the anterior projections of the levator to the dermis occur closer to the eyelid margin or may be absent. Preaponeurotic orbital fat is allowed to descend further inferiorly creating a fuller eyelid appearance. In addition, there is more subcutaneous fat in the Asian eyelid, while in Caucasians and African-Americans, there is essentially no subcutaneous fat (Fig. 23.1). An additional feature of the Asian upper eyelid is a prominent epicanthal fold (Fig. 23.2). The epicanthus tarsalis gives the eyelid a unique and distinct appearance, and retention of the epicanthal fold is often necessary to

M. T. Yen (✉)
Cullen Eye Institute, Baylor College of Medicine,
Houston, TX, USA

Alkek Eye Center, Baylor College of Medicine,
Houston, TX, USA
e-mail: myen@bcm.edu

Fig. 23.1 Anatomical differences between the Asian (right side) and Occidental eyelid (left side). In the Asian eyelid, the orbital septum attaches to the anterior tarsal surface allowing preaponeurotic fat to extend more inferiorly and creating a fuller appearance. Additionally, there is more subcutaneous fat in the Asian eyelid. (Figure from Hartstein ME, Massry GG, Holds JB, eds. *Pearls and Pitfalls in Cosmetic Oculoplastic Surgery*, Fig. 40.5, page 137, Springer)

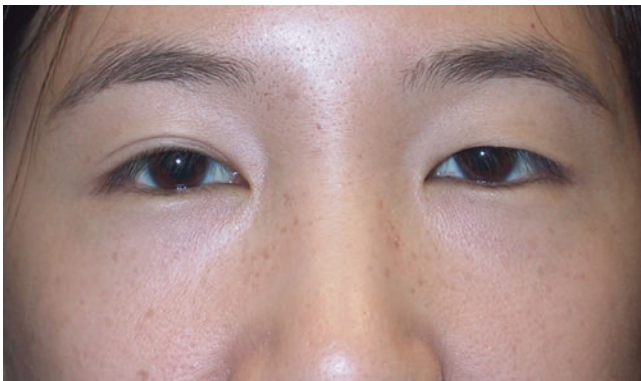
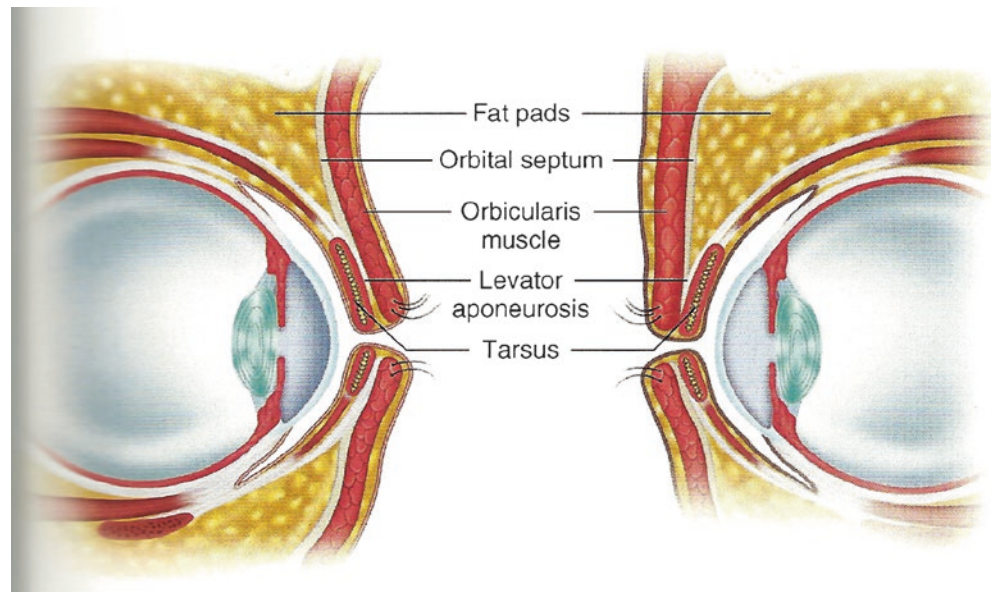


Fig. 23.2 The epicanthal fold gives the Asian eyelid its unique and distinctive appearance. In this patient with congenital asymmetry of the eyelid crease, both the double eyelid (right upper eyelid) and single eyelid (left upper eyelid) still retain an Asian appearance due to the epicanthal fold

retain an Asian eyelid appearance. The epicanthal fold can override the medial canthus and caruncle and give the impression of a widened nasal bridge, although true telecanthus is not present.

