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Modified SMAS Dissection for Face and Neck Lifting

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INTRODUCTION

Facelift techniques, such as the skin, submuscular aponeurotic system (SMAS), and deep plane lifts. Eventually found that amodified SMAS lift effectively repositions ptotic jowl and cervical soft tissue with an excellent safety profile. In 1968, Skoog **[1]** was the first to include the platysma of the lower face as facial anatomy to be moved in facial rejuvenative surgery. This deep-layer method together with the description of the superficial musculoaponeurotic system (SMAS) by Mitz and Peyronie **[2]** in 1976 changed the way many surgeons viewed the surgical face-lift. Since then, the use of rhytidectomy techniques involving the SMAS to rejuvenate sagging facial tissues has withstood the test of time to become a reliable technique for the restoration of facial youth. This evolution has been related directly to the scientific investigation of facial soft tissue anatomy, resulting in a better understanding of the anatomic changes in the soft tissues of the face that occur with the aging process. Although many technical approaches to rhytidectomy exist to date, the question about which face lift procedure is best still is under debate. A commonly used technique is the conventional SMAS face-lift because of its safety and aesthetic versatility **[6,7]**. Conventional SMAS dissection is effective for minimizing the jowls and highlighting the mandibular angle. Through two-vector aesthetic control, an individualization of the treatment plan according to the needs of the patient is ensured. Additionally, a tightening of the deep facial structures with no tension on the facial skin is provided, avoiding any postoperative stretched look. Despite its popularity, this procedure is criticized because it does not adequately lift the malar fat pad and flatten the nasolabial fold (NLF). Furthermore, the long-term outcomes seem to be poor **[3-5,7]**.

Aim of the work:

To achieve limited invasive operation with limited dissection of SMAS and decreased the complication of conventional SMAS face lifting technique with Multiple plications by non absorbable suture.

PATIENTS AND METHODS

Thirty-two patients' females to males 5:1 who have undergone a modified SMAS face-lift, between May 2006 and May 2014, with facial aging signs undergoing a face-lift. A pointing tongue-shaped flap of zygomaticotemporal fascia was dissected and preserved in the posterior half of the upper edge of the SMAS flap and anchored to the deep temporal fascia, enhancing the vertical support of the facial soft tissues (outcomes and complications) with acceptable results. The follow-up period 2 years up to 8 years.

Preoperative assessment:

A- Obtains a complete medical history and addresses the specific complaints of the patient. Understands the patient's motivation and expectations for surgery.
B- Assesses skin characteristics and type.
C- Describes the goals that can be obtained with facelift surgery, and its limitations.
D- Assesses the patient's need for adjunctive procedures.
E- Describes the risks of surgery (e.g. hematoma, scarring, hair loss, injury to nerves, asymmetry, risks of implants and of ancillary procedures).
F- Assessment of the skin type and psychology of the patient.

Methods of Treatment General anesthesia was used in the majority of cases, with 5 patients receiving local anesthesia sedation. In all cases, the face was infiltrated subcutaneously with a solution containing saline, 1:200,000 adrenaline, and lidocaine. A vertical incision approximately 5cm long was out-lined just above the upper pole of the ear in the temporal region, inside the scalp (3-5cm posterior to the hairline) or around the sideburn when it was too high. The drawing then was made downward, curving in front of the ear and passing in back of the tragus and in front of the ear lobe. Finally, the marking was continued behind the ear ending upward and posterior as a classic retroauricular face-lift incision. The skin flap was elevated, with care taken to leave some fat intact along the superficial surface of the SMAS, especially in the regions wherein the SMAS was to be elevated because the more substantial the SMAS flap, the better the long-term results that can be obtained in terms of facial contouring. The extent of dissection proceeded up to 1cm lateral to the lateral orbital rim, acrossthe malar region over the superior border of the zygoma, and along the nasolabial fold to a point 2cm lateral to the oral commissure. In the temple, the authors used a two- plane technique and preserved the superficial temporal vessels when possible. The zygomatic arch then was identified, and a transverse incision 2-3cm long was made in the SMAS just 1cm inferiorly (to ensure facial nerve branch preservation in this area) and parallel to it. The incision then was angled superiorly and backward toward the temple, intersecting the preauricular SMAS incision to raise.

A pointing tongue- shaped flap (Fig. 1) in the posterior half of the SMAS flap's upper portion as an extension of the same flap to be fixed to the deep temporal fascia as a firm anchor point. Care was taken to avoid injury to the frontal branch of the facial nerve.

During the sub-SMAS dissection, the deep facial fascia was not violated, thus likely preventing facial nerve injury. The dissection then was performed over the parotid (with the end point of the sub-SMAS dissection just beyond the anterior border of the parotid gland).

