Malar Fat Pad Repositioning in Facelifting: A Simple Technique of Suspension and Fixation

Chang Yung Chia, MD; Marcelo Wilson Rocha Almeida, MD; Patrícia Durgante Ritter, MD; and Erik de Aquino Nery, MD

Abstract

Background: Aging in the malar fat pad is mainly caused by ptosis of the fibroadipose layer. In the lower level of the face, atrophy or osseous rotation may contribute to the signs and symptoms of facial aging.

Objectives: The senior author (CYC) describes his simple technique of suspension and fixation of the malar fat pad and the jowl during facial rejuvenation surgery.

Methods: Ten patients underwent facial rejuvenation, the technique of which consists of sustaining and elevating the ptotic malar tissue and the jowl with four slings of monofilament nylon suture. The sutures are fixed medially in an artificial orifice dissected on the frontal process of the maxilla, above the alar groove. The sutures are distributed evenly on the face, directly supporting the jowl, the malar fat pad, and the periorbital tissue. Laterally, the loops are fixed under tension on the temporal fascia and the periosteum of the lateral orbital rim. The vector of tissue displacement is upward and concentric, opposing the vector of the aging process, and the fixation is consistent.

Results: Postoperative complications included moderate and transitory pain; patients reported no major complications or recidivisms during the follow-up period of two years. Results showed aesthetic improvement for all patients.

Conclusions: The present technique has proven simple and effective in a small cohort over two years. A longer follow-up period with more patients would be valuable in further documenting the procedure.

Keywords

face lifting, rhytidoplasty, facial rejuvenation

Accepted for publication July 27, 2010.

Malar fat pad repositioning, which restores the shape and volume of the face, is a fundamental step in facial rejuvenation procedures. Recent studies show that malar fat pad aging occurs on two levels. In the upper level, aging is primarily caused by ptosis of the fibroadipose layer attached to the skin. In the lower level, atrophy or osseous rotation of the muscle is a more significant factor than changes to the superficial muscular aponeurotic system and periosteum. In traditional facial rejuvenation, the malar fat pad is repositioned with upper-lateral traction, which may be ineffective in light of recent research regarding the anatomy of the area. The upward vector of the malar fat pad should be vertical; in the periorbital region, the vectors should be concentric. The proper fixation of this suspension in rigid tissue is important as well. To that end, we present a simple technique of suspension and fixation of the midface, specifically in the orbital and malar regions, the nasolabial and labiomandibular folds, and the jawline. This technique lends itself well to concurrent procedures and can complement additional upper or lower facial rejuvenation techniques.

METHODS

From January 2007 to January 2009, the technique described below was applied to 10 consecutive patients over a two-year period in the senior author’s (CYC) clinic. All patients...
were women. Each underwent facelift and necklift procedures along with blepharoplasty. Seven (70%) were primary cases and three (30%) were secondary.

**Surgical Technique**

Before the procedure began, each patient was examined in the orthostatic position; the structures to be treated were identified and the location where each suture would be placed was marked (Figure 1). Once the patient had undergone preoperative preparation and antisepsis, general anesthesia was administered, with local infiltration of the face and nasal lateral mucosa with vasoconstrictor solution. A preauricular incision was made, and limited detachment of the face was completed, after which retroauricular and mastoidal incisions were made as necessary within the extension of the neck detachment. The lateral platysma and medial platysma superficial muscular aponeurotic system were treated. Access to the midface was gained through conventional inferior blepharoplasty, taking care to limit the orbicularis muscular incision to the lateral half, thus preserving the motor innervations. The dissection plane at the malar region was infraorbicular and supraperiosteal.

A 2-mm stab incision was then made with a No. 11 blade at the upper part of the alar crease. Dissection with sharp scissors proceeded to the bone at the piriform aperture, just above the nasal wing (Figure 2). Through the stab incision, the bone and nasal mucosa were transfixed with a 3-cm threaded curved needle of 2-0 monofilament nylon. Exiting outward through the naris, the needle crossed the osseous opening and then retroceded in a caudal direction, passing through the piriform opening edge.

**Figure 1.** This illustration of preoperative planning (left) and postoperative results (right) shows the position of the four sutures inserted during the procedure: green (nylon 2-0), along the mandibular line; purple (nylon 2-0), along the caudal malar fat region; blue (nylon 4-0), along the medial malar region; and red (nylon 4-0), along the cranial malar region. The postoperative hemiface shows the traced wires suspending the malar fat pad, with their respective fixations: green and purple, in the temporal fascia; blue, in the parietal region; and red, in the lateral orbital edge.

**Figure 2.** (A) A 2-mm incision is placed in the nasal wing groove close to the bone edge of the piriform opening. (B) Dissected facial-cervico lifting and the trajectories of the marked wires are shown in the mandibular, malar, and periorbital regions.
and finally exiting through the cutaneous incision, thereby binding the bone (Figure 3). A 4-0 monofilament nylon was secured to the previously-placed 2-0 suture, resulting in four fixed sutures at the malar region (Figure 4). A long, curved, blunt needle was then passed from the preauricular and periorbital region to the nasal incision; it was continued

Figure 3. (A, B) The opening in the bone of the nasal process of the maxilla. (C, D) The bone and nasal mucosa are transfixed. (E, F) The needle crosses the bone and the mucosa, then retrocedes and returns through the incision, binding the bone edge.
deep into the subcutaneous tissue, to bring the suture through the lateral incision (Figure 5).