Even among Asian patients, there are different configurations to the eyelid anatomy. Type I Asian eyelids are characterized by an eyelid crease with a pretarsal platform that gives a double-eyelid appearance. Type II eyelids are characterized by an eyelid crease, but the pretarsal platform is covered by the supratarsal fold that extends to the eyelid margin. This results in a single-eyelid appearance in primary gaze. Type III eyelids are characterized by a very low or no eyelid crease and a single-eyelid appearance. Recognizing the correct anatomical configuration is necessary before determining the appropriate surgical technique for eyelid surgery (Fig. 23.3).

Surgical Technique

The technical steps of surgery in the Asian eyelid are no different than in the Occidental eyelid. However, in Asian blepharoplasty, particular attention should be given to the placement of the eyelid crease incision, the amount of skin excision and fat contouring, and determining the need for epicanthoplasty. These factors are determined mostly by the patient's aesthetic goals and expectations, though underlying anatomical factors may also dictate the specific surgical approach or technique utilized (Table 23.1).

Creating the Eyelid Crease

The first decision in Asian blepharoplasty is to determine if an eyelid crease can be created by the suture technique versus an open incisional technique. Often, when the only goal is to create or modestly elevate the eyelid crease and no skin excision is required, using the suture technique is adequate. This non-incisional technique was originally described in 1896 by Mikamo where three full-thickness silk sutures were placed through the upper eyelid and removed after 4–6 days [6]. The success of this procedure is dependent on adhesions developing to firmly fixate the skin at the lid crease line down to the underlying tarsus or levator. The development of these adhesions can be enhanced with the use of absorbable sutures, such as 6-0 chromic gut suture, as they stimulate a more significant inflammatory response compared to permanent sutures. Additionally, passing the suture for the full width of the eyelid crease, either as separate interrupted sutures or with a running horizontal mattress, allows greater control of the resulting eyelid crease contour.