A deep plane over the sternocleidomastoid (SCM) muscle fascia was entered to elevate the platysma flap off the SCM muscle. Thus, the greater auricular nerve that lies deep to the superficial layer of the investing deep fascia as it ascends vertically over the SCM muscle was preserved, and the sensory innervation for the skin over both surfaces of the outer ear was respected. Adequate mobilization of the flap could be determined by observing the effect of facial contouring when traction on the SMAS was applied. The SMAS was raised off the parotid fascia, elevated for some centimeters vertically and securely fixed to the deep temporal fascia with 2/0 nonresorbable suture.

The knots were buried in the soft tissue to prevent them from being visible or palpable through the skin. In the neck, the platysmal bands were divided through the facelift incision, obtaining good results for most patients without creation of a separate submental incision. For severe platysmal bands, a submental incision and midline plication could be necessary.

Using the redundant edge of the SMAS as an extension, the SMAS-platysma flap was fixed posteriorly to the mastoid fascia under maximum tension working as a bowstring and exerting lateral pull through which the neck contour was rebuilt. Provided that the flap was transposed under the angle of the mandible, no bulk was noted, and the angle shape was enhanced. High vertical suspension enabled the SMAS flap to be imbricated over the cut edge in the malar prominence to restore the volumetric loss of the malar eminence. Furthermore, rarely, a varied degree of SMAS plication on an oblique line between the angle of the man-

dible and lateral canthus parallel to NLF was combined with our technique to achieve further smoothing of the NLF when SMAS was observed to be too thin and tenous.

The skin was carefully redraped without tension in a line directed slightly more posteriorly and obliquely than the vertically directed SMAS suspension. The temple skin was first trimmed and inset without tension, followed by the occipital skin over the mastoid. Then the skin was fixed above and behind the ear without tension. The pretragal skin was adjusted and inset in a retrotragal position without tension. The skin incisions were closed over a closed suction drain (size, 10 Fr), which was removed the next day while the face-lift dressings were changed satisfaction and long-term response to the face-lift procedure. On a scale of 0 (disappointed) to 10 (very satisfied).

RESULTS

In our study, 32 patients (1 men and 5 women) underwent a facial rejuvenation procedure consisting of a modified face-lift technique method (Figs. 2-4) with or without a simultaneous upper and/or lower blepharoplasty, submental liposuction, and lipofilling. Of the 32 patients, 15 underwent only rhytidoplasty, 13 had blepharoplast.

The complications observed were few, only two patients with small hematomas. All underwent evacuation without noticeable effect on the final cosmetic outcome. During the first postoperative days, some patients experienced a bearable pain in the temporal region, which was limited to moderate tension during mouth opening due to the traction on the temporal fascia. Temporary weakness in the frontal branch of the facial nerve experienced by one patient resolved completely within 4 months, whereas a similar condition affecting the buccal branches in another patient was restored in 6 months. One patient presented with dehiscence in a small portion of the scar. One patient reported that the knot in the temporal region was palpable through the skin. Three mild hypertrophic scar responding to local ointment and steroid injection over the mastoid area was observed in the entire series. The overall complication rate was very low (Table 1). Results of patient satisfaction survey, high levels of satisfaction were achieved 24 patients, moderate level 6 low level 2 patients.

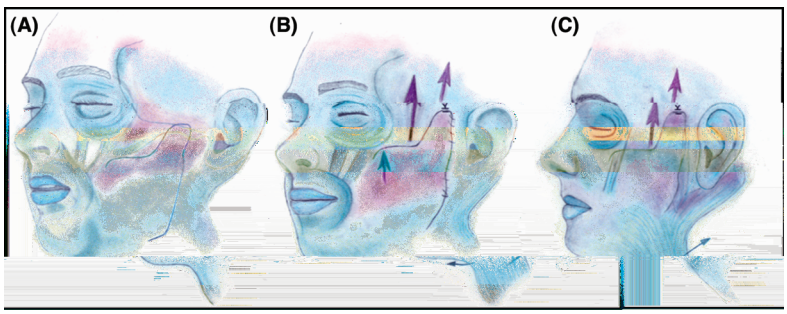

Fig. (1:A-C): Schematic drawing showing the modified design of the incisions for treatment of the superficial musculoaponeurotic system (SMAS) during the face-lift.

Fig. (2): Pre-operative and post-operative.

Fig. (3): Pre-operative and post-operative.

Fig. (4): Pre-operative and post-operative.

Table (1): Complications among 32 consecutive modified (SMAS) face lift procedure.

Complications	Number of cases
Hematoma	2
Dehiscence	1
Hypertrophic scars	3
Palpable knot in temporal region	1

Table (2): Results of patients satisfaction survey.

Satisfaction	Number of cases
High level of satisfaction	24
Moderate level of satisfaction	6
Low level of satisfaction	2

DISCUSSION

Facial aging is caused by a multitude of factors: The years of gravitational pull on the soft tissues between the skin and the facial skeleton, loss of skin elasticity caused by intrinsic and extrinsic factors, possible facial deflation caused by fat atrophy **[8]**, and even bony resorption **[9]** and loss of anchoring fibers of collagen between the skin and the underlining structures.

