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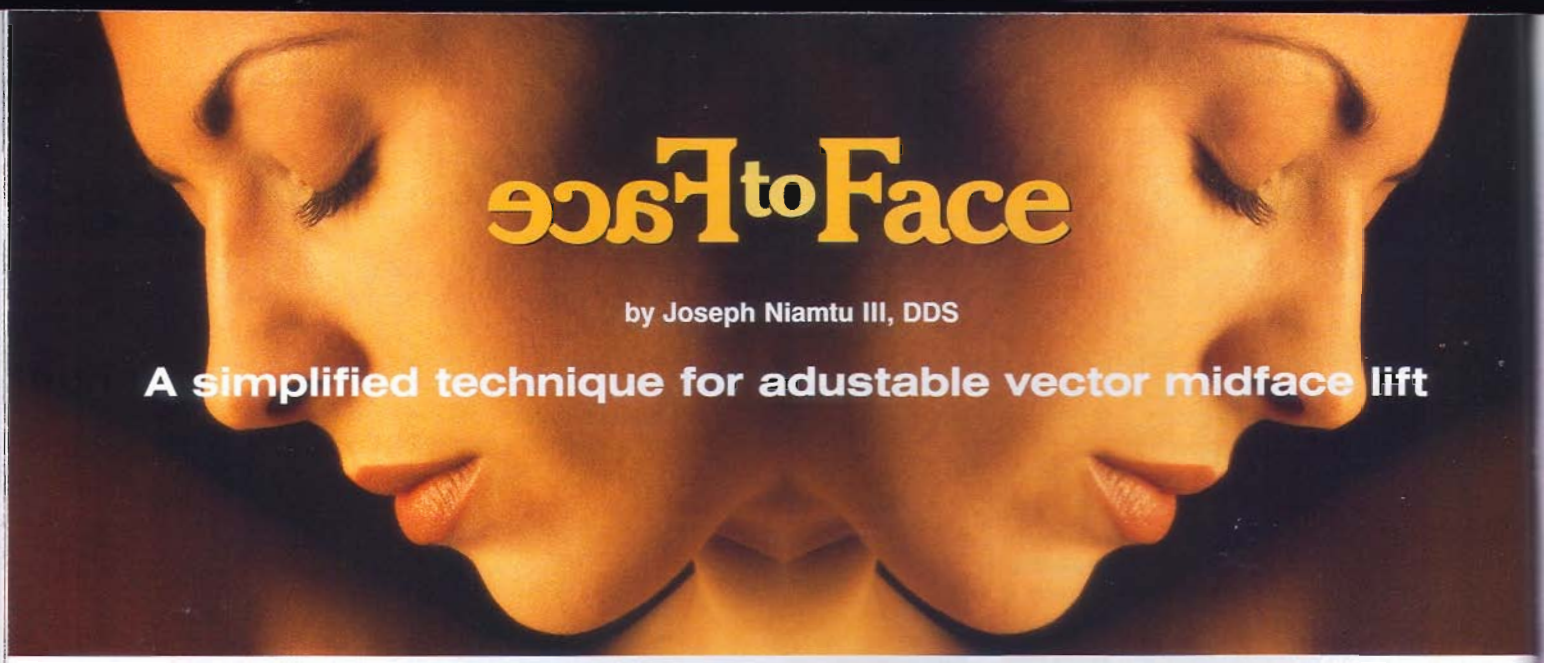


Face to Face

by Joseph Niamtu III, DDS

A simplified technique for adustable vector midface lift

The midface is often overlooked when rejuvenating the aging face. All too frequently a surgeon may perform total upper facial rejuvenation (four-quadrant blepharoplasty and brow lift) and total lower facial rejuvenation (rhytidectomy, chin implant, cervicofacial liposuction, laser resurfacing, lip enhancement, etc) without addressing the midfacial structures. This can be obvious in the postoperative result with a youthful upper and lower face but a ptotic or hypoplastic midface area. This is unfortunate for both the patient and the treating surgeon.

All patients should be informed and given options concerning midface rejuvenation. Many techniques exist to augment the midface including, fillers, autologous fat transfer[1-3], malar implants[4], and lifting procedures[5-21]. These procedures should be in the armamentarium of all cosmetic surgeons and it is frequently obvious when they are not.

