Midcheek Lift by Dissecting through the Facial Soft Tissue Spaces

Chin-Ho Wong, MMed(Surg), FAMS(PlastSurg)[1]
Michael Ku Hung Hsieh, MRCS(Ed), MMed(Surg)[2]
Bryan Mendelson, FRCS(Ed), FRACS, FACS[3]

Singapore and Toorak, Victoria, Australia

Summary: The midcheek lift is one of the most effective procedures to rejuvenate the aging midface. However, it is a technically demanding procedure with the risk of complications, such as scleral show and ectropion. In 2015, the authors published their midcheek lift technique and outcomes. In this Video+ article, the authors present refinements and nuances of their surgical technique, emphasizing technical aspects of this procedure that have enabled them to perform the operation safely and effectively. The key concept of their approach is to minimize the trauma associated with surgical access, by dissection through the facial soft-tissue spaces that are the gliding planes of the midcheek. This minimizes postoperative bleeding and scarring, which are the main contributors to the dreaded postoperative contracture-related complications. To effectively mobilize the midcheek, precise sharp release of specific midcheek retaining ligaments separating these facial soft-tissue spaces is performed. Conservative skin excision is emphasized along with routine canthopexy for lower lid support. *(Plast. Reconstr. Surg.* 151: 941e, 2023.)

The midcheek lift is a powerful and effective technique in facial rejuvenation.[1–3] This procedure reliably addresses several aspects of the aging midface, concurrently treating eye bags, skin laxity, fine wrinkles, and the tear-trough deformity. Specifically, the midcheek lift is the most effective method to address malar bags or festoons and cheek sagging with prominent nasolabial folds.[4] It is therefore indicated for patients whose primary concerns included festoons, cheek laxity, and prominent nasolabial folds in addition to having eye bags and tear-trough deformities. However, the midcheek lift is a technically demanding procedure with a narrow margin for error. Potentially devastating complications of cheek lifting performed through the subciliary approach remain a significant concern. The aim of this article is to share our experience in maximizing safety with this technique.

There are six key surgical tenets to maximize results and minimize complications: (1) minimizing the trauma of surgical access by gentle, blunt dissection through "predissected" avascular glide planes of the midcheek facial soft-tissue spaces[5]; (2) limiting sharp release to only the specific retaining ligaments of the midcheek required for mobilization[6]; (3) preemptively supporting and tightening the lower eyelid; (4) lifting the cheek soft tissue maximally with defined surgical endpoints; (5) obtaining tension-free closure of the skin with conservative skin excision; and (6) optimizing the orbitofacial vector by structural fat grafting of the cheek to support the lower eyelid and improving aesthetic outcomes.[7]

OPERATIVE APPROACH

In the midcheek, two planes of dissection are generally used: the preperiosteal and subperiosteal planes. Our preperiosteal midcheek lift technique was previously reported in 2015.[1] This video presentation presents refinements and key

From [1]W Aesthetic Plastic Surgery; the [2]Department of Plastic Reconstructive and Aesthetic Surgery, Singapore General Hospital; and [3]The Centre for Facial Plastic Surgery.
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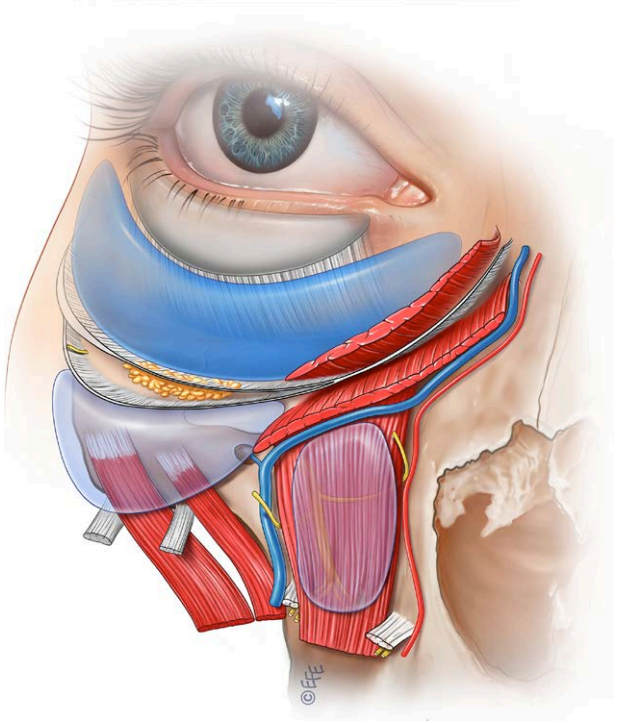

