Discussion: Patient-Specific Factors for Deformity after Upper Blepharoplasty in an Asian Population

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The article by Liu et al. retrospectively analyzed 202 patients requiring revisions after primary Asian upper blepharoplasties.[1] This is the first study of its kind to explore potential patient factors that could have led to deformities. They looked at various deformities after blepharoplasty, analyzed different contributing factors, and came up with a prediction model that could potentially help future Asian blepharoplasties. The authors should be commended for their innovative work.

Unfortunately, the authors did not provide the number of treated patients lost to follow-up. The number of patients with deformities who refused revision was not recorded either. Thus, the 5.5% revision rate does not reflect the actual complication rate. Also, because of the lack of technical details, it is hard to judge whether technical deficiencies could be a major contributor to the deformities identified. Nonetheless, mandatory pretarsal fibrofatty tissue removal to gain access to the tarsus could result in subsequent pretarsal edema/fullness that may last for years (Fig. 1). I understand that the authors argued about pretarsal fullness being a result of heavy tissues forcing down on the creases. It is unlikely though, as the authors already secured the incisional edge dermis to the tarsi unless the fixations failed.

Furthermore, ptosis was not addressed surgically. This is crucial, as many deformities (asymmetric crease, high crease, low crease, uneven fold, short crease, shallow crease, and crease disappearance) could take place eventually when levator aponeurosis becomes more attenuated or even dehisces postoperatively in some ptotic patients, causing crease migration.[2] Suture failure could certainly be another reason (Fig. 2). Moreover, I suspect that the above-mentioned deformities could be the results of similar anatomical abnormalities with different presentations. This concept is substantiated by the authors' observation that "various deformities can transform, such as the shallowing or lowering of the crease, which many patients experience before the crease disappears." Interestingly, 30% of young patients presenting for double-eyelid surgery need ptosis repair, with senior patients showing a higher prevalence of ptosis.[3–5] Pertinent to this notion is that many patients with myopia could have proptosis.[6] When these patients wear contact lenses, ptosis could easily occur.[7]

Among the 9 patient factors, the definitions of skin thickness, strength of levator, and proptosis seem to be arbitrary (judged by the authors from photographs). Unexpectedly, the authors falsely stated that Asian upper lid skin thickness is 8 to 13 mm. Furthermore, "medial epicanthus," a distinctive feature existing in 90% of Asians,[8] was emphasized as a crucial patient factor in crease failure. However, if a better statistical analysis were performed considering the number of patients with epicanthi undergoing blepharoplasties, the authors would find that patients with medial epicanthi might have fared better. Consequently, the lengthy discussion about medial epicanthi being the culprit for impeding proper crease formation might be unfounded, despite many references.

As to the distance between brow and eyelid margin, brow lift could solve the problem. Nevertheless, the authors referred to this condition as "nontreatable." The statement that "we do not recommend upper blepharoplasty for older patients who might benefit more from brow-lift surgery" might have gone too far, as many older patients might need both brow lift and upper blepharoplasty. As for age, because the patients were predominantly young (mean, 27.2 years), and the number of included samples was rather small (n = 202), the authors were forced to divide the cohort at the 30-year-old point. Thus, the conclusions based on age might be questionable. Importantly, patients younger than 30 years rarely need incisional upper eyelid surgery with skin and muscle removal.[9–11] Based on my experience, other patient factors may also

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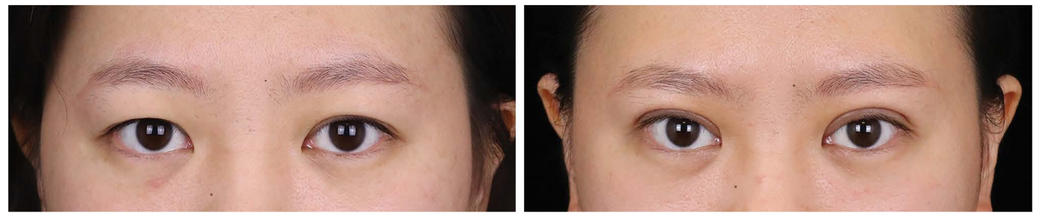

Fig. 1. This 45-year-old woman, reporting droopy upper eyelids, was treated with upper blepharoplasty (*left*, preoperative view). After skin and muscle removal, modest amounts of preaponeurotic fat were excised. To expose the tarsi, pretarsal fibrofatty tissue was removed from the tarsal upper edge to 3 mm below it. A 5-0 polyglactin suture with a round needle was used to engage the dermis of the lower skin edge with the upper tarsal edge to the close-by levator aponeurosis to the upper skin edge at the dermal layer, at 5 points, for crease creation. Interrupted 6-0 nylon sutures were then used to close the skin. (*Right*) in the 1-year postoperative photograph, it is notable that the pretarsal tissue remained swollen.

