Transcutaneous Face-Lift

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BACKGROUND. Face-lifting can result in a number of complications. A mini-invasive technique is now presented.

OBJECTIVE. To perform face-lifting as a simple, quick, and mini-invasive ambulatory approach in patients requiring mild to moderate lift.

MATERIALS AND METHODS. Using a Khawaja-Hernandez or Keith needle and polypropylene 2-0, the superficial SMAS is pulled up and fixed to the periosteum of the temporal bone. Nineteen patients were so operated on, 14 women and 5 men, whose ages varied from 51 to 67 years. Pre- and postoperative photographs were taken. The degree of satisfaction was measured from 1 to 3 (1 being the least satisfactory). Informed consent was signed by all of the patients.

RESULTS. Satisfactory results were obtained in all cases. Patients enjoyed the ease of the procedure.

CONCLUSION. This is a simple, quick, and noncomplicated way to perform a face-lift. It can be combined with other modalities of facial rejuvenation.

FACE-LIFTING HAS undergone considerable changes in technique recently, with a trend toward the more simple ones over the radical ones. Some examples are S-lift, Delta-lift, lower superficial musculoaponeurotic system (SMAS) platysma face-lift, and face-lifting with Apto" threads.1-6

Transcutaneous face-lift (TCFL) is one of the simplest of all known face-lift techniques. It is suitable for individuals requiring a mild to moderate face-lift. The idea of this procedure came to us when we saw the satisfactory results obtained with the percutaneous approach to eyebrow lift.7

TCFL Technique

TCFL is carried out on highly motivated, healthy adults.

Step 1

One percent anesthesia with epinephrine is used for line AB in the temporal region and for points C, D, E, and F (Figure 1). We use the Khawaja-Hernández (KH) needle, which is somewhat similar to the Keith needle but is relatively longer and thinner and has a pointed end but not sides. The length of the KH needle is 9 cm, and the width is 1 mm at the broadest part and 2 mm at the eye of the needle. It tapers toward the end. However, a Keith needle with similar dimensions can also be used for the procedure.

Step 2

An incision is made on line AB.

Step 3

The KH needle with polypropylene 2-0 attached to the eye of the needle is passed from line AB toward point C. The needle track is very superficial and straight in the suprazygomatic portion, where the temporal branch or branches of the facial nerve cross the zygomatic arch. In the infrazy-
gomatic portion, the needle takes bites of SMAS but relatively superficially, in a side-to-side zigzag manner. This is done by gently swaying the needle sideways. Below the lobe of the ear, the bites are relatively deep in an upside-down fashion (troughs and valleys). The skin can be pulled up somewhat with the other hand to facilitate the maneuver. The idea is to take bites of SMAS rather than pursue a straight course. The needle exits at point C.

Step 4
From point C to D, the needle takes a similar zigzag course.

Step 5
From point D back to the same point on line AB, the needle follows exactly the same pattern as while coming down from line AB to point C, that is, a relatively deeper course below the lobule, a relatively superficial course up to the zygomatic arch, and a very superficial course at the zygomatic arch.

Step 6
SMAS is pulled up vertically, and the knot is tied. It is important to make four to five passes of the knot to make it more secure.

In a similar manner, the second suture starts from line AB toward points E and F and back to the same point on line AB and is tied at an angle of 45 degrees after pulling up superolaterally. It is important to tie the knots in the deeper periosteum of the temporal bone to provide a stable lift. Closure of line AB is performed with polypropylene 4-0 interrupted stitches (Figure 2). Lifting on the other side is carried out in a similar manner.

The distance between points C and D and E and F varies from 1.5 cm to a few millimeters, depending on the nature of the lift. If more pull is required, it is mandatory that the distance between the points is reduced; otherwise, humps will form between the points. The entry and exit points can coincide, that is, points C and D can merge, and, similarly, points D and F can merge if more lift is required. On the other hand, if tissues are pulled excessively, unesthetic transverse wrinkles appear on the face. Although these are temporary and disappear with the passage of time, these create worry for cosmetic patients, who do not want to wait long for the results. It is best to keep the pull mild to moderate to avoid this problem. Other surgical face-lifting techniques (eg, S-lift, Delta-lift) should be considered if excessive lift is required.

Materials and Methods
The main purpose of this study was to assess the ease of the procedure and the results on the patients. Nineteen patients were so operated on, 14 women and 5 men, whose ages varied from 51 to 67 years (mean age 62 years). Prior to the surgical procedure, all of them were sent to the cardiologist for the use of epinephrine, and preoperative blood tests were performed. Since 3 days before surgery, the patients washed their faces with povidone-iodine. Photographs were taken immediately before and 1 week, 1 month, and 6 months thereafter. The parameters assessed by the patient and two independent physicians were degree of satisfaction, complications, ease of recovery, and overall acceptance. These parameters were measured on a scale of 1 to 3 (1 being the least satisfactory) in a questionnaire filled out 1 week, 1 month, and 6 months after surgery. Informed consent was signed by all of the patients.

