

Management of the Midface During Rhytidectomy



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KEYWORDS

- Midface rejuvenation • Rhytidectomy
- Multi-vector SMAS (superficial musculoaponeurotic system) lift • Midface lift

KEY POINTS

- The multi-vector high superficial musculoaponeurotic system (SMAS) facelift is a natural extension of a traditional SMAS rhytidectomy.
- There is direct access to the midface with ample opportunity for improvement; the malar fat pad can be addressed directly; the nasolabial grooves and commissure-mandibular grooves can also be improved.
- The extended lower-lid midface lift provides direct access to the midface as well as the ability to provide a direct vertical lift of the midface.

INTRODUCTION

The facial skeleton and bony structures of the face are thought to expand as we age.^{1–3} The orbital socket diameter increases in size as we age with particular recession of the inferomedial infraorbital rim.⁴ In the midface, the maxilla undergoes retrusion and resorption.⁵ The maxillary angle decreased by about 10° between young (aged <30 years) and old (aged >60 years) individuals.⁶ Moreover, there is significant development of elastosis of the overlying skin and superficial musculoaponeurotic system (SMAS). There are several telltale signs of aging noted in the midface that can be addressed during rhytidectomy to provide comprehensive and balanced facial rejuvenation. These changes include malar fat pad descent, increasing prominence of the tear trough, an enlarging infraorbicular crescent representing the ptotic inferior orbicularis as well as infraorbital fat,⁷ increasing nasolabial grooves, and ptotic and festooning jowls creating a prominent prejowl sulcus.

Various surgical and nonsurgical techniques have been proposed and practiced to rejuvenate the midface. Among the nonsurgical techniques, thermal, radiofrequency, ultrasonic, and various lasers have all been used to refresh the midface. Fillers and injectables including autologous fat transfer have also been used to replace midface volume and mask the descent of anatomic structures. Among surgical treatments, several approaches have been used to rejuvenate and lift the midface, including malar implants, direct lift, multi-vector approach, multi-plane approach, transconjunctival approach, and orbicularis suspension. Many of these techniques, both surgical and nonsurgical, have been used in conjunction with one another and are not mutually exclusive.

One thing remains clear: in order to achieve comprehensive cervicofacial rejuvenation, rhytidectomy remains the gold standard. Tightening and repositioning of redundant skin and the SMAS is paramount to cervicofacial rejuvenation. Unfortunately, too often the midface is neglected

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leading to suboptimal overall rejuvenation and a continued tired appearance. Posterior SMAS imbrication or plication provides mostly posterior pull and does not adequately address the mid-face fat pads, nasolabial groove, or commissure-mandibular fold. However, proper midface rejuvenation can be achieved at the same time as cervicofacial rhytidectomy.

TREATMENT GOALS AND PLANNED OUTCOMES

Patients undergoing cervicofacial rhytidectomy nearly uniformly desire comprehensive facial rejuvenation. Midface rejuvenation can easily be improved concurrently with rhytidectomy via a multi-vector, multi-plane approach or an extended lower-lid midface lift. The goals of midface rejuvenation include, but are not limited to, improving the jowl-mandible contour, improving the commissure-mandibular groove, improvement in the nasolabial groove, improving all 4 midface fat pads with repositioning, preserving the temporal hair tuft and posterior hairline, maximizing the cosmetic result, and finally achieving a natural nonoperated appearance. While planning for a surgical procedure, the practitioner must anticipate that different parts of the face and neck require different vectors of pull to achieve an optimal result. The midface in particular requires primarily a vertical lift. The techniques described in this article, multi-vector high SMAS 3-layered facelift with midface lift and extended lower-lid midface lift, achieve all of these goals.

PREOPERATIVE PLANNING AND PREPARATION

The ideal patient is 40 to 60 years old, in good health, without any medical comorbidities or increased bleeding tendencies with significant cervicofacial elastosis, descent of the midface with jowling, prominent jowl-mandibular irregularities, prominent commissure-mandibular grooves, and of course realistic expectations of improvement. Photographic documentation should be obtained preoperatively in the anterior-posterior frame with and without smiling, in a bilateral three-quarter view, and in bilateral side-profile views with particular attention to having each photograph viewing the Frankfort horizontal perpendicularly.

PATIENT POSITIONING

Preoperatively for marking, the authors recommend that patients be seated upright and awake. This *upright* position allows for the proper effects of gravity with respect to the facial architecture as well as certainty that there are no paralytic

anesthetics affecting the patients' musculature. Marking is done to demarcate the extent of dissection, the prominence of jowls, and any nasolabial or commissure-mandibular grooves. If an extended lower-lid midface lift is being done, extended lower-lid blepharoplasty incisions should be marked. Very importantly is the marking delineating the directions of the SMAS pull on different areas of the face and neck (**Fig. 1**). This protocol will ideally lead to a more predictable and natural looking result.