Fig. 2. This 54-year-old woman was treated by another surgeon (*left*, preoperative view). The surgical method used skin and muscle excision, followed by preaponeurotic and pretarsal fat tissue removal. The levator aponeurosis was severed at the upper tarsal edge, followed by using a 5-0 polyglactin suture to engage the dermis of the lower skin edge with the upper tarsal edge to the advanced levator aponeurosis to the upper skin edge at the dermal layer at 5 points. Her skin swelling below the creases lasted 3 years, and then the skin became much thinner, filled with red capillaries. Over the previous 8 years, she noticed that her upper eyelid creases became wider and wider with smaller eyes. Her crease heights were 13 mm (*right*) and 12 mm (*left*). I reconstructed her levator mechanism by suturing the dehisced aponeurosis back to the top of the tarsi, after conservative skin removal below the high creases. The residual preaponeurotic fat was pulled down after scar lysis. The new creases were set at 7 mm with a 7-0 polypropylene suture to engage the skin dermis to the pretarsal membrane, at 3 points (*right*, 1-year postoperative photograph). Ten years after her revision, she was still happy, with no relapse. (She had also undergone a face lift, brow lift, abdominoplasty, breast reduction, and whole body liposuction performed by the same surgeon, and all required revision.)

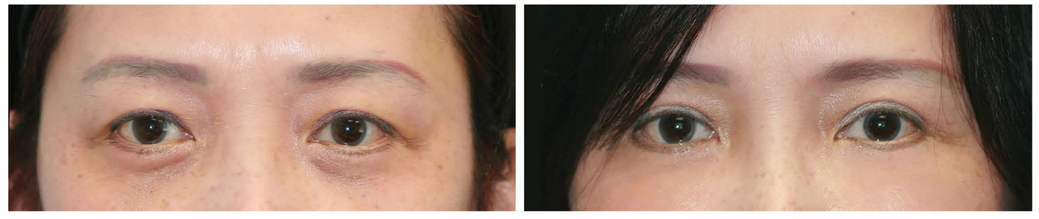

Fig. 3. This 43-year-old woman who reported droopy upper eyelids was treated with upper blepharoplasty (*left*, preoperative view). After conservative skin removal, orbicularis oculi muscle was preserved. Modest removal of medial and central fat pads was performed through 2 small incisions in the orbicularis oculi muscle. New creases were created at a 5.5-mm height using 3 orbicularis oculi muscle–to–pretarsal membrane suture linkages (7-0 polypropylene suture) to create the creases (her tarsal height was 8 mm on both sides). The sutures were positioned at the center of the pupil and at the medial and lateral limbus lines. A 2-mm pretarsal show was created for both eyes. This technique allows for easy adjustment of crease height and facilitates ideal formation of optimal pretarsal show. Her recovery was fast, and by 3 weeks, signs of surgery were barely visible (*right*, 1 year postoperatively).

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Discussion: Levator Advancement Surgery with or without Lateral Horn Incision: Effect of Lateral Horn Incision for Severe Involutional Blepharoptosis

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Fig. 4. This 61-year-old woman, reporting heavy eyelids that occurred over a period of 5 years, presented for correction. (*Left*) The PFL was 27.5 mm on both sides, and the PFH was 6.5 mm on the right and 5 mm on the left. The MRD1 was 1.5 mm on the right and 0.5 mm on the left. Her levator function was 14 mm on both sides. Aponeurosis attenuation was found intraoperatively. Differential aponeurosis plication was performed (2.5 mm for the right and 4 mm for the left side), along with excess skin removal. (*Right*) At 10 months after surgery, the PFH was 8.5 mm on the right and 8.7 mm on the left. The MRD1 was 2.5 mm on both sides.

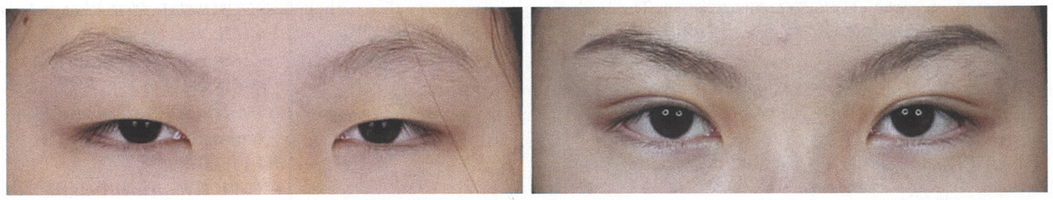

Fig. 5. This 18-year-old woman complained of very small eyes and presented for double eyelid formation. (*Left*) Her preoperative PFL was 26.5 mm on both sides, and her PFH was 6 mm bilaterally. The MRD1 was at 0.5 mm on both sides. Note that she tilted backward to accommodate the superior visual field loss, with the lower corneal limbi covered by the lower eyelids. Her levator function was 11 mm on both sides. The condition was diagnosed as congenital ptosis. The operation was carried out with aponeurosis advancement. Only 4 mm of advancement was made on both sides, as more advancement caused unnatural eversion of the eyelashes. (*Right*) At 6 months after surgery, her PFH was 8.3 mm on both sides. The MRD1 was 2.2 mm bilaterally. She was very happy with the result.

