



A Simple and Durable Way to Create a Supratarsal Fold (Double Eyelid) in Asian Patients

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Background: Although non-incisional surgery to create a supratarsal fold (double eyelid) is preferred by Japanese patients, current procedures are either technically complex or do not produce lasting results.

Objective: We describe a new, non-incisional technique that makes use of double-armed sutures and twists to create double eyelids in Asian patients.

Methods: After everting the upper eyelid, a double-armed suture needle is passed from the conjunctival surface through the tarsal plate and then to the skin surface. The other end of the suture is advanced about 3 to 5 mm and also brought out through the tarsal plate. A second suture is used to create another U-stitch adjacent to the first suture. The upper eyelid is returned to its original position, and the sutures from the central hole are twisted around each other 4 or 5 times. They are then passed under the skin, one medially and one laterally, and the lateral and medial sutures are tied.

Results: The authors have performed 1108 procedures during the past 10 years with no loss of double-eyelid line in a mean follow-up time of 32 months.

Conclusions: The double suture and twist technique for creating double eyelids in Asian patients is simple, reproducible, durable, and safe. (*Aesthetic Surg J* 2001;21:227-232.)

Double-eyelid surgery is one of the most commonly performed operations in Japan. Japanese patients generally prefer non-incisional to incisional methods of creating double eyelids because of largely unfounded concerns about lateral scarring. However, current non-incisional techniques for creating double eyelids either require considerable technical expertise or do not produce long-lasting eyelid creases.

In this article, we describe a simple, durable, and virtually scarfree non-incisional procedure that uses double sutures and twists (DST) to create double eyelids in Asian patients.

Materials and Methods

Our method uses only 2 sutures on each upper eyelid but produces very durable double-eyelid crease lines. The durability is explained by the 3 areas of ties and the central

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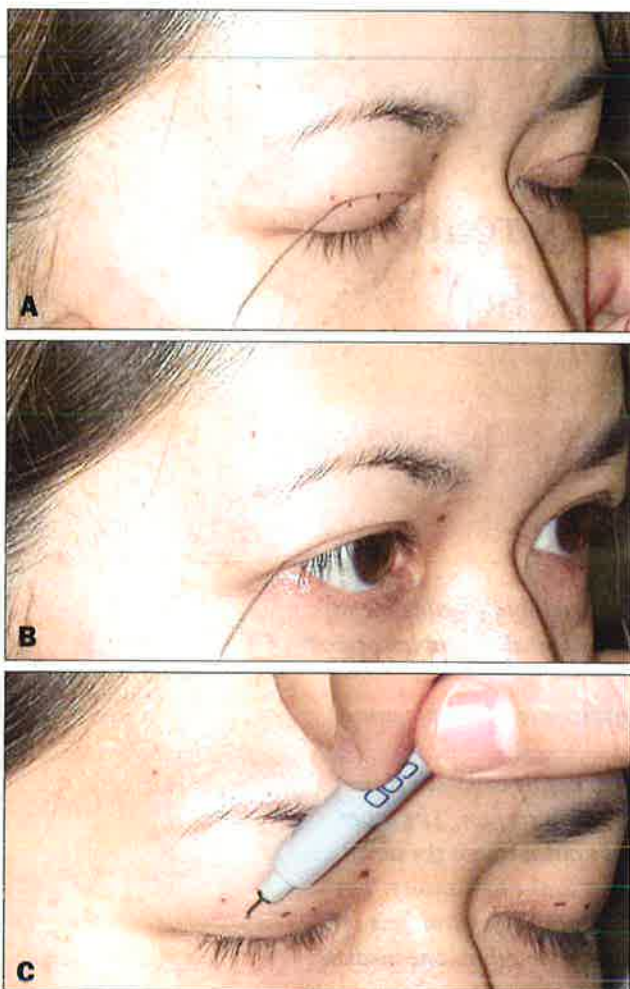


Figure 1. A, B, With the use of 28-gauge dental wire, the proposed double-eyelid lines are simulated and (C) marked with 3 black dots.

twists, which probably create inflammatory reactions with considerable subsequent scarring. This results in far stronger, longer-lasting effects than those produced with the 1-suture method or “quick double-eyelid surgery” commonly used in Japan.

