Background: Few facelift methods are designed specifically for Asian patients. Because of their characteristic thick skin and flat, wide facial geometry, satisfactory facelift results can be difficult to achieve in these patients.

Objectives: The authors evaluated outcomes achieved with a high superficial musculoaponeurotic system (high-SMAS) facelift with finger-assisted facial spaces dissection to rejuvenate the aging Asian face.

Methods: Fifty-three patients underwent this facelift procedure. The indication for surgery was typical sagging of the face associated with aging; the relative contraindications were previous facelift and severe facial atrophy.

Results: Mean patient age was 50.7 years. Patients received follow-up for a mean of 19 months. In all cases, improvement was seen in soft-tissue sagging of the midface and lower face. One patient experienced unilateral temporal nerve injury, 3 experienced hematoma, and 2 had wound dehiscence.

Conclusions: Understanding surgical anatomy including facial layers, spaces, and retaining ligaments is crucial for stable application of facelift techniques in Asian patients. Because of the small number of patients evaluated in this study and the limited follow-up period, more research is needed to define suitable facelift methods for these patients.

Level of Evidence: 4

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Demand for surgical rejuvenation of the face is rapidly increasing in Asia as a result of continued economic development and growth of the aged population. Few facelift methods have been described or developed specifically for older Asian patients, whose distinct facial characteristics make achievement of satisfactory results relatively difficult. Nevertheless, facelift procedures have continued to evolve as understanding of surgical facial anatomy has improved. We present our experience and results with a facelift technique incorporating a high superficial musculoaponeurotic system (high-SMAS) facelift and finger-assisted facial spaces dissection to rejuvenate the aging Asian face.

METHODS

From April 2011 to April 2013, 53 consecutive patients underwent a facelift procedure that incorporated a high-SMAS technique and finger-assisted facial spaces dissection. The indication for surgery was typical sagging of the face associated with aging, and the relative contraindications were previous facelift and severe facial atrophy. Additional procedures performed as necessary to improve facial aging included fat grafting (40 patients), brow lift (11 patients), upper blepharoplasty (7 patients), lower blepharoplasty

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(13 patients), and submentoplasty with medial platysmorrhaphy and subplatysmal fat debulking (18 patients).

**Surgical Technique**

After the patient was given general anesthesia or intravenous sedation, 1% lidocaine with 1:200,000 epinephrine was infiltrated along the incision. Tumescent solution consisting of 0.1% lidocaine with epinephrine (1:1,000,000) was infiltrated to both sides of the face, with approximately 120 mL to 150 mL administered per side.

An incision was made along the temporal hairline, the tragal margin, and the occipital hairline, and a skin flap was elevated. A transverse incision was made on the SMAS following the superior border of the zygomatic arch and continued obliquely (anteriorly) to prevent a dog-ear. A vertical incision was made 1 cm anterior to the preauricular skin incision and followed inferiorly and posteriorly up to the anterior border of the sternocleidomastoid (Figure 1).

To avoid injury to the temporal nerve branches at the zygomatic arch, the dissection was carefully made with the SMAS flap placed under cephalad traction. Anterior and inferior to the SMAS, the orbicularis oculi and platysma were connected and included in the SMAS flap dissection. The main zygomatic and upper masseteric retaining ligaments were released carefully, without injury to the facial nerve branches (Figure 2).

Finger elevation of the malar fat pad was performed through the prezygomatic space between the orbicularis oculi and the zygomaticus (Figure 3). In a similar fashion, finger dissection was performed to the mandibular ligament through the premasseter space, between the platysma and the masseteric fascia (Figure 4).

Release of the retaining ligaments was confirmed with a traction test, and the SMAS flap was redraped in the cheek (Figure 5). The SMAS flap was pulled parallel to the vector of the long axis of the zygomaticus major and brought to

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**Figure 1.** After skin flap elevation, markings for the incisions were made on the SMAS. A transverse incision approximately 5 cm long was made along the upper border of the zygomatic arch and extended obliquely to avoid a dog-ear on the orbicularis oculi. A vertical incision was made 1 cm anterior to the skin incision on the SMAS.