After completion of these steps, the first suture (of 2-0 nylon) lay laterally parallel to the nasolabial fold, proceeded down to the mandibular base (which allowed it to retain the jowl), and followed a superolateral path to define the jawline. The suture was then fixed to the supraauricular temporal fascia. The second suture (of 2-0 nylon) was placed above the first one in a similar course. It traveled caudally to the zygoma, to the same point of fixation, defining and elevating the malar region and attenuating the nasolabial fold. The third suture (of 4-0 nylon) proceeded through the malar area to the temporoparietal region, distributing the malar tissue and strengthening the elevation. The fourth suture (of 4-0 nylon) was placed around the orbit, inferior and laterally. It was fixed on the internal aspect of the orbital periosteum, at the superolateral edge. This concentric traction resulted in added volume in the hollow eye.

Following completion of the technique, the procedure continued with complementary blepharoplasty, canthopexy, and rejuvenation of the upper and lower thirds of the face. In short, the technique consisted of elevating and fixing the midface as a whole unit, with four slings of monofilament nylon suture. Medially, they were fixed to the bone at the piriform aperture, above and lateral to the nasolabial fold. Laterally, they were distributed through the fascia temporalis and periosteum of the orbital rim.

**RESULTS**

The mean age of the 10 patients was 60.5 years (range, 50 to 69 years). Six patients (60%) complained of moderate
temporal pain postoperatively, lasting up to seven days. There were no major complications such as hematomas, seromas, facial nerve branch compression or lesion, ischemia, or alopecia in any of the patients in this series.

Figures 6–8 show representative clinical results of facial rejuvenation with our technique of malar fat pad suspension. As these results suggest, both surgeon and patients deemed the repositioning and definition at the malar and orbital regions, jawline, and nasolabial fold very satisfactory.

**DISCUSSION**

Current techniques in facial surgery emphasize volume redistribution and restoration of natural contours. The middle third of the face is primarily responsible for the most noticeable signs of aging. It encompasses the inferior lid and periorbital region, areas that demonstrate symptoms such as the hollow eye (the V deformity), skeletonization of the malar bone, intensification of nasolabial fold, tear trough deformities, and the emergence of festoons. Recent studies have revealed that the main changes occur in facial volume as a result of the descent of the subcutaneous fat and bone atrophy. Changes in muscle aponeurosis seem to be irrelevant and traction on the superficial muscular aponeurotic system does not work; in some cases, these procedures may even accentuate the nasolabial fold, given that it is formed by the insertion of the zygomatic muscles. Therefore, the preferred plane for undermining is subcutaneous and the treatment/repositioning of malar fibroadipose thickening is key.

The direction of traction is another point of interest. The medial third of the midface falls inferiorly and medially; the central third, inferiorly; and the lateral third, inferiorly and laterally. As such, to combat the signs of aging, the medial third should be pulled superiorly and laterally; the central third, superriorly; and the lateral third, superiorly and medially. When the sutures are pulled, as proposed by the technique we describe, the force of traction is perpendicular to the sling parabola. Therefore, the resulting vector of elevation is superior and vertical.

Obtaining strong and lasting results in tissue mobilization or suspension depends on observing several well-established principles: tissue undermining, elimination or...
attenuation of opposing forces (myotomies, myectomies), elimination of excess tissue, fixation to immobile structures, placement of an adequate number of sutures, and direct approach to the structure when it has elastic properties.6,8,16 (According to the nonlinear elastic deformation property, the proximal part absorbs most of the pulling forces, and the distal part is only minimally mobilized.)

Among the many midface suspension techniques,17-19 most feature superolateral traction. Some authors employ transpalpebral vertical traction and fix the graft in the periosteum of the infraorbital edge—or, when the periosteum is thin, they perforate two or three openings with a drill in the orbital edge, taking care to protect the ocular globe.20 However, the existing literature lacks description of a simple surgical technique of reliable fixation with a vertical ascension vector. In our technique, the sutures directly sustain the ptotic tissue. Because the sutures are fixed to the bone medially and distributed over the orbital rim and fascia temporalis laterally, there are several concentric traction forces, allowing total reshaping and volume restoration in the midface.

Two limitations of our study are its small sample size and its relatively short follow-up period. To truly determine the long-term safety and efficacy of this procedure, following a larger cohort for an extended period would be helpful.

CONCLUSIONS

Our technique of malar fat pad repositioning for facial rejuvenation has proven simple, safe, versatile, and reversible, with no major complications in a cohort of 10 patients. The multidirectionality of the suture placement, elevation, and suspension make this approach unique and contributes to its overall reliability. Furthermore, it can be successfully performed alongside other rejuvenation procedures.

Disclosures

The author declared no conflicts of interest with respect to the authorship and publication of this article.

Funding

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


Figure 8. (A) This 50-year-old woman presented for facial rejuvenation. (B) Facial-cervico lift and blepharoplasty, with malar and periorbital repositioning, as well as jaw line definition and treatment of her naso- and labiomandibular folds.