We use a double-armed Prolene suture (Kyowa Dokei, Ltd, Japan) with 1 large (19-mm) tapered needle at each end for each upper eyelid. The large 3/8-circumference curved needle can be brought out from the conjunctival surface through the tarsal plate then to the upper-lid skin surface in 1 stab, which significantly reduces the risk of corneal injury.

The large needles also allow creation of the double eyelid in a relatively short time. Experienced surgeons can perform bilateral DST in 20 to 30 minutes. One of the authors (K.K.) also used U.S.-manufactured 7-0 Prolene



Figure 2. Local anesthesia is injected into the upper eyelids and administered to the conjunctiva.

sutures (single-armed); the procedure can be performed with these sutures but requires more steps.

Surgical Procedure

Design

The proposed supratarsal fold was simulated by using 4-0 lacrimal probes or 24-gauge dental wire and 3 dots approximately 10 to 13 mm apart marked on the line on the upper eyelid surface, about 5 to 8 mm from the lash line (Figure 1). To minimize pain and postoperative swelling from injection of local anesthetics, the upper eyelids were cooled with ice packs for a few minutes, up to the point of slight discomfort. The operative field was prepared and draped in a sterile manner. Local anesthesia was injected into the upper eyelids and was also administered to the conjunctiva (Figure 2).

Three stab wounds, each approximately 5 to 8 mm long, were made with a #11-blade knife. The upper eyelid was everted, and one of the double-armed suture needles was passed from the conjunctival surface through the tarsal plate, at around its mid height, to the eyelid skin surface in one motion through the central stab incision (Figure 3). The other end of the suture was advanced subconjunctivally about 3 to 5 mm, then again brought out of the skin through the tarsal plate and out of the medial stab incision (Figure 4). With the second suture, another U-stitch was made through the tarsal plate adjacent to the first suture (Figure 5). The sutures were passed through the central and lateral stab incisions. The upper eyelid was returned to its normal position, and the 2 sutures from the central incision were twisted around each other 4 or 5 times (Figure 6). The surgeon must maintain the

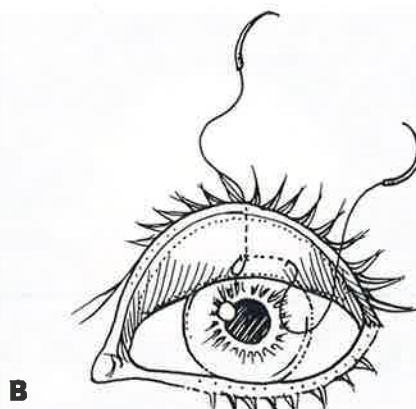
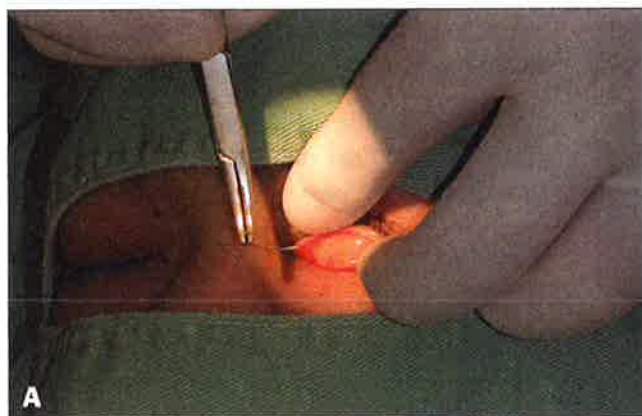


Figure 3. A, The upper eyelid is reflected, and a 7-0 double-armed suture is passed under the conjunctiva, and then **(B)** passed through the tarsal plate and into the stab incision.