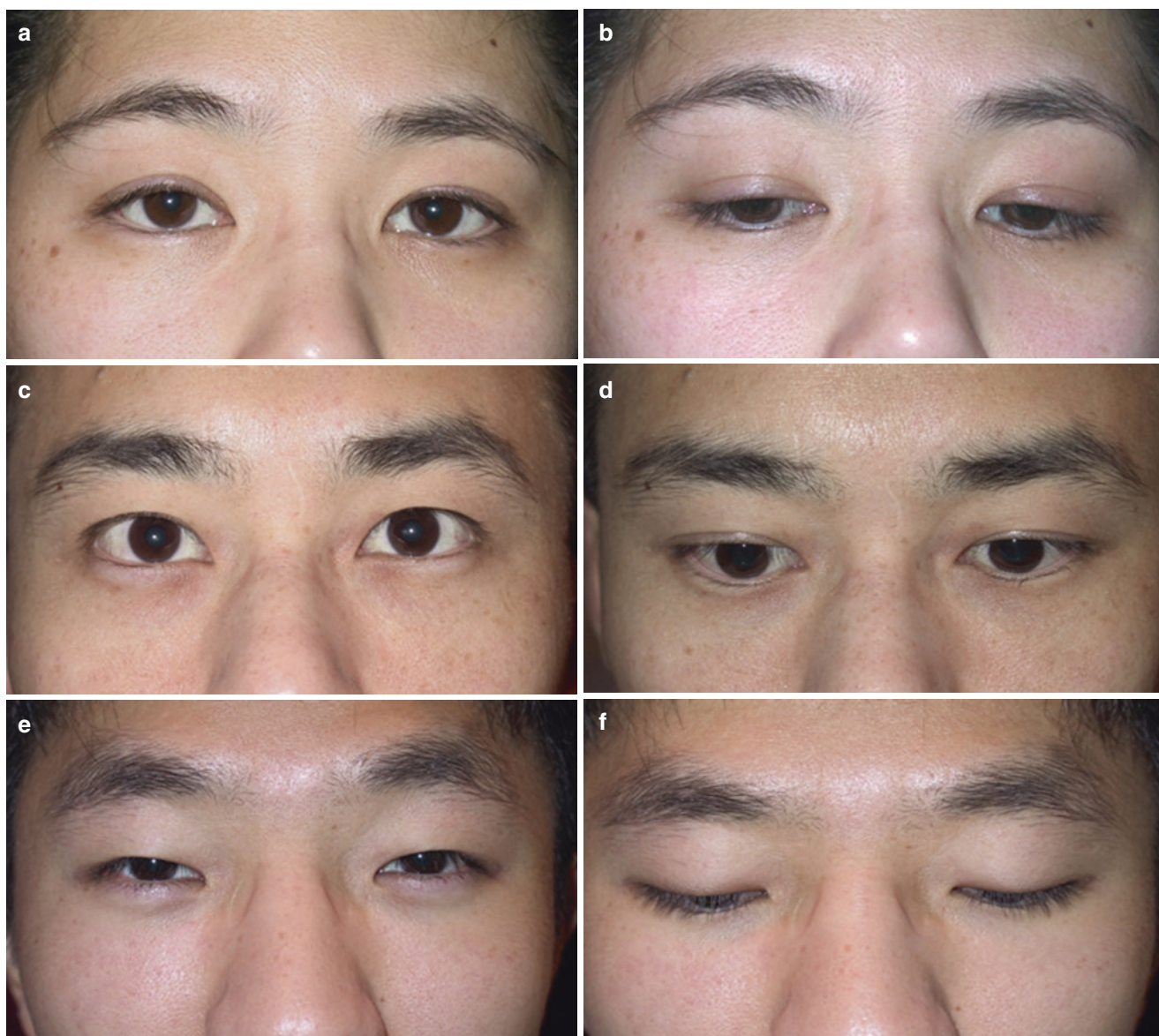


Fig. 23.3 Three anatomical configurations of the Asian eyelid. (a) Type I: The Asian double eyelid with the pretarsal eyelid distinctly visible. (b) In downgaze, the eyelid crease is visible in the Asian double eyelid. (c) Type II: The Asian single eyelid with crease. Note that the supratarsal fold extends down to the eyelid margin. (d) In downgaze, the eyelid crease is visible in the Asian single eyelid with crease. (e) Type III: The Asian single eyelid without crease. Note that there is no supratarsal fold as the eyelid crease is nonexistent or very low toward the eyelid margin. (f) In downgaze, no eyelid crease is identifiable in the Asian single eyelid without crease

Table 23.1 Suggestions for Asian blepharoplasty based on eyelid anatomy

Eyelid anatomy	Typical surgical goals	Surgical technique	Lid crease position	Skin excision	Fat excision	Epicanthal fold
Type I	Make double eyelid more visible, raise lid crease, or reduce size of supratarsal fold	Suture or incisional technique	Use existing crease or position slightly higher	Small skin excision	Minimal fat excision	Epicanthoplasty may be required depending on how high the lid crease is positioned and how much skin is excised
Type II	Make double eyelid visible and reduce size of supratarsal fold	Incisional technique usually required	Use existing crease or position slightly higher	Moderate skin excision	Minimal fat excision	Epicanthoplasty usually required to soften or eliminate epicanthal fold
Type III	Create an eyelid crease and double eyelid	Suture or incisional technique with longer-lasting sutures	Low, approximately 3–5 mm above lid margin	Usually no skin excision or minimal skin excision	No fat excision	Epicanthoplasty usually not required unless lid crease incision placed higher

The advantage of the non-incisional technique is a short operative time, minimal bruising, faster postoperative recovery, and minimal scarring. This procedure is most appropriate for younger patients where age-related dermatochalasis is minimal and skin excision is not required. The suture technique is not appropriate, however, when fatty contouring or skin excision is required or when significant elevation of the eyelid crease or a high placement of the eyelid crease is desired as this could potentially result in excessive accentuation of the epicanthal fold [4].