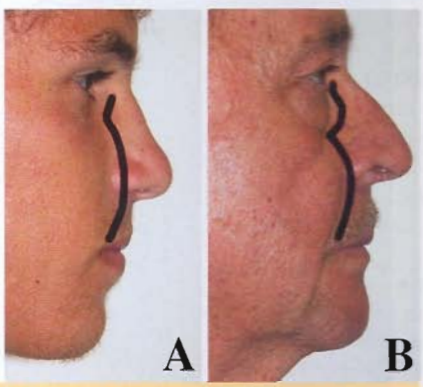
Many techniques have been described over the years for midfacial lifting procedures[5-21]. Some surgeons favor surgical techniques that entail a lower blepharoplasty approach. This author believes that "hanging" the midface on the periorbital structures can contribute to lower eyelid malposition, cicatricial ectropion, and lateral border eyelid rounding. These complications can frequently occur with lower lid skin/muscle approaches without midface lift. By suspending the malar fat pad or other structures with this approach, it can add to these postoperative lower lid problems.

Tessier[5] described the subperiosteal approach for lifting procedures and other authors have detailed minimally invasive approaches that are simple and provide adequate and lasting results. These approaches involve temporal tuft and intraoral incisions to create a tunnel through which to pass a suspension suture to elevate the malar fat pad and surrounding tissues.

I am following my last consecutive 21 patients (one patient was treated unilaterally for trauma) with standardized pre- and postoperative images and am approaching 2-year follow up.

Surgical Anatomy

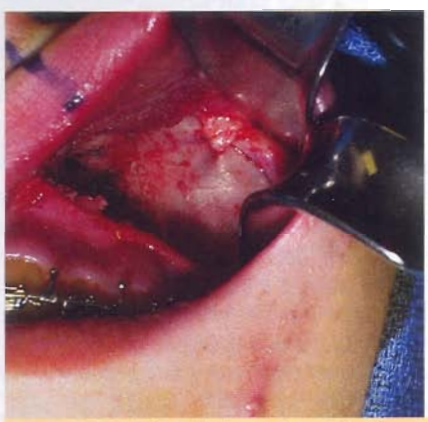
The malar fat pad is a triangular structure that in youth lies in the infraorbital and malar area. The base of this triangular structure is parallel to the nasolabial fold and its apex is at the malar region[22]. In the aging face the malar fat pad descends to a more inferior position contributing to jowl formation and deepening of the nasolabial fold[23]. Facial aging is viewed as a combination of deflational and gravitational changes from multiple factors, including ligamentous laxity and skin aging. The youthful midface is rounded and full while the senescent midface is hollow and flat. The rounded curve of the youthful midface is referred to as a single convexity profile because the lack of lower eyelid changes and the presence of a high, rounded malar fat pad contribute to a single curve (Figure 1A). As the lower eyelid region develops, skin, muscle, and fat all change. This produces the classic signs of pseudo fat herniation, which adds an additional convexity to the facial shape and is referred to as a double convexity profile (Figure 1B).



Figures 1A and B. The eyelid-midface complex maintains a single convexity in youth, but assumes a double convexity with aging.

Younger patients with a ptotic or hypoplastic midface may benefit from midface lift alone, while older patients that manifest the double convexity profile will benefit from lower eyelid rejuvenation in conjunction with midface lift.

Besides the location of the malar fat pad, another key anatomical structure is the superficial layer of the deep temporalis fascia. This layer is important because it serves as a safe plane from which to begin the dissection tunnel from the temporal incision to the lateral orbital rim (Figure 2). It is considered a safe plane because the nerve fibers of the frontal branch of the facial nerve are above this plane intimate to the temporoparietal fascia. When the lateral orbital rim is reached in the dissection (this is described in detail later in this



PHOTOS COURTESY OF JOSEPH NIAMTU III, DDS

Figure 2. The infraorbital nerve lies within the dissection area and must be preserved.

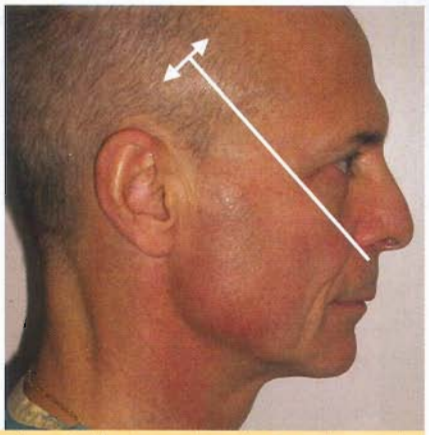


Figure 3. The temporal incision is made several centimeters into the hairline perpendicular to the alar/canthal line.

article) the dissection plane must become subperiosteal, which is again a safe plane to avoid the frontal branch as well as the correct plane to gain subperiosteal access to the zygomaticomaxillary complex and malar regions. By observing the detail of both of these surgical planes, I have never encountered a nerve palsy with this procedure. When dissecting in the subperiosteal plane over the anterior maxilla, the surgeon must pay close attention to the infraorbital nerve, which is readily observed in the surgical field

Surgical Technique

Although I have performed this procedure under local anesthesia, IV sedation or monitored anesthesia care (MAC), anesthesia is preferred. This surgical approach lends itself well to concomitant procedures, such as endoscopic brow and forehead lift, cervicofacial rhytidectomy, and maxillary osteotomy.