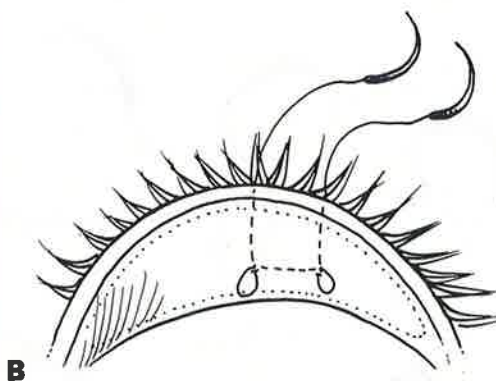


Figure 4. A, B, The other end of the needle is brought out of the skin in a similar fashion.

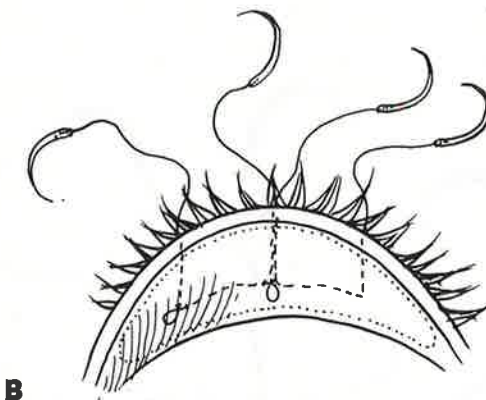


Figure 5. A, B The second suture is placed adjacent to the first suture as shown.

proper orientation of the sutures so that the medial suture stays on the medial aspect and the lateral suture on the lateral after this twisting maneuver. Each suture then was passed under the skin (upper dermis) and through the appropriate stab incision; that is, the medi-

al suture was passed into the medial stab incision and the lateral through the lateral stab incision (Figure 7).

At this point, the surgeon should check the width of the newly created double-eyelid line. If undesirable results

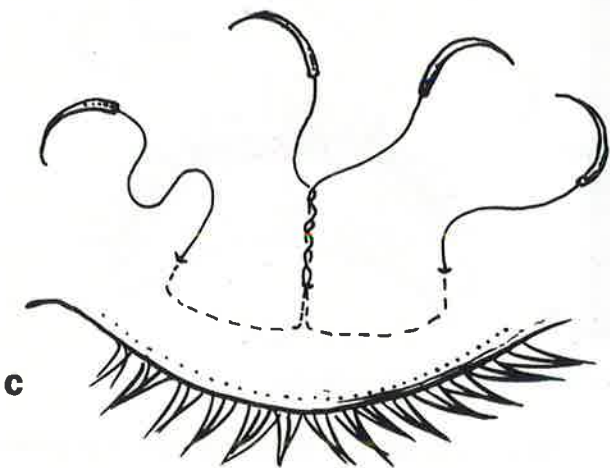
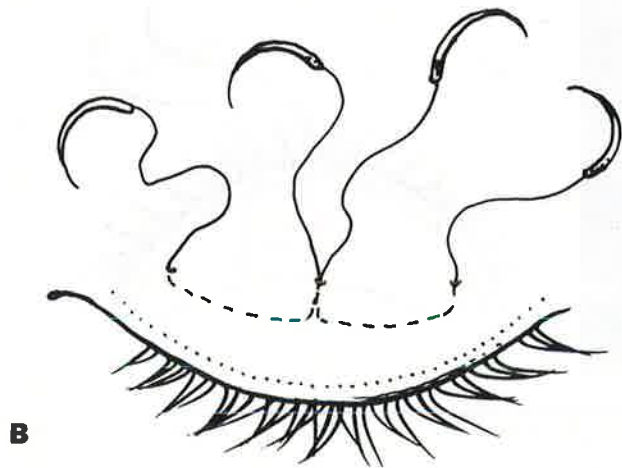
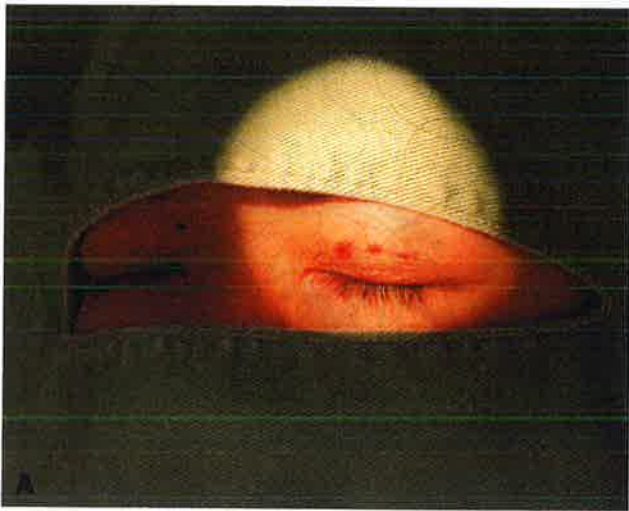


