In many patients, facial aging increases demarcation of the nasolabial, malar, and nasojugal folds. In part, this may be related to involution of the orbitomalar ligament, as well as deflation of facial soft tissues and bones. The orbitomalar ligament was initially described by Kikkawa and colleagues in 1996. The orbitomalar ligament originates from the inferior orbital rim and projects in a fan-like distribution to the suborbicularis oculi fat (SOOF) and superficial musculo-aponeurotic system (SMAS) (Figure 1). Lucarelli et al examined the ligamentous structures of the midface and found that the orbitomalar ligament was most affected by midfacial ptosis and elongated with aging.

A number of surgeons have developed techniques to resuspend the orbicularis oculi during routine lower blepharoplasty to improve lower eyelid support and offer some degree of vertical repositioning of the cheek. We recently reported a series of 212 consecutive patients who had undergone routine orbitomalar suspension (OMS) during upper and lower blepharoplasty and ptosis repair without concomitant facelift surgery. In this series, we noted an eyelid malposition rate of 1.9%.

The purpose of this article is to present OMS as an extension of the high SMAS facelift that further improves medial superior repositioning of the cheek and blending of the lower eyelid and cheek junction during facelift surgery while also ensuring virtually no change in lower eyelid position. Herein, we detail the surgical technique, discuss our results with patients who have undergone OMS in conjunction with high SMAS repositioning during facelift.
surgery, and present the historical rationale and evidentiary support for the procedure in the literature.

**MATERIALS AND METHODS**

Orbitomalar suspension was performed as the final step of the facelift procedure. In patients undergoing browlift, upper and lower eyelid surgery, and face and necklift, we generally began the procedure with resection of the upper eyelid skin. This was followed by either endoscopic or open browlift, depending on preoperative findings. Once the browlift was completed, a high SMAS facelift was carried out. The lower blepharoplasty, along with the orbitomalar suspension, was the final step in the procedure. In patients undergoing browlift, the upper eyelid incision was temporarily closed with a few interrupted sutures to access the effect of the browlift on upper eyelid aesthetics. For patients in whom a browlift was not needed, the upper eyelid incisions were left open and covered with a moist cold sponge.

During the upper blepharoplasty, the lateral orbital rim was dissected along the supraperiosteal plane in preparation for orbitomalar suspension. Once the facelift tissue planes (including the deeper SMAS) were dissected, the SMAS was repositioned. A preauricular SMAS flap was cut and transposed along the lower mandibular border to the mastoid area, and the remaining SMAS was elevated vertically and posteriorly and sutured with 4.0 running PDS (Ethicon, Sommerville, New Jersey; Figure 2). Once the SMAS was stabilized, the neck was inspected. Depending on the anatomic findings, a variety of steps were taken, including pre- and subplatysmal fat removal, digastric muscle reduction, partial submandibular gland resection, and partial (or rarely, complete) transaction of the platysma and corset platysmaplasty. The neck was repeatedly flexed to assess changes in the submental angle. In patients with mild platysmal banding, tension created by the lateral-superior pull of the SMAS-platysmal complex may not have permitted suturing the edges of the platysma in the midline. Irregularities of the subcutaneous fat superficial to the SMAS and platysma were smoothed last, with either direct scissor contouring or with a small uterine curette attached to suction. It was important to smooth the suture line and relieve the underlying, inferior dog ear of the platysma in the neck when it was sutured posteriorly to the cut edge. Generally, a portion of the platysma was resected before suturing it back to the cut edge, anterior to the sternocleidomastoid muscle.

The excess skin was then trimmed and the facelift incisions were closed. At this point, a transcutaneous lower blepharoplasty incision was performed. Following dissection of the lower skin-muscle flap, the dissection was carried out along the supraperiosteal plane of the cheek, in partial continuity with the SMAS (Figure 2). Once the orbitomalar ligament was released, a 4.0 Vicryl (Ethicon) or 4.0 Prolene (Ethicon) suture was placed into the SOOF and retrieved from the upper eyelid. This suture was tied to the lateral orbital rim periosteum, and the excess skin and muscle of the lower eyelid were trimmed. A second 5.0 Vicryl suture was then placed in the orbicularis oculi and retrieved from a more superficial plane from the upper eyelid. This suture was also tied to the periosteum of the lateral orbital rim. In some patients, the SOOF suture dimpled the skin when tied. When this occurred, a single suture was better placed into a small flap of lateral orbicularis oculi. In patients with very thin skin, a subperiosteal approach was needed and the arcuate line, along with the lateral periosteum, was incised and dissected with electrocautery to prevent excessive bleeding. As the sutures were tied, the cheek was elevated in a superior and medial direction. The lower eyelid incision was closed with a running 6.0 fast-absorbing, plain gut suture, and the upper eyelid was closed with a running 6.0 nylon suture.