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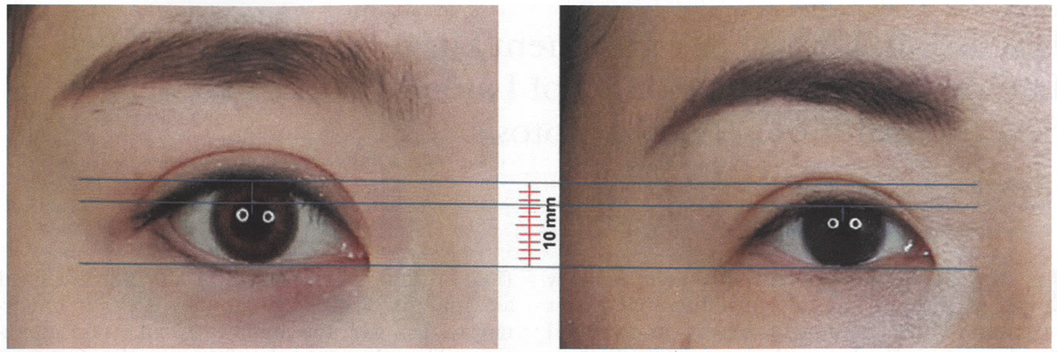

Fig. 1. (*Left*) Patient with PFL of 30 mm and PFH of 10 mm. Her MRD1 is 4 mm. (*Right*) Patient with PFL of 25.6 mm and PFH of 7.4 mm. Her MRD 1 is 1.9 mm. This patient does not have any ptosis symptoms, indicating that she may not have ptosis of any kind.

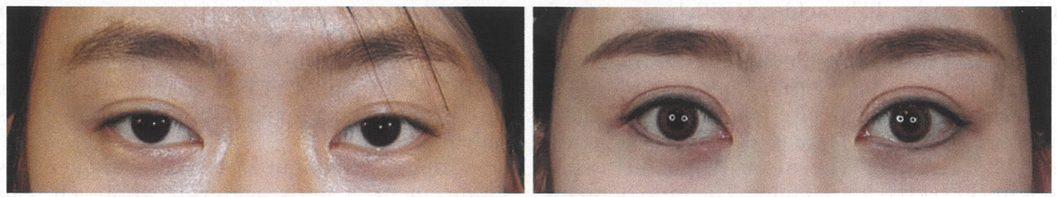

Fig. 2. This 24-year-old woman, with a history of "double eyelid surgery," presented with a complaint of "lazy eyes." (*Left*) She had a PFL of 30 mm on both sides and PFH of 7.8 mm on the right and 8.2 mm on the left. Her MRD1 was 1.8 mm on the right and 2.1 mm on the left. The levator function was 15 mm on both sides. A full-incision blepharoplasty with ptosis repair was carried out. She was found to have distal aponeurosis dehiscence because of previous aggressive dissection in the pretarsal areas. Simple distal aponeurosis reattachment was performed. (*Right*) At 8 months after surgery, the PFH was 10 mm on the right and 10.3 mm on the left. The MRD1 was 4 mm on both sides.

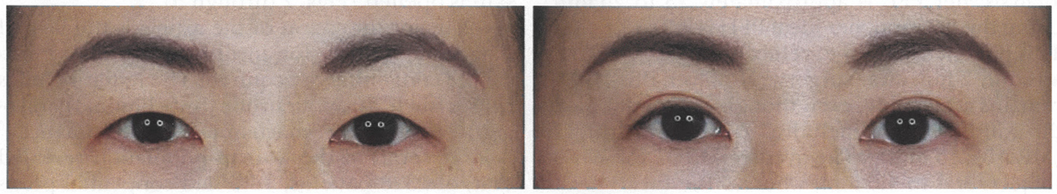

Fig. 3. This 35-year-old woman complained of single eyelids. She had a PFL of 25.6 mm on both sides and PFH of 6.8 mm on the right and 7.1 mm on the left (*left*). The MRD1 was 1 mm on the right side and 1.2 mm on the left. Her levator function was 13.5 mm bilaterally. Note that she tilted backward (typical posture for ptosis patients) when photographed, to accommodate the superior visual field loss; this is exhibited by the lower corneal limbi being covered by the lower eyelids. She subsequently underwent a 5-mm mini-incision double eyelid operation, with engagement of the orbicularis oculi muscle, through the pretarsal fibrofatty tissue, the distal aponeurosis, and the pretarsal membrane. The suture was then brought out and looped back to engage the orbicularis oculi muscle to finish a horizontal mattress suture. No specific ptosis repair was performed. The double eyelid surgery alone made the eye-opening mechanism more efficient. (*Right*) At 1 year after surgery, her PFH was 7.4 mm on both sides, with an MRD1 of 1.9 mm bilaterally.