Fig. 1. The facial soft-tissue spaces of the midcheek are the ideal plane of dissection to access the midcheek. In the midcheek, these anatomical gliding planes function to facilitate movements of the periorbital orbicularis oculi (located in the roof of the spaces) independent of the perioral lip elevators (the zygomaticus major and minor and the levator labii superioris) (located in the floor of the spaces). These avascular spaces, when gently opened up with blunt dissection, provide bloodless planes of dissection to their boundaries formed by the retaining ligaments of the midcheek. Our approach of dissecting through facial soft-tissue spaces with precise release of specific retaining ligaments that separate the spaces allows us to mobilize the midcheek flap as atraumatically as possible. This minimizes the trauma and bleeding associated with the operation, quickens recovery, shortens down time, and reduces the complications of lower eyelid surgery associated with scarring.

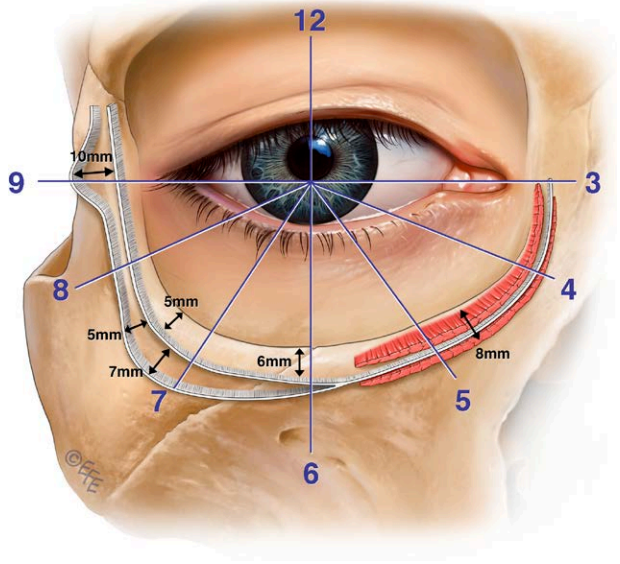

Fig. 2. The extent of release of the facial retaining ligaments necessary to mobilize the midcheek soft tissues effectively. Three specific named retaining ligaments need to be released: (1) the origins of the orbicularis oculi and the tear trough ligament medially; (2) the bilamellar ORL laterally; and (3) the lateral orbital thickening superolaterally. The extent of the release of these key retaining ligaments extends from approximately the 4-o'clock position to the 9-o'clock position. The approximate distances of the releases from the orbital rim are indicated in the diagram. Complete release of these ligaments is heralded by entrance into the premaxillary space medially and prezygomatic space laterally, as demonstrated in Video 3. A final check of adequacy of the release is confirmed by upward traction on the orbicularis oculi handle with resultant unhindered elevation of the cheek and upper nasolabial fold.

steps in our technique that have enabled us to perform the operation effectively and safely. Our preferred plane of dissection is the avascular gliding planes (known as facial soft-tissue spaces) that may be easily and atraumatically opened without the risk of bleeding.[8–11] These facial soft tissue spaces, the preseptal, prezygomatic, and premaxillary spaces, have previously been described in detail.[5,10,11] This is critical in lower eyelid surgery, where the feared complications such as cicatricial middle lamella contracture, scleral show, and ectropion are the direct consequence of hematomas and scarring. Therefore minimizing trauma and bleeding associated with surgical access is critical to minimize these complications. To effectively lift the midcheek, mobilization by precise release of specific named retaining ligaments is required.[5,12–14] This approach may thus be described as a technique that dissects through the facial soft-tissue spaces with precise release of specific retaining ligaments that separate them.