Figure 6. A, The upper eyelid is returned to the normal position, then (B, C) the 2 centrally located sutures are twisted 5 times. Make sure the suture for the medial side stays on the medial side and the suture for the lateral side on the lateral.

occur, it is better to reoperate immediately than to do so later in the postoperative period.

The lateral and medial sutures were tied with 5 knots (Figure 8), and final adjustments were made with fine-tipped smooth forceps.

Results

The authors have performed 1108 cases of DST double-eyelid procedures during the past 10 years. The results demonstrate no case of loss of double-eyelid line after follow-up periods ranging from 1 month to 7 years, with a mean follow-up time of 32 months (Figures 9 to 12). The average operative time ranged from 20 minutes (one side) to 60 minutes (bilateral). Most patients did not require sedation, and the surgeries were performed with only local anesthesia.

The most frequent complication was asymmetry of the newly created double-eyelid lines (44 of 1108 cases [3.87%]). Six patients required reoperation because of asymmetry of the double-eyelid lines, cyst formation, and nonspecific reasons given by patients. Attenuation of the lines occurred only rarely (9 cases) and was corrected by removing the sutures and redoing the procedure. This low failure rate was significant in comparison with the previously published series.¹

Patients usually experienced mild swelling of the upper eyelids for 3 to 5 days postoperatively. At 1 week after surgery, most patients had only minimal swelling. A few patients developed an unpleasant feeling of the upper lids against contact lenses, but such symptoms subsided within 2 weeks. Patient satisfaction has been very high, to the extent that we rarely perform incisional surgery at all.

Discussion

Double-eyelid surgery has long been the most popular cosmetic surgical procedure in Japan. More than 30 such procedures have been introduced in Japan since the end of the nineteenth century.¹⁻⁴ More than 99% of cases of initial double-eyelid surgery for Japanese women aged between 17 and 30 years is done by non-incisional techniques in Japan,^{5,6} whereas most surgeons in Korea and the United States perform cutting-type double-eyelid surgery. The deep anchor-stitch method is not popular in Japan except among those patients with senile changes of the upper eyelids.

In the United States, Fernandez⁷ pioneered incisional double-eyelid surgery in 1960. However, this procedure