**Figure 2.** The SMAS flap, including the orbicularis oculi and platysma, was elevated. Release of the zygomatic and upper masseteric retaining ligaments in the sub-SMAS plane was important to identify the branches of the facial nerve and the origin of the zygomaticus major.
the edge of the original SMAS incision. Redundant tissue was then excised. The preauricular SMAS flap was transposed postauricularly and fixed to the mastoid fascia. The cheek skin flap was redraped in a vector perpendicular to the nasolabial fold, and the postauricular skin flap was redraped parallel to the mandibular border. After redundant skin was excised, skin closure was performed with minimal to no tension (Figure 6). After closed suction and placement of Silastic drains (Dow Corning, Midland, MI), a gentle-compression dressing was applied.

RESULTS

Among the 53 Asian patients (47 women), mean age was 50.7 years (range, 35-66 years). Patients received either general anesthesia (48 patients) or intravenous sedation with local anesthesia (5 patients). Mean postoperative follow-up was 19 months (range, 10-34 months).

In all cases, improvement in soft-tissue sagging was seen in the midface and lower face (Figure 7 and Supplemental Figure 1, available online at www.aestheticsurgeryjournal.com). One patient (1.9%) had unilateral temporal nerve injury, which partially resolved with observation only. Three patients (5.7%) had a hematoma, which was surgically evacuated. Two patients (3.8%) had wound dehiscence that required resuturing. Although scarring is often a problem in Asian patients who undergo facelift procedures, none of the patients in this study had scarring issues. We attribute this result to the fact that the SMAS flap, not the skin, did the lifting; therefore, the skin could be closed with minimal to no tension.

DISCUSSION

Asians have thick skin—fibrous and rich in collagen—and a flat, wide facial geometry.1,2 These features complicate achievement of satisfactory results in facial rejuvenation, especially rejuvenation of the sagging midface. Facelift techniques such as the extended-SMAS facelift, the high-SMAS facelift, and the facelift with finger-assisted malar elevation (FAME) improve not only the lower face, but also the midface.3-7 We combined these techniques in a high-SMAS facelift with finger-assisted facial spaces dissection to address the aging Asian face specifically.

Extended-SMAS dissection includes the release of all retaining deep attachments of the SMAS. The zygomatic ligaments suspend the soft tissue over the zygomatic eminence. Without release of these ligaments, repositioning of
the malar soft tissue and improvement of the nasolabial fold is not possible. In addition, the masseteric ligaments are responsible for supporting the soft tissue of the cheek. To improve the lower face, these ligaments must also be released. In many Asian patients, there is extra protrusion of the zygomatic prominence, lengthening the distance from the preauricular incision to the anterior face. Because this makes improvement of the anterior portions of the midface and lower face more difficult, the retaining ligaments must be released via the sub-SMAS plane to achieve a satisfactory result in these patients.

Vital structures such as the facial nerve, mimetic muscles, and parotid duct are adjacent to the zygomatic and masseteric ligaments. Therefore, particular care must be taken when dissection is performed near these structures. The main zygomatic ligaments are located at the junction of the body of the zygoma and the arch. The upper masseteric ligaments are located about 1 cm to 2 cm below this junction. This junction is a reliable landmark for release of the ligaments. Tumescent solution can be used to perform hydrodissection and provide a bloodless surgical field. This step is important, because release depends heavily on a clear field of vision to differentiate retaining ligaments from facial nerve branches. Blunt Metzenbaum scissors are used in a “push-down technique” for release of the ligaments, eliminating the need for sharp dissection. In cases where the retaining ligaments are confused with the facial nerve branches, blunt dissection minimizes damage, whereas sharp dissection can injure nerve branches.