The patient is marked in the upright position. The temporal incision is marked by making a 2–3 cm line perpendicular to the alar/canthal line several centimeters into the temporal tuft (Figure 3).

Next, the patient is prepped and draped in the customary manner for cosmetic facial surgery. Local anesthesia is infiltrated in the superficial and deep layers of the planned temporal incision, over the lateral orbital rim, and intraorally over the entire zygomaticomaxillary complex.

Either incisional approach may be used first, although I usually begin in the temporal area. A skin incision is made with a #15 blade and deeper tissues are incised with the Ellman radiofrequency microneedle (an ellipse of scalp may be electively excised to assist in the lift if desired). Blunt dissection is carried out until the superficial layer of the deep temporal fascia is located. At this point the surgeon is below the branches of the frontal nerve and while hugging this plane can dissect freely to the lateral orbital rim. A periosteal elevator or similar instrument is used for this (Figure 4).

When the surgeon encounters the lateral orbital rim, the periosteal elevator is burrowed in a twisting motion to enter the subperiosteal plane. The dissection then continues on to the malar area from this temporal incision.

Next, attention is focused intraorally and a 3 cm full thickness subperiosteal incision is made with an Ellman radiofrequency microneedle 5 mm above the attached gingival in the mucosa above the first molar tooth. The dissection is then begun at this level with a periosteal elevator and extends medially to or near the piriform aperture, superiorly to the infraorbital rim, and laterally to the attachment of the masseter muscle on the zygomatic arch (Figure 5).

Figure 4. A periosteal elevator is used to negotiate safe dissection planes to preserve the frontal branch of the facial nerve.

The subperiosteal tunnel is connected to the previously created temporal tunnel by continuing superiorlaterally toward the zygomaticofrontal–lateral orbital region.

Now that this tunnel is completed, a 2-0 PDS suture is used to secure the malar fat pad and surrounding tissues (with a double throw of the suture) at the intraoral incision (Figure 6).

It should be noted that in reality one is not securing the malar fat pad proper, as in this plane the fat pad is also intimate with mucosa, mimetic muscles, and periosteum. A large needle facilitates this maneuver and I cut the needle off the suture prior to passing it up the temporal tunnel to avoid damage to other structures. The point of attachment of the suture to the malar fat pad and related tissues can in part determine the area of midface augmentation. By securing the malar fat pad in the region of the canine tooth, a more vertical augmentation will ensue when tightening the suspension suture. Securing the malar fat pad in the region of the first molar can produce a more superior lateral midface augmentation. Considering the suture placement, the midface lift has an adjustable vector. I sometimes try both locations to see which vector produces the most aesthetic augmentation. If the lifted tissue position is not satisfactory, the suture is repositioned. Sometimes both attachment points are used if this produces a more desirable augmentation. Next, a long, thin tonsil clamp is passed from the temporal incision over the malar region and into the oral cavity (Figure 7).

The suture ends are then grasped with the tonsil clamp (a passing awl can also be used) and pulled back through the temporal incision. Traction is placed on the suture tail until the desired augmentation is achieved. I generally place maximum pull and lift on the fat pad. Since the patient is usually recumbent during the surgery, the augmentation often looks excessive, but always seems to appear normal with the patient in the upright position and after healing. I have never had a patient complain of overaugmentation. The final step is to anchor the suspension suture under traction to the superficial layer of the deep temporal fascia. The incision is closed in two layers with 4-0 gut and staples. The intraoral incision is closed in a single layer with 4-0 gut suture. Due to the extent of the lift and the tethering of the mucosa there sometimes is not adequate mucosa for primary closure. In this case the mucosa must be carefully (as not to cut the suspension suture) dissected from the elevated fat pad and surrounding tissues to allow coaptation and primary closure (Figures 8A and B).

No special dressings are used and the patient is prescribed antibiotics, analgesics, and a tapering dose of oral steroids. The patient is informed that he will experience temporary paresthesia of the distribution of

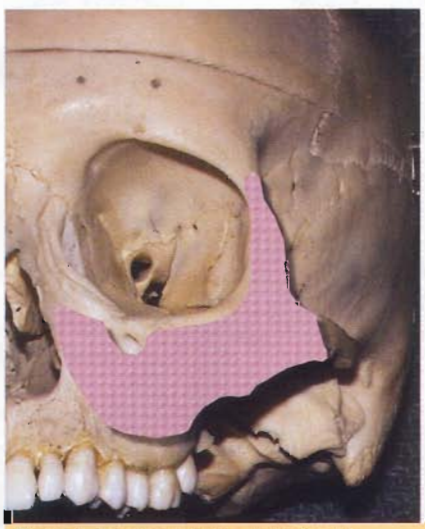


Figure 5. The stippled area shows the subperiosteal dissection of the maxilla and zygomaticomaxillary (ZMC) complex.