PREOPERATIVE EVALUATION

See Video 1 (online), which shows the preoperative evaluation of our patient.

SURGICAL TECHNIQUE

A subciliary skin incision is made with a Beaver blade (Surgistar, Vista, CA), carefully elevating a skin-only flap. The skin is then raised off the orbicularis oculi to approximately 15 mm below the lateral canthus and 10 mm below the

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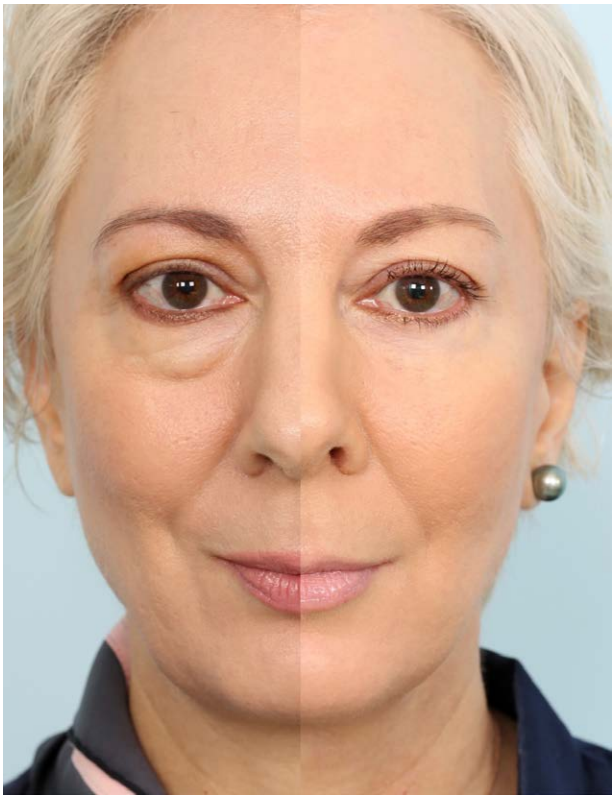

Fig. 3. This 51-year-old woman presented with a tired appearance as a result of midcheek aging. She had large eye bags with prominent and deep lid-cheek junctions, midcheek sagging, and volume deflation. A midcheek lift was performed. The eye bags were managed with a septal reset and midcheek fat grafting with 3 cc of fat injected into each cheek. Her 2-year postoperative result is presented; the Hamra composite view of her left face demonstrates longevity of elevation of the lid-cheek junction and effective elevation of the cheek high point.

midpupil. This provides a significant cuff of preseptal orbicularis muscle as a handle to elevate the midcheek and facilitate later skin redraping following elevation of the cheek. [**See Video 2 (online)**, which shows our subciliary skin incision to elevate a skin-only flap.] At approximately the level of the lateral canthus, with the orbicularis oculi tented up with skin hooks and using cutting cautery, the muscle is split horizontally, approximately 6 mm inferior to the skin incision to create a window through the muscle layer. Then, a blunt tenotomy scissor is introduced into the sub–orbicularis oculi plane and the preseptal space is entered and gently developed. The orbicularis oculi is then tented up and cut, extending medially to approximately the level of the medial corneal scleral limbus, with cautery, ensuring preservation of a cuff of approximately 6 to 7 mm of pretarsal orbicularis oculi. The preseptal space is then gently and bluntly opened with a cotton tip to its boundaries. These are the orbicularis oculi origins medially and the orbicularis retaining ligament (ORL) laterally. Medially, over the maxilla, the origins of the orbicularis oculi (the palpebral and orbital parts of the orbicularis oculi) and the tear-trough ligament located between them, is sharply released with cutting cautery. Complete release brings the dissection into the premaxillary space, heralded by visualization of the levator labii superioris in the floor of the space.[5] The release is then continued laterally, cutting the ORL. Complete release of the ORL takes the dissection into the prezygomatic space[10] (Fig. 1). Farther lateral, the ORL continues as the lateral orbital thickening. The inferior part of this ligament should be released, up to the level of the lateral canthus. With this release, surgically connecting the three facial soft-tissue spaces of the midcheek (preseptal, premaxillary, and prezygomatic), upward traction on the orbicularis oculi allows free and unhindered elevation of the entire midcheek composite flap (Fig. 2). Our endpoints for surgical release of the midcheek retaining ligaments is the free elevation of the malar fat pad and the upper part of the nasolabial fold with upward traction on the orbicularis oculi. Note that it is not necessary to release the zygomatic ligaments, located at the inferior border of the prezygomatic space, to achieve the mobility needed to effectively lift the cheek when performing the cheek lift through the lower eyelid approach. This is significant from a safety consideration of this procedure, as the zygomatic branches of the facial nerves (and small branches emanating from this nerve to innervate the orbicularis oculi) are located in close association with the zygomatic ligaments. Avoiding dissection in the inferior boundary of the prezygomatic space therefore makes this procedure safe, with no risks of facial nerve injuries.