When an open incisional approach is to be performed, a critical step in blepharoplasty surgery occurs before anesthetic injection or skin incisions are made, this being the marking of the eyelid. Typically, in type I or type II Asian eyelids, the natural eyelid crease is marked representing the inferior incision location. Even if a truly Occidental eyelid appearance with a high lid crease and deep superior sulcus is desired, an incision located within the natural crease minimizes the likelihood of developing multiple eyelid creases or skin folds after blepharoplasty. However, there are exceptions to this when the surgeon and patient may wish to create an alternate lid crease position such as when the creases are asymmetric between the two eyelids. In type III Asian eyelids, where the lid crease is very low or nonexistent, a new location for the eyelid crease must be determined. Usually a low position for the incision, approximately 3–4 mm above the eyelid margin, will achieve a desirable “double-eyelid” appearance without excessive accentuation of the epicanthal fold (Fig. 23.4). As a general rule, it is easier to raise rather than lower a lid crease; therefore caution must be taken in placement of the incision as an excessively high eyelid crease will often look unnatural in an Asian patient.

Upper Eyelid Skin Excision

Once the eyelid crease incision marking is made, the surgeon must determine the amount of eyelid skin to remove and make the superior marking. Due to the typically lower eyelid crease position in the Asian eyelid, more skin needs to be retained on the eyelid to allow for adequate eyelid closure, and therefore less supratarsal skin should be excised compared to blepharoplasty in an Occidental eyelid (Fig. 23.5). With an eyelid crease close to the lid margin, even a small amount of redundant skin can creep over the lid margin or obscure the eyelash base and give the appearance of untreated dermatochalasis. Aggressively removing excess skin in this situation has the potential to produce significant lagophthalmos. The amount of skin excised is ultimately determined by the underlying eyelid configuration and the desired postoperative appearance. For example, no skin excision or minimal skin excision is typically necessary when a “double-eyelid” appearance is desired in a type III eyelid.

Fat Excision and Contouring

Due to the lower descent of preaponeurotic fat, the Asian eyelid is typically characterized by fullness in the superior sulcus. Excessive fat excision during blepharoplasty can result in notable deepening of the superior sulcus, a smaller supratarsal fold, and loss of the “double-eyelid” appearance. In most cases of Asian blepharoplasty, only minimal fat contouring is advisable to allow visualization and access to the underlying levator aponeurosis. In older patients, age-related fat prolapse may necessitate additional fat excision and contouring. However, caution is advised to avoid removing too much fat which may