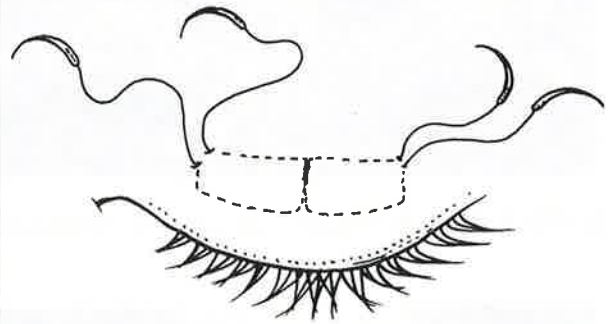
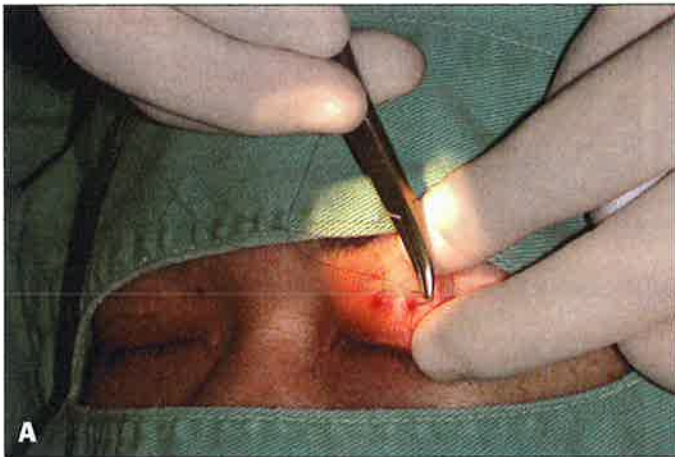


Figure 7. A, B The 2 sutures from the central hole are passed under the skin (right under the dermis), one medially and the other laterally.

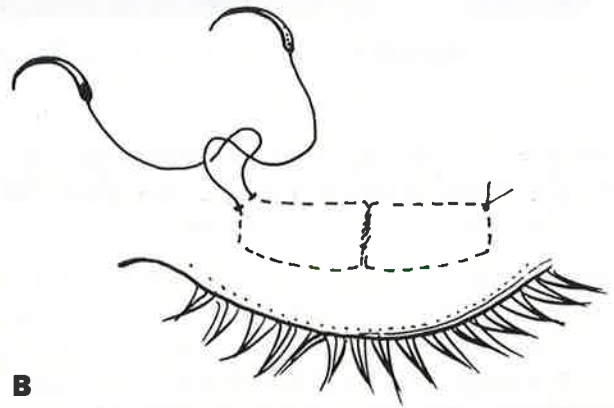


Figure 8. A, B, The lateral and medial sutures are tied.



Figure 9. A, Preoperative view of a 25-year-old woman with no sagging of the upper eyelids. **B,** Postoperative view 3 weeks after surgery.

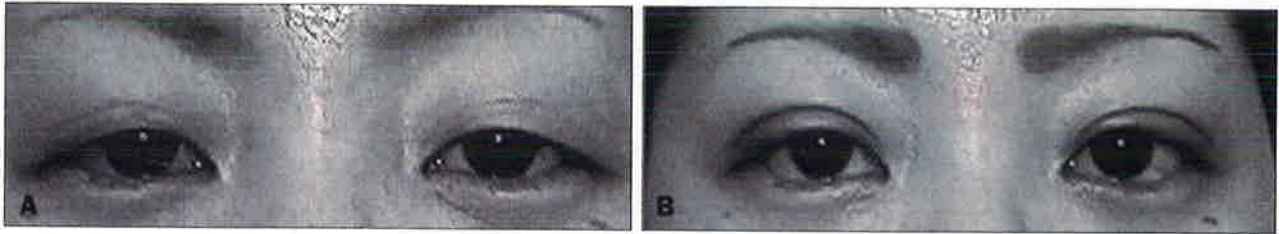


Figure 11. A, Preoperative view of a 25-year-old woman with moderate adipose tissue in the upper eyelids. **B,** Postoperative view 1 week after surgery.