Results
Almost 80% of the observers (the patient and physicians) were satisfied with the results (Figures 3 to 8). Mild and transitory edema was the only problem observed in five patients and resolved in no longer than 1 week. Postoperative follow-up of the patients ranged from 6 months to 1 year. The longest follow-up was 2 years. The degree of satisfaction and postoperative results were the same after 1 year in all patients (Table 1).
Discussion
TCFL is a very simple, quick method of face-lifting without surgical undermining but with plication of SMAS using the KH needle. We have not seen any major complication with this face-lift; however, it is a good idea to mark beforehand the pathways of the marginal mandibular and

Figure 3. Before transcutaneous face-lift.

Figure 4. After transcutaneous face-lift.

Figure 5. Before transcutaneous face-lift.

Figure 6. After transcutaneous face-lift.
It is necessary to avoid the pathway of the marginal mandibular nerve and take a relatively superficial course along the frontal nerve pathway, staying very superficial on the zygomatic arch. For the best results, it is necessary to combine it with other noninvasive or mini-invasive modalities of facial rejuvenation, that is, correction of nasolabial folds using Gore-Tex, liposuction of the chin area or platysmal bands plication, transcutaneous brow lifting (the salvadorean option), oral isotretinoin,10 fat injections, topical tretinoin, chemical peels,10 sunscreens, and botulinum A exotoxin for crow’s-feet, glabellar frown lines, and transverse forehead lines (Figure 9).

An argument concerning this technique of face-lift is that it is not possible to make a successful lift without undermining. However, our experience in this regard points to the contrary. Plicating the SMAS with a KH needle and then lifting it and attaching it to the periosteum of

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*Average of three observers: patient and two physicians at 6 months.
the temporal bone makes a reasonable lift possible. As with aging, the laxity of skin and SMAS continues; perhaps, after several years, it will be necessary to repeat the procedure, which takes only 20 minutes. Skin and SMAS are most lax in the lower third of the face, moderately lax in the midface, and least lax in the upper face. Owing to this peculiar anatomy of skin and SMAS, it is possible to grip and feel the thickened SMAS at and below the zygomatic arch. However, as we proceed from the mid- to the lower face, the grip of SMAS becomes progressively narrower. For this reason, the results of TCFL, which aims at providing a maximum lift to the lower third of the face, a moderate lift to the midthird, and the least lift to the upper third, correspond to the peculiar anatomy of skin and SMAS, which act together as one unit as a result of the deep dermal connections between skin and SMAS. Therefore, lifting the SMAS without skin-lift also lifts the skin. On the contrary, if skin-lift is performed with undermining, which destroys the dermal connections between the skin and SMAS without SMAS plication or lifting, the results are not as good. Skin tightening takes place, but SMAS and subcutaneous tissues sag as a result of laxity and gravity. More so, it is not possible to lift the skin without undermining. If subcutaneous dissection is carried deep to the SMAS, damage to the branches of the facial nerve can take place.

The frontal (temporal) branch of the facial nerve is liable to damage at the mid–zygomatic arch. It can be caught in the suture if the suture is taken close to the bone. No bites should be taken at the zygomatic arch, and the needle should pass superficially. On the other hand, a compression paresis can take place if the suture compresses the frontal branch. However, this is usually temporary. Damage to the zygomatic and buccal branches of the facial nerve can take place, but, clinically, paresis does not take place owing to a number of cross-connections between the zygomatic and buccal branches. Damage to the marginal mandibular nerve is rare because needles never approach the marginal mandibular nerve pathway.

Sometimes, while the needle is being passed, the patient complains of pain. The whole needle track pathway is marked beforehand. If the patient complains of pain, 1% anesthesia can be administered in the needle track.

Wrinkles and puckering of tissues can take place with excessive lift. This is usually temporary. If excessive lift is required, it is wise to reduce the distance between the facial points considerably. This will eliminate the wrinkling of tissues between the facial points. The distance can be reduced even to a few millimeters, or the needle may be reintroduced through the same orifice (this way, points C and D should become the same). An additional suture can be passed instead of two in these cases using six points on the face. On the other hand, in cases of moderate lift, it is not necessary to reduce the distance between the points; however, sutures should not be pulled up too tightly.

To avoid asymmetry, it is necessary for less experienced surgeons to mark the facial point, and needle track pathways exactly on both sides of the face, taking measurements from the angle of the mandible and from the mid–lower jawline (the point halfway from the angle of the mandible and center of the chin). Asymmetry can also take place if tissues are pulled up excessively on one side compared with the other. For achieving the best results, it is necessary to keep the pull mild to moderate. However, it is also necessary to take into consideration the prior asymmetry of the face to adjust the pull accordingly.

In the case of Aptos threads, support is provided by the thread with bilateral (converging) direction of the cogs. In fact, the threads provide a sort of volume augmentation and slight lift to the sagging tissues, whereas in TCFL, mild to moderate lift of SMAS is provided by attaching polypropylene thread to the thick temporal fascia or periosteum of the temporal bone, thereby providing a reasonable and stable lift. Therefore, in patients who require a volume augmentation and slight lift, Aptos threads are suitable, and in cases of somewhat more sagging, TCFL can be done to provide a moderate stable lift (see Figures 3 to 9).