To address the eye bags and tear-trough deformity, depending on the patient's anatomy, transposition of the medial and middle fat pads over the medial orbital rim, onto the anterior maxilla is performed. In patients presenting with more advanced aging changes with a deep lid-cheek junction, a septal reset may be performed. Fat removal (when performed) is conservative, only in those patients having a true excess of retro-orbital fat, and usually from the lateral compartment. To preemptively enhance the lower eyelid tarsoligamentous support, a canthopexy is routinely performed. The lateral

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Fig. 4. (*Left*) Preoperative three-quarters view of the patient. (*Right*) Here she is shown at 2 years after surgery. Longevity of correction is seen with the cheek lifted and the tear-trough deformity effaced. The subciliary incision with lateral extension was not visible with the incision technique using the Beaver blade as demonstrated in Video 2.

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canthal tendon of the lower eyelid is sutured to the superior orbital rim periosteum located vertically above the lateral canthus with 5-0 Ethilon suture [**See Video 3 (online)**, which shows our technique of accessing the facial soft-tissue spaces and releasing key named retaining ligaments to mobilize the midcheek. The management of eye bags and canthopexy are also shown here].

The midcheek lift is achieved by superolateral traction on the orbicularis oculi. Two 3-0 Vicryl sutures are used to suture the orbicularis oculi to the lateral orbital rim periosteum. This achieves the midcheek lift. When tightening the sutures, ensure that the malar eminence and the upper nasolabial fold lifts sufficiently. Excess orbicularis is trimmed laterally to minimize bunching below the lateral canthus. The widely elevated skin then redrapes naturally in a slightly more vertical direction. The excess skin is then conservatively trimmed and the incision closed in a tension-free manner. [**See Video 4 (online)**, which shows our surgical fixation to achieve the midcheek lift. Our approach to cheek fat grafting is also shown here.] Midcheek fat grafting is then performed using the Coleman technique to correct deflation of the midcheeks from aging and to enhance the orbitofacial vector to improve support of the lower eyelid.[15,16]

RESULTS

See Video 5 (online) and Supplemental Digital Content 1, 2, and 3, which show the recovery and long-term results of the patient. [**See Figure, Supplemental Digital Content 1**, which shows the patient, a 47-year-old woman who presented primarily with concern of her festoons (*left*). She underwent lower blepharoplasty and midcheek lift with concomitant facial fat grafting. Her surgery was presented in our series of operative videos. (*Right*) Here she is shown at 6 months after the operation. Note that the festoons have been well corrected, and the cheek effectively lifted; the lower eyelid position remains unchanged from the preoperative state, ***http://links.lww.com/PRS/F806***. **See Figure, Supplemental Digital Content 2**, which shows three-quarters views of the patient before surgery (*left*) and at 6 months (*right*) after surgery, ***http://links.lww.com/PRS/F807***. **See Figure, Supplemental Digital Content 3**, which shows that, on the lateral views, the eye bag has been well corrected and the orbitofacial vector enhanced by the cheek lift and fat grafting, ***http://links.lww.com/PRS/F808***.] Figures 3 and 4 show the long-term follow-up of another patient treated with this technique with good long-term correction of the tear-trough deformity, elevation of the lid-cheek junction, and long-lasting stability of the cheek lift. In addition to these