PROCEDURAL APPROACH

For the multi-vector high SMAS facelift, perioperatively patients are supine with the endotracheal tube midline or to the left. The tube is secured to the central incisors with a 2-0 silk to allow for movement of the tube on either side of the face. Great care is taken not to allow the endotracheal tube to pull on the lip or the face. The patients' hair is tied posteriorly and taped out of the surgical field. Patients are then prepped with a half-strength povidone-iodine solution. Towels and sterile tape are then used to further isolate the surgical field.

Firstly, the planned facial incisions were injected with a total of 40 to 60 mL of tumescent solution consisting of a 0.25% bupivacaine hydrochloride (Marcaine), 0.5% lidocaine, and 1:100,000 of epinephrine. The temporal tuft and preauricular, postauricular, and posterior hairline incisions were made with a No. 15 blade; subcutaneous planes were raised in the postauricular area and preauricular area using the same No. 15 blade, and then facelift scissors were used to elevate the same subcutaneous plane anteriorly to a point approximately even with the zygomatic body; but no dissection was made up into the zygomatic body itself. The midface, submandibular, and cervical dissections were made; a 3-0 polypropylene (Prolene) suture was used to vertically raise the SMAS and the anterior cheek perioral area as



Fig. 1. Marking for multi-vector SMAS lift.

well as the multi-vector SMAS plication (Figs. 2 and 3). Softening of the nasolabial and commissure-mandibular grooves as well as elevation of the malar fat pad should be observed.

Several 3-0 Prolene sutures were also used to secure the platysma posteriorly and superiorly to the sternocleidomastoid fascia. The most inferior SMAS suture (3-0 Prolene) vector focuses on improvement of the lower and middle neck. The vector of pull is typically more superior and a little posterior. The most superior SMAS suture, the vectors focus on softening the nasolabial fold and elevating the malar fat pad. That suture's vector of pull is more superior and slightly posterior. The central SMAS sutures focus on improving the submentum, jawline and nasolabial fold. That vector of pull is equally superior and posterior. The elevation of the malar fat pad is considerable during this type of rhytidectomy and care must be taken not to over exaggerate the malar area.

Skin is then redraped and trimmed appropriately, and the skin flaps are closed in the standard fashion. After ensuring adequate hemostasis, the incisions are closed with a 5.0 Prolene suture in a combination of interrupted, running, vertical mattress and horizontal mattress sutures to allow for a tension-free closure (Figs. 4 and 5).

An extended lower-lid midface lift may also be used to enhance any facelift or used when doing a lower-lid blepharoplasty. A prominent horizontal lower-lid rhytid is identified, and an incision is marked out and injected with local anesthetic bilaterally. Dissection is carried out deep to the orbicularis muscle bilaterally. Dissection along the lower lid continues in the suborbicularis muscle space, but above the septum orbitale. The dissection of the skin-muscle flap is continued a short distance over the malar prominence depending on that individuals perceived optimal result. Midface mobility allows for suspension of the midface structures



Fig. 3. SMAS suspension in multi-vector facelift with midface suspension.

and inferior orbicularis oculi muscles. The lateral orbicularis is suspended to the orbital rim with horizontal mattress 5-0 Prolene sutures. This suspension allows for focus and suspension of the malar bag. In an attempt to avoid dimpling, the suspension of the inferior orbicularis muscle is accomplished by suturing that muscle to the periosteum 1-4 mm lateral to the lateral orbital rim. An additional suspension of the orbicularis muscle is accomplished 3-6 mm lateral to orbital rim. The two suspensions provide greater assurance that the midface lift elevation will be permanent. The lower lid incisions are closed with interrupted 6-0 prolene laterally and a running 6-0 prolene from the lateral canthus medially. This placement ensures that the suture is placed through the superior portion of the skin-muscle flap to ensure volume before the horizontal mattress is completed on the inferior portion of the skin-muscle flap. The precise placement of these sutures provides smooth contouring of the inferior and superior skin flaps and minimizes the chance of dimpling. The closure is completed by placing interrupted stitches with 6-0 prolene sutures followed by running 6-0 Prolene sutures in the skin bilaterally.

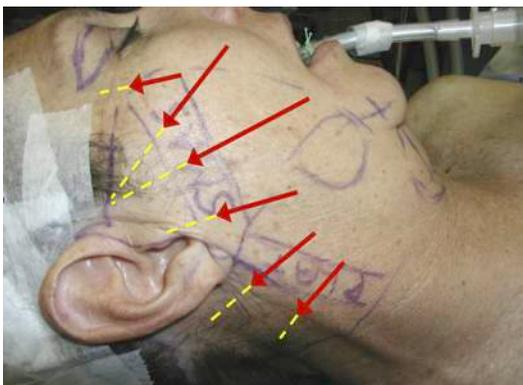


Fig. 2. Vectors of pull for SMAS; medial arrows provide the malar lift.