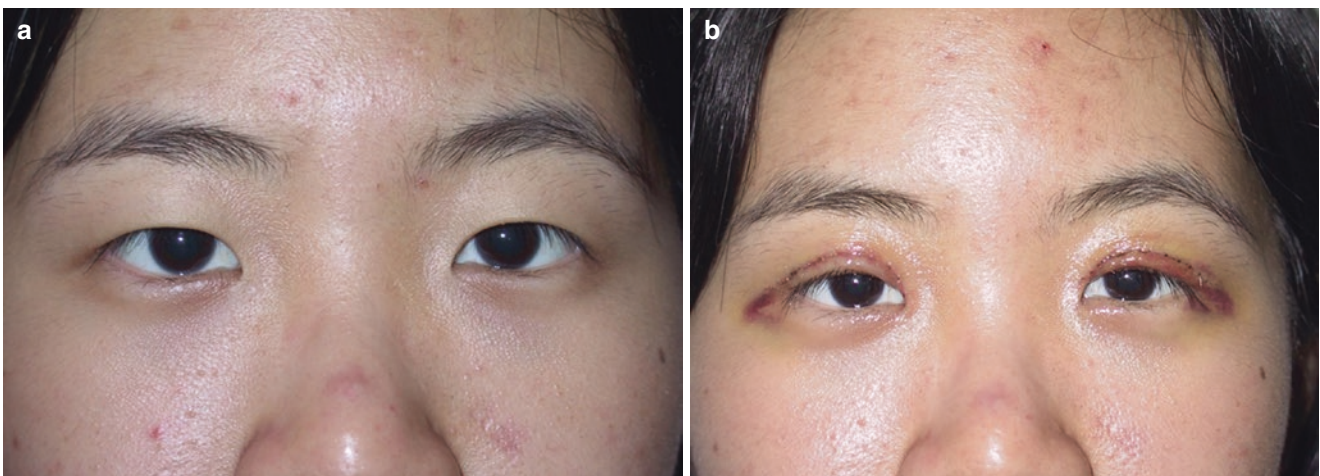


Fig. 23.4 (a) Type III Asian eyelid with no lid crease before blepharoplasty. (b) After incisional blepharoplasty now with double-eyelid appearance. The low eyelid crease incision was created at 3 mm, and no epicanthoplasty was needed

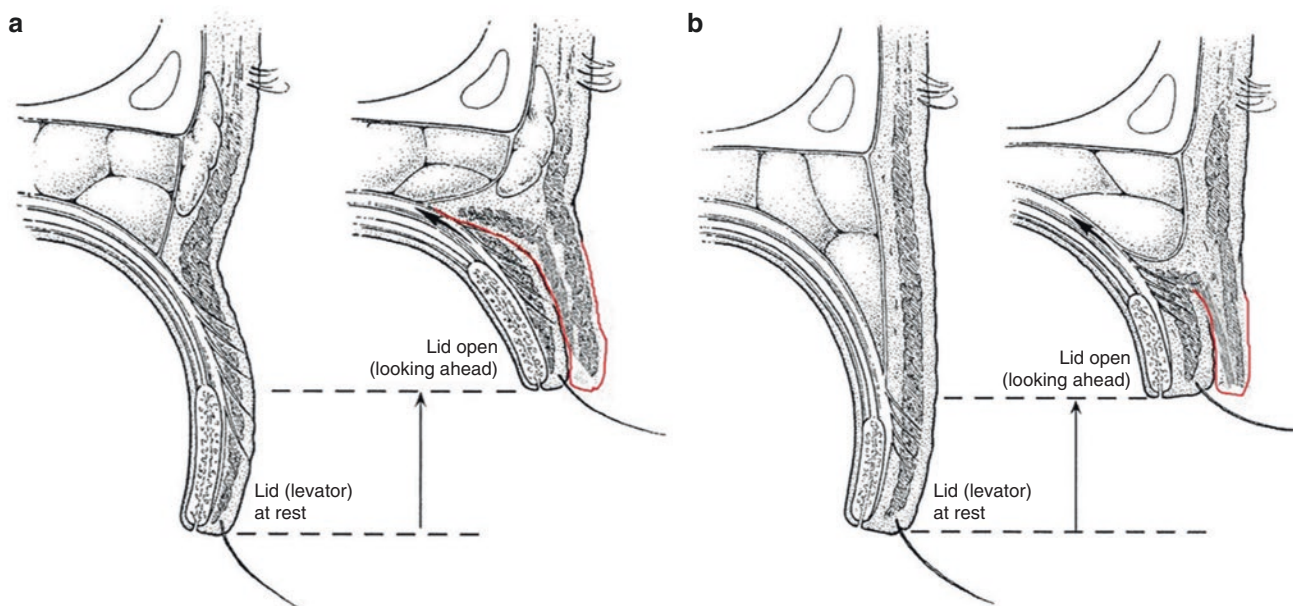


Fig. 23.5 Schematics demonstrating the amount of excisable skin (outlined in red) above the eyelid crease incision when the supratarsal fold extends to the eyelid margin in (a) an Occidental eyelid and (b) an