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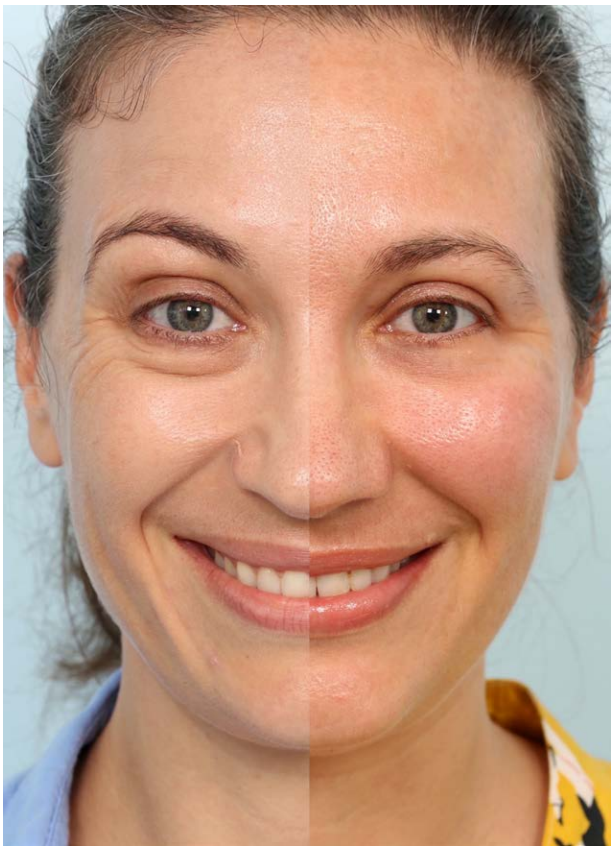

Fig. 5. This 45-year-old female patient underwent a midcheek lift by dissecting through the facial soft-tissue spaces. This Hamra composite view of her left face shows her 18-month postoperative smiling views (matched for intensity of her smile by matching her oral commissures). No botulinum toxin was administered for this patient. Long-term permanent reduction of her prominent crow's feet was seen. This reduction of the crow's feet and fine wrinkles on smiling may be attributed to two surgical maneuvers performed in this procedure. The first is the release of the origins of the orbicularis oculi and the tear-trough ligament. This reduces the efficiency of the sphincteric contraction of the orbicularis oculi (Wong CH, Mendelson B. The long-term static and dynamic effects of surgical release of the tear trough ligament and origins of the orbicularis oculi in lower eyelid blepharoplasty. *Plast Reconstr Surg*. 2019;144:583–591). The second is the excision of a cuff of orbicularis oculi before closure of the cheek lift. This has the effect of permanently weakening the orbicularis oculi (Ryu MH, Kahng D, Shin Y. Surgical correction of crow's feet deformity with radiofrequency current. *Aesthet Surg J*. 2014;34:28–33). This change is permanent, and patients looking for improvement of their crow's feet without the need for repeated botulinum toxin treatments will find this procedure an attractive option.

static changes, what is often not discussed are the beneficial dynamic changes of this technique on the aesthetics of the smile, with a very significant and permanent reduction of the crow's feet[17,18] (Fig. 5). (**See Figure, Supplemental Digital Content 4**, which shows matched smiling views showing permanent reduction of crow's feet. No botulinum toxin was administered. Dynamically, the surgery produced a more relaxed and beautiful smile, ***http://links.lww.com/PRS/F809***.) This effect would benefit patients presenting with complaints of prominent crow's feet and is an added profound advantage to this technique without the need for further botulinum toxin treatments.

CONCLUSIONS

This technique delivers predictable correction of midface aging changes, with high patient satisfaction and a low incidence of ectropion or scleral show (<1%).[1] The technical nuances and refinements presented in this article have enabled us to perform this procedure safely and effectively.

Chin-Ho Wong, MMed(Surg), FAMS(Plast Surg)
W Aesthetic Plastic Surgery
No. 06-28/29, Mount Elizabeth Novena Specialist Center
38 Irrawaddy Road
329563 Singapore
drwong@waesthetics.com

DISCLOSURE

The authors have no conflict of interest in this present work. None of the authors has a financial interest in any of the products, devices, or drugs mentioned in this article.

PATIENT CONSENT

Patients provided written informed consent for the use of their images.

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