These different possibilities explain the multitude of therapeutic approaches proposed in the literature **[10-17]**. Together with the increase in the number of procedures, there also is an increase in the number facialplasty techniques.

A careful selection of rhytidectomy technique and adjuvant procedures should be made to provide the patient nwith a harmonious result. Since the first description of the SMAS **[2]**, surgical solutions for facial rejuvenation have supplemented external incision. These solutions utilize skin-tightening rhytidectomies with direct procedures involving the SMAS.

The conventional SMAS face-lift is one of the most commonly performed rhytidectomy techniques **[3,7,18]**. Although it produces an adequate tightening of the deep facial structures, with no tension on the facial skin, effects on malar ptosis and on the NLF are demonstrated to be fair **[3,7,19]**. Thus, to improve rejuvenation of the midface, extended SMAS procedures and both deep-plane and composite rhytidectomies have been described **[19-22]**. As a matter of fact, extended SMAS procedures and composite rhytidectomies require more extensive dissection with increased soft tissue reaction and surgical risks such as nerve injury **[23]**, resulting in prolonged postoperative recovery time **[20,21,24,25]**.

Several studies **[4,5,7]** have evaluated differences in face-lifting techniques with respect to duration and satisfactionwith results. The findings showed that the clinical outcomes of limited and conventional SMAS face-lifts are similar to those of extended SMAS and composite rhytidectomies **[3]**. Failure to demonstrate any long-lasting significant superiority of extended procedures over conventional procedures or any appreciable long-term differences among them has made it difficult to justify these aggressive procedures. Face-lifting in the middle 1990s when it was believed that the more extended the subSMAS dissection, the longer-lasting and better the results. Since then, their philosophy has changed and currently focuses on the true need of patients to overcome disappointing consequences linked to high surgical risks and prolonged hospital stays. Morbidity should be minimal for cosmetic operation.

Downtime should be short, and patients should be socially presentable after a few days. Consequently, the increased surgical risks, morbidity, and convalescence associated with more aggressive procedures do not seem to be warranted in routine rhitydectomy cases. A real balance between patient requests and surgical risks should be found, and realistic expectations should be maintained. Thus, the authors actually perform a conventional SMAS face-lift in which the SMAS flap design and sub-SMAS dissection are modified to follow a personal approach. A zygomaticotemporal fascia flap cephalic to the zygomatic arch is preserved in the posterior half of the SMAS flap's upper edge and anchored to the deep temporal fascia, enhancing the vertical support of the facial soft tissues. A youthful neck contour is restored by splitting the SMAS-platysma flap and pulling the inferior limb in a lateral direction, then fixing it to the mastoid fascia. Once the SMAS has been fixed, the skin is redraped in an oblique direction without tension. The authors' rhytidoplasty produces safe, reliable results with few untoward effects, as described in the Results section. The prime advantage lies in skin undermining performed separately from SMAS dissection, which allows these two layers to be redraped along vectors independent fact **[20,21, 24,25]**.

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Conclusions:

Facial aging should be evaluated as a global process. Thefacial fat descent process occurs in every structure of the face in different ways depending on the vector of descent. Thus, facial rejuvenation must address all the structures involved, including the SMAS, platysma, and skin, using different vectors in pursuit of facial harmony restoration.

This report describes the authors' experience performing rhytidectomy with a modified approach. Accordingly, the authors emphasize that when a multivector technique with the SMAS-platysma rotation flap face-lift is used, most of the changes that occur with aging are addressed and corrected in an anatomic fashion, resulting in an aesthetically pleasing result. High levels of satisfaction, high patient acceptability, and maintenance of results long after treatment were achieved with the authors' face-lift treatment.

The rhytidectomy technique described in this report has several beneficial attributes. First, the SMAS suspension appears to deliver a longlasting benefit, overcoming the disadvantages attributed to conventional SMAS face-lifting. Moreover, the dissection is extended inferiorly to the platysma, which allows for avertical and lateral pull of the SMAS-platysma complex as well. The result is a tightening of the entire deep musculofascial corset of the face. Second, the rhytidectomy technique never places the skin under more than normal tension and thus avoids a postoperative stretched look. Facial contouring is best restored through deep-layer support instead of tension in skin flap redraping. Third, the two-vector technique is versatile. It can be adapted and individualized to meet specific deformities or patient desires. Fourth, neck laxity and platysma redundancy are improved as well, and the NLF is smoothed. Moreover, SMAS imbrication assures malar projection.

Finally, this investigation demonstrates that when properly performed, the type of rhytidectomy is safe, produces highly predictable results, and provides both natural appearances and effective antigravity effects.

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