Conclusion

TCFL is a quick, safe, mini-invasive surgical method of face-lifting. It can be carried out on persons of all age groups. For achieving the best results, it is necessary to keep the lift moderate, along with botulinum toxin, Gore-Tex, liposuction of the chin, fat transfer, topical tretinoin, sunscreens, oral isotretinoin, and microdermabrasion.

References

Counterpoint

Ever since the Parisian cosmetic dermatologist Suzanne Noel introduced a skin-only face-tightening technique, those who perform rejuvenation procedures have been searching for the perfect balance between effective and long-term face-lifts but without extended downtime. This yin and yang between results and minimal invasiveness has been cyclical. In the 1970s, there was incorporation of SMAS plication and imbrication after the skin-only incisions came into disrepute because of their temporary results. In the 1980s, Chrisman and Field wrote about liposuction as a minimally invasive method to reduce jowling.1 In the 1990s, the pendulum swung the other way with the advent of the deep plane face-lift, whose advocates pointed to its more prominent lift and extended effectiveness.2 Finding new uses for the endoscope, face-lifts were attempted.3 Because of its steep learning curve, and minimal results, this technique was not widely adopted. In the late 1990s, Saylan reintroduced Noel’s S-lift but with SMAS plication.4 This anterior lift and its short scar are still widely used. In the 1990s, Saylan reintroduced Noel’s S-lift curve, and minimal results, this technique was not widely adopted. In the late 1990s, Saylan reintroduced Noel’s S-lift but with SMAS plication.4 This anterior lift and its short scar cousens, which combine neck and lower face liposuction and shorter posterior incision, have appealed to a younger patient base. Therefore, in this hyperkinetic and media-driven twenty-first century, in which the public demands microwave-like results while being able to continue normal activities, it is not surprising that the search for this “holy grail” has led to suture-only lifts.

In reality, these puppet lifts began with the brow and midface popularized by Zarems and colleagues,5 Sasaki and Cohen,6 and Namazie and colleagues.7 The Aptos threads developed by Sulamanidze and colleagues for face-lift have drawn wide interest in the dermatologic surgery community.8 At the recent American Society for Dermatologic Surgery minimally invasive surgery course, Sorin Eremia, an experienced rhytidectomist, demonstrated a simplified suture suspension face-lift that appeared to be effective (at least in cadavers). Whereas Sulamanidze and colleagues and Eremia rely on the barbed sutures to catch and lift the tissue, Khawaja and Hernández-Pérez use polypropylene suture and have adopted the mid–face-lift suspension technique, albeit tailored for the full face and with their own twist. In this blind approach, the authors begin in the temporal region and then, below thezygomatic arch, begin to take bites of the SMAS in a zigzag fashion. This continues to the lower face and loops around and follows a return course in a similar fashion to the temporal incision, and the suture is tied down. Unlike the mid–face–lift, there is only one incision per side and no pledge at the inferior aspect that prevents tearing of the soft tissue when tension is applied. The authors performed this procedure on 19 individuals. The only complication was mild edema. They point out that excessive lift could result in puckering and wrinkles, which will recede over time. Nearly 80% of the patients were satisfied with the results. Follow-up was for 6 months. Khawaja and Hernández-Pérez note that this procedure can be used in combination with other cosmetic procedures, such as botulinum toxin or fat transfer.

Although this new technique is admirable in its intent, this lift raises several questions, including exactly what is being lifted and for whom? Is the suture catching the SMAS or the facial ligaments or even subcutaneous tissue? Without a device such as a Gore-Tex pledget at the distal aspect, will the suture, which is under some tension, eventually tear through tissue over time? Furthermore, although the technique works for the authors, how reproducible is it? It appears to be very technique dependent. How many zigzags should one place? Certainly, there is a risk of temporal branch entrapment by the inexperienced zigzagger. Is it dependent on the cheek size or the laxity of the tissue? It would also be helpful to identify an anatomic landmark where the inferior aspect of the suture loop is placed. This would reduce the risk of asymmetry. Other questions that need to be answered include the length of this lift. Patient questionnaires were completed up to 6 months. Will the results be the same at 1 year? Will the patients be satisfied at 2 years?

This is not an entirely threadbare approach. There is a niche, but it is predominantly in younger patients in their fourth and fifth decades with mild laxity. In patients with significant jowling and skin excess, which requires redraping, a short scar face-lift and neck and lower face liposuction should be considered. This transcutaneous lift could be effectively combined with neck liposuction or possibly as an adjunct to a radiofrequency procedure. Yet, given the promise of single sutures, which are even less invasive and simpler to place, the practitioner may prefer these “barbs” to the “looped” approach. With either, the quest still continues for the procedure that combines a significant long-term lift with minimal recovery time.

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References