Asian eyelid. Note that despite a similar size of the supratarsal fold, due to the lower eyelid crease position in the Asian eyelid, there is less excisable skin



Fig. 23.6 High eyelid crease and deep superior sulcus after Asian blepharoplasty with excessive fat excision

result in excessive deepening of the superior sulcus and loss of the Asian eyelid characteristics (Fig. 23.6). If an aesthetically unacceptable amount of residual fat remains after blepharoplasty, this can be easily contoured and excised in a separate procedure; however, if excessive fat is removed during the primary blepharoplasty procedure, postoperative volume augmentation can be challenging and unpredictable.

The Epicanthal Fold

The final feature of the Asian eyelid that requires attention during blepharoplasty surgery is the epicanthal fold.

Depending on the underlying eyelid anatomy, the placement of the eyelid crease, and the amount of skin excision, epicanthoplasty may or may not be necessary. Since most Asian patients still desire some Asian eyelid features after blepharoplasty, complete elimination of the epicanthal fold is usually not necessary. However, blepharoplasty can often accentuate the epicanthal fold, and softening the fold may be necessary to achieve a more natural postoperative appearance.

Epicanthoplasty can be performed by a number of ways. Common procedures include various modifications of Z-plasty and Y-V advancement procedures [7–9]. In these approaches, flaps are elevated and transposed to bring additional length to the medial canthal region and allow the epicanthal fold to be flattened. These transposition-style procedures are very effective and powerful and should be considered when complete elimination or significant softening of the epicanthal fold is desired (Fig. 23.7). A disadvantage of all of these transposition procedures, however, is that they require multiple incisions in the medial canthus skin that sometimes may result in noticeable scarring. An alternative approach is the subcutaneous epicanthoplasty which allows softening of the epicanthal fold with minimal risk of medial canthal scarring [10, 11]. The tissue beneath the epicanthal folds is undermined, and the excess fibro-fatty tissue is debulked (Fig. 23.8). A dissolvable suture is then used to fixate the fold deep into the medial canthal tissues, flattening and softening the epicanthal fold. This is an effective technique that does not require the complexity of transposition flaps required with other techniques of epicanthoplasty, but

the subcutaneous approach is not as powerful of a procedure and may not be adequate for very prominent epicanthal folds or when complete elimination of the fold is desired.

Closing the Eyelid Crease Incision

To create a well-defined eyelid crease, the most important step occurs in the closure of the incision. The normal eyelid crease is formed from anterior projections from the levator as it approaches the superior tarsal edge. Similarly, when surgically altering the lid crease position, the levator must be

involved in the closure. To create a deep and defined eyelid crease, the suture closure of the incision should be passed through the inferior skin edge and imbricate the levator before exiting through the superior skin edge. Thus the wound will be tacked down to and move with the levator, allowing for secure adhesions to form and creating a long-lasting well-defined eyelid crease.

Proper placement of this levator fixation is crucial, as securing the skin to the levator too superiorly or inferiorly can interfere with levator function producing eyelid ptosis or retraction. Furthermore, the location where the skin is secured to the levator will also determine the contour of the eyelid crease, and uneven fixation may result in an unnatural lid crease appearance. Intraoperative assessment by having the patient look up and down intermittently during closure will ensure proper placement of the sutures and illustrate the new lid crease.