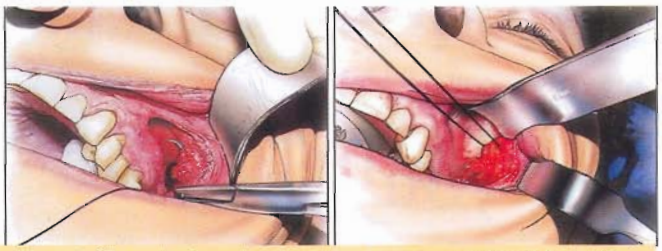


Figure 6. The malar fat pad and associated structures being secured with a suspension suture.

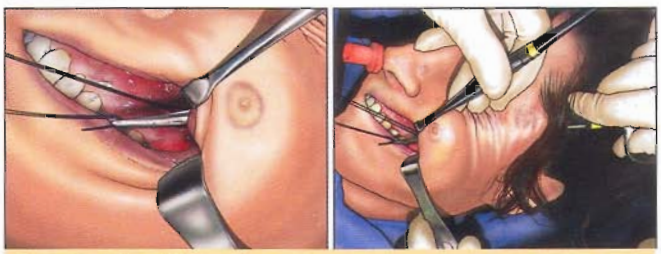


Figure 7. A long, thin tonsil clamp is inserted into the dissection tunnel to retrieve the suspension suture from the oral cavity.

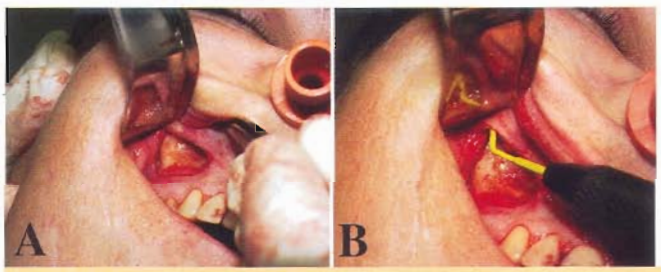


Figure 8A: A tethered incision from elevation of tissue by the suspension suture. B: The Ellman radiofrequency microneedle used to free the tethered mucosa to enable primary closure.

the infraorbital nerve. In addition he must be aware that he will experience temporary dysfunctional perioral animation from the detachment of the origins of the lip elevators. Finally, the patient should be aware that this procedure will cause significant midface swelling for 10–20 days. Obviously, the patient should be informed of all the aforementioned sequela preoperatively or these situations can cause unnecessary anxiety.

In this ongoing study, I have seen excellent improvement of the midface. In some patients a midface lift alone may improve the nasojugal groove (tear trough deformity).

In older patients, midface lift with transconjunctival blepharoplasty with lower lid skin laser resurfacing or skin pinch has a synergistic effect where the total is greater than the sum of the parts. In other words, lower lid blepharoplasty coupled with midface lift produces a more aesthetic correction of the midface and lower lid complex than either procedure alone.

One area that does not seem to be improved with this technique is the nasolabial fold complex. Although this area can be seen to elevate with traction from the intraoperative suspension suture, long-term improvement has not been observed. Since many midface lift patients presented with midface complaints, they usually desire improvement of the nasolabial fold. I will address the nasolabial fold at the same time as the midface lift. This can be done with fat, fillers, polytetrafluorothylene (ePTFE) implants and CO^2 laser resurfacing.

Complications

No serious complications have been observed in this cohort of patients. One patient developed a suture tract infection, in the lateral orbital region, which responded to antibiotics. No cases of permanent motor or sensory damage have been observed or reported. Significant relapse within 9 months was seen in one patient without any particular identifiable cause. An additional caveat is that the crux of this procedure is to lift ptotic tissues in the midface region. If a patient is cachectic, extremely thin, or otherwise lacking a malar fat pad, there is nothing to elevate. One patient in this series was a very thin male and even thought the malar fat pad and surrounding tissues were significantly elevated, very little clinical augmentation was appreciated. Finally, three patients (all smokers) developed wound dehiscence. Two of the dehisced areas healed by secondary intention with antibiotic mouthwash and the third required a secondary procedure to remove scar tissue and reclosure.

Conclusion

This technique for midface lift is a simple procedure that, with experience, takes about 20 minutes per side. The learning curve is mild and the complication rate is low when observing safe dissecting planes. The long-term (2 years thus far in this study) stability of this surgery is good and the procedure has excellent acceptance with both surgeon and patients. ■

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