Fig. 4. Skin excision of multi-vector SMAS facelift.



Fig. 5. Closure of multi-vector SMAS facelift.

POTENTIAL COMPLICATIONS AND ADVERSE EVENTS

The multi-vector high SMAS facelift has complications similar to a traditional SMAS plication or imbrication facelift. These complications include, but are not limited to, hematoma, seroma, epidermolysis, hypesthesia, and irregular skin contouring. There is a greater chance of epidermolysis because the blood supply to the skin flap is less compared with a deep-plane technique. Specific midface-related imperfection of the multi-vector high SMAS facelift include too much

elevation of the malar fat pad resulting in too full a malar prominence, usually secondary to too much lift and/or bruising. The fullness of the malar area will typically heal with time. There is always the option to resuspend the midface; however, the authors have never had to do that. In all of the authors' patients, the problem resolved within 2 months.

With regards to the extended lower lid mid-face lift, if there is a lower lid blepharoplasty done concurrently, there is a risk of some lateral rounding. However, in an isolated mid-face lift, the chances are lateral rounding is further diminished because of the suspension of the skin-muscle flap. An adverse effect from the extended lower lid mid-face lift can be irregular skin contouring or dimpling close to the site of the suspension sutures. If dimpling occurs and is cosmetically undesirable, it usually resolves within 2-3 months. If it does not resolve, it can be improved by removing one or both sutures several months after the procedure. A sensation of tightness can be an adverse effect with or without animation in the mid-face, but that resolves within a few weeks if it occurs at all.

POSTPROCEDURAL CARE AND RECOVERY

Care for the multi-vector high SMAS rhytidectomy and midface lift is not dissimilar to traditional



Fig. 6. Preoperative (A) and postoperative (B) multi-vector SMAS facelift combined with chin-prejowl implant and rhinoplasty.

care after a rhytidectomy. All patients receive anti-staphylococcal antibiotics for 5 days postoperatively. The authors recommend follow-up visits to the office the day after surgery for the first

postoperative visit and dressing change. On the fourth or fifth day, the first set of sutures are removed. Additional sutures are removed 1 week postoperatively, and all sutures are usually