At this point in the procedure, vertical traction must be carefully applied to the SMAS flap to stretch the ligaments that will be released and to identify nearby structures. Facial nerve branches run obliquely, whereas retaining ligaments are oriented vertically; therefore, it is less risky to release in the upper portion of the retaining ligaments (ie, retaining ligaments can be reliably released and facial nerve injury can be avoided). When ligaments and facial nerve branches are difficult to differentiate, a nerve stimulator can help to distinguish them.

Intraoperatively, the release of the zygomatic and masseteric ligaments can be quantifiably confirmed by visualization of the zygomaticus and facial nerve branches (Figure 8). Because the ligaments are located laterally and attach around the origin of the muscle, the muscle and nerve cannot be seen without their release. Clinical confirmation of the SMAS flap dissection occurs when the nasal

Figure 5. The SMAS cheek flap was then redraped. The arrow in the upper part of the figure shows the pull parallel to the vector of the long axis of the zygomaticus major. The lower arrow shows the direction of the vector of the SMAS flap as it is pulled in. The superior advancement of the anterior superior SMAS flap reflects the direction of the pull.

Figure 6. The fixed SMAS and skin closure are performed with minimal to no tension.
Figure 7. This 40-year-old woman underwent a high-SMAS facelift and finger-assisted facial spaces dissection, as well as fat grafting of the central forehead, upper medial malar area, nasolabial fold, and anterior chin. Preoperative anteroposterior (A) and oblique (C) views and 12-month postoperative anteroposterior (B) and oblique (D) views are shown.
alar base and corner of the mouth can be pulled without resistance after the flap has been placed in traction.

The traditional high-SMAS technique elevates the SMAS from above the zygomatic arch to achieve a lift of not only the lower face, but also the sagging tissues of the midface. This method consists of a limited skin dissection and then the elevation of a composite skin and SMAS flap up to the lateral border of the zygomaticus major, with subcutaneous dissection medially. Depending on the depth of the nasolabial fold, subcutaneous dissection can be extended medially. Conversely, Marten prefers lamellar dissection of the skin and SMAS flaps, which allows the flaps to be pulled with different amounts of tension and vector. Our technique follows a lamellar dissection, which can create a more natural result without causing a lateral sweep deformity. If dissection is continued to the nasolabial fold, it becomes harder to secure a clear view in the Asian patient because of the protrusion of the zygomatic prominence. In addition, the risk of bleeding is high. To avoid the risk of hematoma, a subcutaneous dissection is not performed up to the nasolabial fold. Hematoma can be caused either from wide dissection or by the late effect of relaxed vasoconstriction. Further study of the various factors that may ultimately contribute is needed. During fixation of the SMAS flap over the zygomatic arch and body, the redundant SMAS is

Figure 8. The SMAS flap was elevated with the orbicularis oculi flap. After the zygomatic and upper masseteric retaining ligaments were released in the sub-SMAS plane, the origin of the zygomaticus major (black arrow) and the zygomatic nerve branch (blue arrow) was identified.

Figure 9. The lateral opening (blue arrow) of the prezygomatic space was visible between the orbicularis oculi and the zygomaticus (black arrow).

Figure 10. Through the prezygomatic space, the malar fat pad was elevated with the finger.

Figure 11. The SMAS flap was elevated with the orbicularis oculi flap and the platysma flap. After release of the zygomatic and masseteric retaining ligaments in the sub-SMAS plane and dissection through the spaces, the branches of the facial nerve (blue arrows) and the zygomaticus (black arrows) were visible.
Aston and Walden\(^7\) describe a facelift technique incorporating FAME to improve the lower face and midface. The technique involves elevation of the malar fat pad using blunt finger dissection, with the prezygomatic space entered through a plane in the lateral border of the orbicularis oculi.\(^7\) Aston and Walden\(^7\) then elevate the orbicularis oculi with the SMAS flap. According to Mendelson,\(^9\) the SMAS, orbicularis oculi, and platysma are in the same layer. Therefore, the orbicularis oculi should be included with the SMAS elevation anteriorly and with the platysma inferiorly.\(^9\) After elevation of the flap and release of the retaining ligaments between the orbicularis oculi and zygomaticus, the lateral opening of the prezygomatic space can easily be identified (Figure 9). The malar fat pad can then be elevated with the finger (Figure 10). In a similar fashion, dissection can be performed through the premasseter space under the platysma. After the retaining ligaments are released in the sub-SMAS plane and blunt dissection is achieved in the spaces, the branches of the facial nerve and the zygomaticus can be seen (Figure 11).