With our approach, the lower eyelid orbital fat was addressed as indicated—resection, repositioning, septal tightening, or any combination deemed necessary was performed. The extent of dissection and release of the orbitomalar ligament was varied, depending on the patient’s aesthetic needs.
RESULTS

Sixty patients underwent OMS between January 2005 and December 2008 at either the La Jolla Surgery Center or Sharp Outpatient Pavilion, San Diego, California. (Figures 3-5) In patients who did not require lower eyelid surgery, patients with malar prominence with short inferior lash line to cheek distances, or without much vertical lower eyelid elongation, the technique was not needed. In patients having mini-facelifts such as the modified Tonnard styled procedure, the orbitomalar procedure can still be used in a regional fashion to lift the cheek and better blend the lower eyelid cheek junction.

Minor complications related to the OMS procedure occurred in three patients, all of whom had palpable and slightly visible Vicryl knots on one or both lateral upper eyelids. In one patient, the right side was reopened with a limited incision and the knot was removed. One case of lower eyelid malposition occurred that required revision. This patient presented on postoperative day three with unilateral left ectropion (2 mm). By gently pressing down on the lateral lower lid, it was easy to detect that the suture had broken. The suture was easily replaced under local anesthesia and the patient had no further ectropion. Two patients had transient lower eyelid malposition, which resolved within the first four postoperative weeks after gentle massage and lateral eyelid support with steri-strips. Two patients with prominent eyes and inferior orbital rim recession (negative vector) were not fully corrected, but their lid position was no worse than the preoperative position and curvature.

DISCUSSION

Skoog described the use of the SMAS in facelifting in 1969. Lemmon later found the sub-SMAS technique to be a nice addition to facelift procedures. In 1976, Mitz and Peyronie described the anatomy of the SMAS. Since then, a variety of authors have advocated manipulating the underlying SMAS by resuspension, plication, and resection—or a combination of the three. A variety of deeper plane facelift approaches employ the SMAS for repositioning and support of composite facial soft tissue. Hamra was
among the earliest contemporary surgeons to popularize the deep plane but also focused his attention on zygobucicular dissection during composite rhytidectomy. He continued the release of the arcus marginalis, which he further modified by resetting the septum orbitale over the orbital rim. According to Hamra, these two modifications allow a more predictable and impressive result. They reinforce the concept of periorbital rejuvenation as an integral

Figure 3. (A) Orbitomalar suspension (OMS) procedure. (B) The medial and superior vector of OMS complements the confluent SMAS flap. (C) Specific changes in the orbitomalar region with OMS are shown.
Figure 4. (A, C) A 56-year-old woman who desired correction of aging eyelids, nasolabial folds, jowls, and neck. (B, D) Nine months after upper and lower blepharoplasty, high SMAS with orbitomalar suspension (OMS).
Figure 5. (A, C) A 65-year-old woman who desired correction of aging eyelids, jowls, and neck. (B, D) Twelve months after upper and lower blepharoplasty and high SMAS with orbitomalar suspension (OMS).

part of facial rejuvenation, which not only produces a more harmonious immediate result but also prevents the possible unfavorable sequelae of conventional rhytidectomy and lower blepharoplasty.\textsuperscript{11}

Mendelson\textsuperscript{12} proposed that the key to surgical correction was complete release of the anterior SMAS from the zygoma and zygomaticus major muscle. In their article, Byrd and Andochick\textsuperscript{13} described complete mobilization of
the orbital portion of the orbicularis oculi muscle away from the orbital rim with release of the malar orbicularis (zygomatic cutaneous ligament) above the zygomaticus major muscle and over the origin of the masseter muscle to rejuvenate the cheek and lower eyelid during facelift surgery. Connell described the potentially powerful effects of SMAS facelift on lending support to the orbital septum and periorbital fat.

Other surgeons have focused on a centrofacial approach to facelifting for the improvement of eyelid-cheek aesthetics. Hester et al. reported a direct translower lid blepharoplasty subperiosteal approach to the lower lid and midface for the purpose of correction of midfacial aging in 757 patients. In a smaller but significant group, this approach has proven valuable in difficult reconstructive situations as well. Nevertheless, there are limitations to both of these approaches: SMAS dissection may be incomplete in the superior medial, orbitomalar region using Marten’s high SMAS technique, whereas the centrofacial approach does not incorporate SMAS elevation. Orbitomalar suspension during high SMAS facelift combines the best of both techniques and has become the procedure of choice for the majority of our patients.

In terms of patient selection, OMS is not necessary in patients with mild cheek ptosis. In patients undergoing secondary facelift procedures in whom preoperative lower eyelid malposition is present, OMS alone may be insufficient to correct the ectropion, so lateral canthoplasty, canthopexy, and the introduction of spacer grafts using palatal mucoperiosteum or dermal fat may be needed.

The limitation of our study is in part related to the length of follow-up. Suspension sutures in general have a poor history of long-term efficacy, and it is still too early to determine how long the lifting and blending effect on the cheek itself might last.

CONCLUSIONS

In properly selected patients, OMS in concert with high SMAS facelift may be a more definitive means of addressing the ptotic cheek and lower eyelid. The OMS complements the deeper plane by adding a medial and superior vector of elevation to the cheek; blending of the lower eyelid-cheek junction is accomplished with little risk of lower eyelid malposition.

Disclosures

The authors declared no conflicts of interests with respect to the authorship and/or publication of this article.

Funding

The authors received no financial support for the research and/or authorship of this article.

REFERENCES