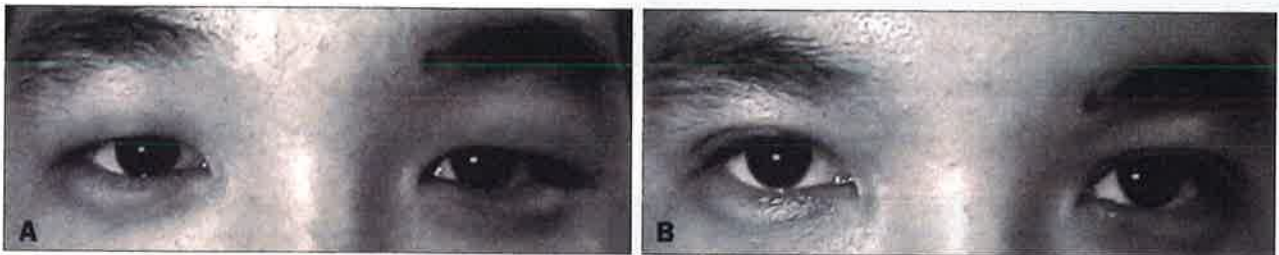


Figure 12. A, Preoperative view of a 26-year-old man with "puffy" eyes. **B,** Postoperative view 1 week after surgery.

required extended postoperative recuperation and was not popular among patients in Japan, who probably felt that the created crease was too deep and obvious.

Flowers⁸ introduced a non-incisional 3-suture double-eyelid method for Asians in the 1970s. It is an effective but complex procedure that requires considerable expertise to perform. In addition, re-operation time is lengthened because all 3 sutures must be removed. A similar but more complicated suture method had been introduced earlier.³

More recently, in Japan, a single-suture method to create double eyelids (the so-called quick double-eyelid procedure) has become very popular in Japan,⁷ but this method usually fails to produce long-lasting folds. Simple double-suture methods are also sometimes used in Japan, but this method also does not always produce durable lines.

The DST technique described here is unique and differs from the previously introduced procedures^{9,10} in a number of ways. It has 3 distinctive areas of ties (medical, central, and lateral). The twisted sutures in the center give an additional strength to the line and thus provide improved durability. It is not clear whether such 3-point fixation produces some kind of tissue response, such as an inflammatory response, but our clinical anecdotal observation clearly shows marked differences in outcome between simple 2-suture methods and the DST technique.

Conclusion

The DST method is a relatively simple and reproducible means of creating double eyelids in Asian patients through the use of double-armed sutures with large needles. Our clinical experiences show excellent long-term results. ■

References

1. Mutou Y, Mutou H. Intradermal double eyelid operation and its follow-up results. *Br J Plast Surg* 1972;25:285-291.
2. Mikamo M. Mikamo's double-eyelid operation: the advent of Japanese aesthetic surgery. 1896. *Plast Reconstr Surg* 1997;99:664-669.
3. Uchida J. A surgical procedure for blepharoptosis vera and for pseudo-blepharoptosis orientalis. *Br J Plast Surg* 1962;15:271-276.
4. Shirakabe Y, Kinugasa T, Kawata M, et al. The double-eyelid operation in Japan: its evolution as related to cultural changes. *Ann Plast Surg* 1985;15:224-241.
5. Tsurukiri K. Double eyelid operation using buried suture method. *J Jpn Soc Aesthetic Plast Surg* 1988;10:31-35.
6. Onizuka T, Iwanami M. Blepharoplasty in Japan. *Aesthetic Plast Surg* 1984;8:97-101.
7. Fernandez LR. Double eyelid operation in the oriental in Hawaii. *Plast Reconstr Surg* 1960;25:257-264.
8. Flowers RS. Upper blepharoplasty by eyelid invagination. *Clin Plast Surg* 1993;20:193-207.
9. Megumi Y. Double eyelid procedure by removal of transconjunctival orbital fat and buried sutures combined with sling technique to avoid wounding the eyelid. *Aesthetic Plast Surg* 1997;21:254-257.
10. Homma K, Mutou Y, Mutou H, et al. Intradermal stitch blepharoplasty for Orientals: does it disappear? *Aesthetic Plast Surg* 2000;24:289-291.