Mendelson\(^9\) proposed the concept of facial spaces. In the sub-SMAS plane, the facial retaining ligaments make up the boundaries of these spaces.\(^9\) There are no structures within the spaces or crossing through them, allowing safe dissection and reduced bleeding, bruising, and risk of facial nerve trauma. The prezygomatic space lies over the zygomatic prominence and under the orbicularis oculi. A triangular space is made superiorly by the orbicularis retaining ligament and inferomedially by the zygomatic ligaments. The premasseter space is located on the lateral lower third of the face, between the platysma and the masseter fascia. This space is bounded anteriorly by the massteric ligaments and posteriorly by the posterior edge of the platysma auricular fascia. Inferiorly, it is bounded by a mesenteric-like structure that does not contain any ligaments.\(^9\) The authors have used these 2 facial spaces to dissect the sub-SMAS plane without injury to the facial nerve and bleeding.

A main disadvantage of this method is the relatively long duration of postoperative edema, likely due to the wider dissection needed to achieve better results in the Asian patient. Another challenge of extended dissection in the sub-SMAS plane is the steep learning curve.

Our series included 1 case of unilateral temporal nerve injury. The operating surgeon believes this occurred during the fixation of the SMAS flap. During efforts to achieve rigid fixation to the zygomatic arch, multiple attempts were made to grab the peristeme, which was a technical mistake. Thereafter, care was taken to avoid affixing the flap to the midportion of the zygomatic arch where the temporal nerve runs, and further injury to the temporal nerve was averted. On the upper border of the zygomatic arch, the parotid-temporal fascia protects the temporal branch of the facial nerve; therefore, the SMAS can be divided between the SMAS and parotid-temporal fascia without injuring the nerve.\(^10\)

The focus of this article is improvement of facial sagging in the aging Asian patient. In discussions of facial rejuvenation, improvement in facial volume depletion is an important component; therefore, fat grafting was typically performed with our facelift procedures. Following the fat-grafting technique described by Coleman and Mazzola,\(^11\) fat grafts were injected in the sites lacking volume. In this study, fat grafting was performed in conjunction with the facelift procedure, which may confound the assessment of outcomes. However, changes noted on the cheek, jowl, and jawline were, to a certain extent, the results of the facelift technique. Given that the typical Asian face is wide and flat, the forehead, upper medial malar area, nasolabial fold, and chin are usually augmented during plastic surgery, resulting in a more 3-dimensional appearance with better camouflage of surgery. Infolding of the SMAS is contraindicated in the Asian patient, but fullness can be added to the face medially with SMAS rotation and elevation.

No objective data are available for assessing outcomes such as patient satisfaction. Although the early results of this series show promising long-term effectiveness and a good safety profile, the small number of patients and limited follow-up period warrant further study.

**CONCLUSIONS**

It is often difficult to achieve satisfactory facelift results in Asian patients because of their ethnic facial characteristics. Many common facelift techniques, such as the extended SMAS, high-SMAS, and FAME procedures, can improve the midface and lower face. A facelift procedure incorporating a high-SMAS technique and finger-assisted facial spaces dissection was performed to address specifically the aging Asian face. For stable application and results, the surgeon must understand surgical anatomy including facial layers, spaces, and retaining ligaments. Although this article provides insight into facelift procedures for Asian patients, more studies are needed to define suitable methods for facial rejuvenation in these patients.

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