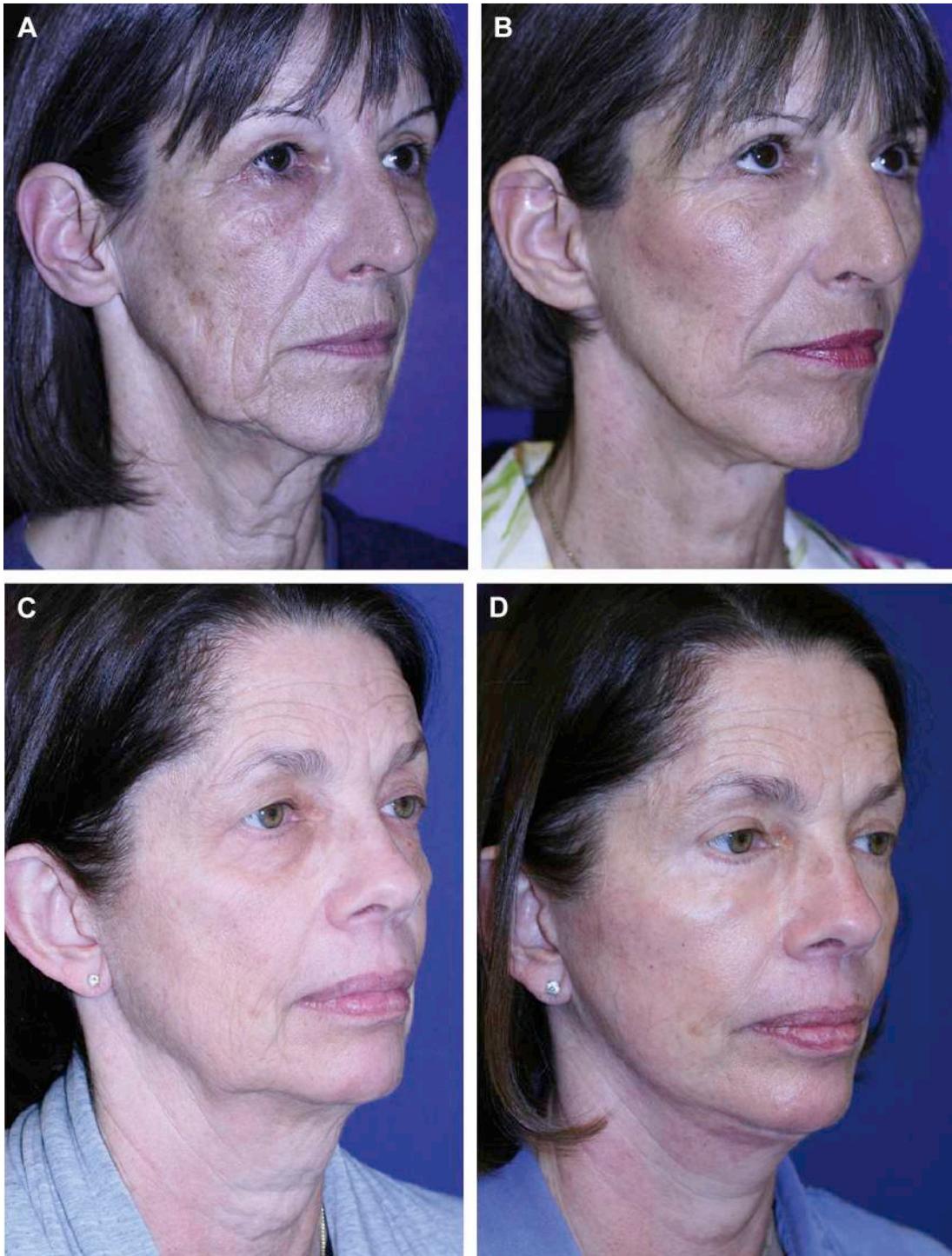


Fig. 7. Preoperative (A,C) and postoperative (B,D) extended lower-lid midface lift with concurrent face-neck lift and vertical neck lift.

removed between 10 days to 2 weeks postoperatively. The authors also recommends sleeping with the head of the bed elevated for 2 weeks as well as restriction of rotational movement of the head and neck for 6 weeks. The patient needs to clean the crusting of the incisions several times a day until sutures are removed. Pain control is achieved with acetaminophen-hydrocodone; however, often extra-strength acetaminophen is all that is needed.

Postoperative care following an extended lower-lid midface lift is similar to that of a blepharoplasty. Skin sutures are typically removed in a staged fashion between 3 and 7 days after surgery. The authors recommend that ice packs should be applied to the eyes shortly after surgery. Ice packs should be applied in 20-minute intervals (20 minutes on, 20 minutes off) while awake for the first 2 to 3 days after surgery. It is recommended that there is no direct contact between ice and the incision; use a washcloth or gauze as a buffer instead. The incisions should be cleaned with a gauze pad or cotton tips using tepid water to remove any crusts that may form. A thin layer of the hydrophilic ointment to the suture line 3 times a day also aids in this task. Pain control is typically achieved with extra-strength acetaminophen.

RESULTS AND CONCLUSION

Different parts of the face and neck require a different vector of pull for optimal results. Both the multi-vector high SMAS facelift and extended lower-lid midface lift adequately address the midface during rhytidectomy. The most medial portion of the dissection with SMAS plication results in a primarily vertical lift of the malar fat pad in a multi-vector high SMAS facelift. In a typical deep plane, SMAS facelift, or as a stand alone

procedure, the midface may be addressed with an extended lower-lid midface lift. This procedure allows for direct access to the midface and a direct superior and slightly posterior pull of the midface fat pads. The goals of both of these procedures are to improve the position of the midface fat pads. These procedures can be an adjunct to traditional rhytidectomy and allow for comprehensive facial rejuvenation. Preoperative and postoperative examples of the multi-vector high SMAS facelift and extended lower-lid midface lift are shown in **Figs. 6** and **7**, respectively.

REFERENCES

1. Hellman M. Changes in the human face brought about by development. *Int J Orthod* 1927;13:475.
2. Todd TW. Thickness of the white male cranium. *Anat Rec* 1924;27:245.
3. Garn SM, Rohmann CG, Wagner B, et al. Continuing bone growth during adult life: a general phenomenon. *Am J Phys Anthropol* 1967;26:313.
4. Kahn DM, Shaw RB Jr. Aging of the bony orbit: a three-dimensional computed tomographic study. *Aesthet Surg J* 2008;28:258–64.
5. Pessa JE. An algorithm of facial aging: verification of Lambros's theory by three-dimensional stereolithography, with reference to the pathogenesis of midfacial aging, scleral show, and the lateral suborbital trough deformity. *Plast Reconstr Surg* 2000;106:479–88.
6. Mendelson BC, Hartley W, Scott M, et al. Age-related changes of the orbit and midcheek and the implications for facial rejuvenation. *Aesthetic Plast Surg* 2007;31:419–23.
7. Furnas DW. Festoons of orbicularis muscle as a cause of baggy eyelids. *Plast Reconstr Surg* 1978; 61:540–6.