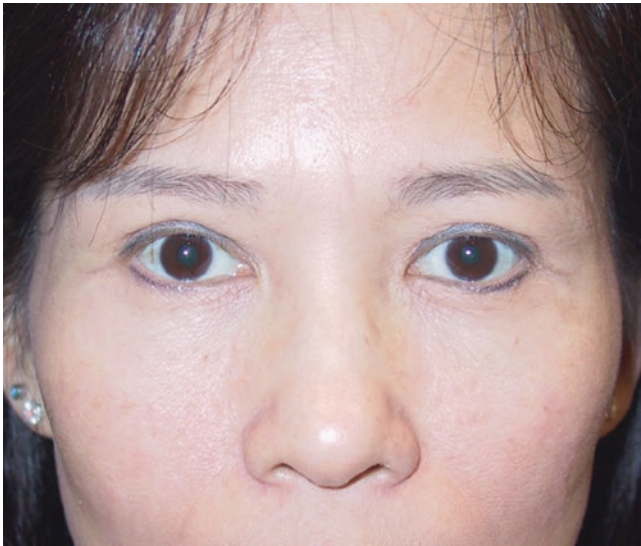


Fig. 23.7 Complete elimination of the epicanthal fold after Asian blepharoplasty with a modified Z-epicanthoplasty

Summary

In summary, Asian blepharoplasty has become a popular aesthetic procedure worldwide. Particular attention should be given to the placement of the eyelid crease incision, the amount of skin excision and fat contouring, and determining the need for epicanthoplasty. These factors are determined mostly by the patient's aesthetic goals and expectations, though underlying anatomical factors may also dictate the specific surgical approach or technique utilized. The most critical component of the procedure, however, is the preoperative communication between patient and surgeon to determine the desired goals and expectations of eyelid surgery.

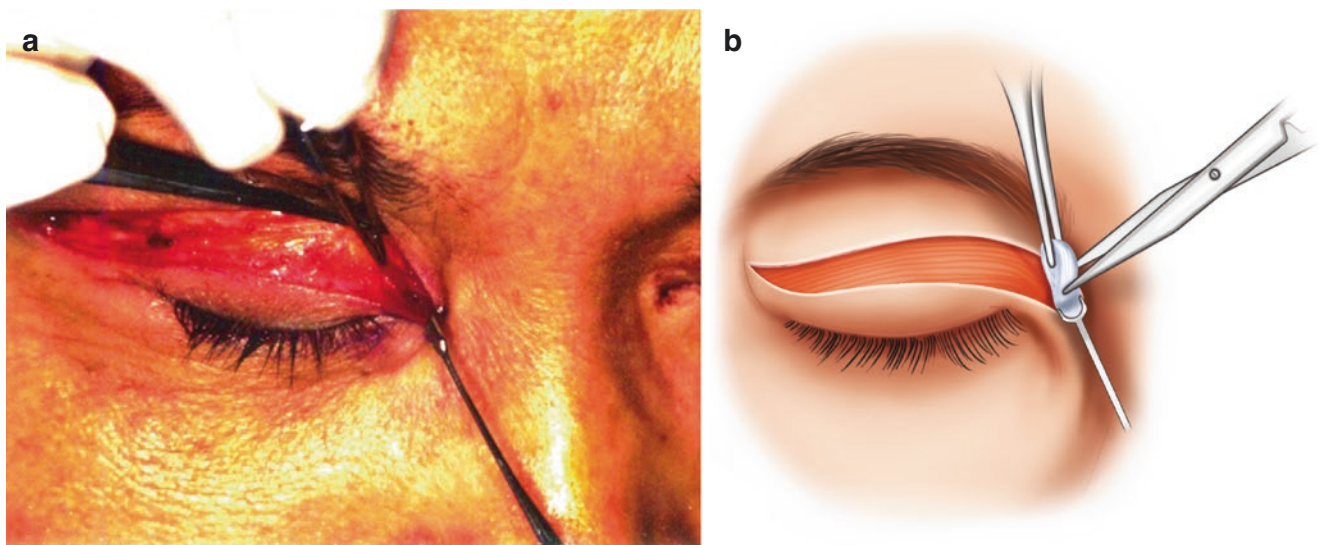


Fig. 23.8 Subcutaneous epicanthoplasty. (a) Through the medial portion of the eyelid crease incision, the subcutaneous tissues are dissected away from the overlying skin and excised. (b) Line art of the subcutaneous epicanthoplasty

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