

Cervicofacial Rhytidoplasty: More Does Not Mean Better

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Abstract

Background Aesthetic correction of cervicofacial flaccidity has undergone numerous modifications over time, including extent and depth of dissection. We present our experience with this type of surgery, passing through different stages and procedures to achieve optimal and highly satisfactory results.

Methods From January 1995 to December 2009, 576 patients (498 females and 78 males, age range = 34–78 - years, mean = 47) underwent cervicofacial rhytidoplasty. During the first 6 years of the study period, cervicofacial tissue was managed with six different types of plications, according to the needs of each patient, requiring extensive

supra-SMAS undermining. During the last 9 years, undermining was significantly limited and only three of the six plications were used, adding different surgical procedures to achieve the surgical objectives.

Results During the first period, 220 patients were operated on and 164 patients required additional procedures (74%). Seventy-nine patients (36%) needed 6 plications, 90 patients (41%) required 5 plications, and 51 patients (23%) only 4 plications. During the second period, 356 patients were operated on, needing only 3 plications, but 336 (94%) required additional procedures. The percentage of complications during the first period was 2.2% hematomas, 2.7% superficial necrosis, and 0.45% deep necrosis compared with 0.84, 0.56, and 0%, respectively, in the second period. A greater disability rate than expected from edema and/or prolonged ecchymosis occurred in 25 and 12% of the patients in the first and second periods, respectively. A similar degree of patient satisfaction was obtained in both periods, 93 and 92%, respectively.

Conclusion Our approach to cervicofacial rhytidoplasty has varied substantially by limiting undermining, which has produced a lower complication rate and has accelerated the recovery process. However, to acquire similar results, we have had to implement additional procedures, with which we have obtained the same degree of satisfaction but with a lower rate of postsurgical morbidity.

Keywords Face-lift · Cervicofacial lift · Cervicofacial rhytidoplasty · Limited rhytidoplasty

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Introduction

Surgical techniques for improving facial flaccidity have evolved substantially over the years [1]. This evolution has

involved deeper handling of the treated tissues [1]. Initially, the surgery consisted exclusively of handling the excess skin with a subcutaneous approach [2–4]. In search of greater support of deep tissue, surgeons started handling structures under the skin. That is how handling the SMAS in different ways began, with either plications [5–7] or undermining and traction in different vectors [1], leading to handling at different depths [8–11], including the subperiosteal level [12]. All the approaches, undermining, and depths have advantages and disadvantages. Passing through different approaches and depths, we have changed our concept of cervicofacial rhytidoplasty that we have held for several years [13]. We present our experience of over 14 years of performing this surgical procedure, indicating the changes we have implemented in trying to obtain the same results but with a lower rate of surgical morbidity.

Materials and Methods

All patients who were operated on for cervicofacial rhytidoplasty by the principal author between January 1995 and December 2009 were included. The surgical procedures performed, as well as the results and complications, were analyzed. Additional surgical procedures were also performed to complement facial aesthetic improvement. The patients were divided into two groups based on the time period in which they were operated on, since different surgical procedures were used in each period. The first period included the first 6 years, from January 1995 to December 2000. The second period covered the last 9 years, from January 2001 to December 2009. At the 6-month postsurgical visit, each patient was asked how they felt about the recovery time, especially the time expected to return to normal activities, and the degree of satisfaction with the final result. The degree of satisfaction was expressed in terms of improvement obtained: less than expected, as expected, or greater than expected. Less-than-expected improvement qualified as an unsatisfactory result, as-expected or greater-than-expected improvements were interpreted as satisfactory results.

Surgical Techniques

In general, patients underwent surgery while under sedation and local anesthesia with lidocaine 0.5% and epinephrine 1:400,000. Some of the additional procedures were done before or after the rhytidoplasty depending on each case and type of procedure to be performed. The surgical procedure used during the first period consisted of extensive supra-SMAS undermining in order to handle the SMAS with six different types of plication according to the needs of each patient, as described in a previous report

[13]. This undermining included almost the entire cheek and neck area, joining both underminings in order to do the necessary plications. The skin undermining in this period was as follows: In the parietal region, the skin undermining extended out to the external third portion of the eyebrows. In the inferior eyelid, undermining was up to the infraorbital ridge, from the malar region down to the nasolabial fold. In the lateral cervical regions, up to 6–7 cm was undermined under the mandibular border through preauricular and postauricular incisions. In the central cervical region, the undermining was done down to the thyroid cartilage level through a submental incision, joining this with the two lateral cervical underminings.

When the eyebrow needed to be handled, the undermining was extended toward the lateral portion of the frontal region. The first plication was done at the anterior cervical level to join the medial portions of the platysma [5]. A second plication was performed over the line of the zygomatic arch to pull the SMAS upward, deviating downward 90° over the anterior edge of the auricular pavilion, forming the third plication by mobilizing the SMAS toward the ear [6] and ending at the posterior cervical level crossing the sternocleidomastoid muscle, thus forming the fourth plication by pulling the platysma muscle backward. These three plications together formed an inverted “7.” A fifth plication was performed parallel to the mandibular edge over Bichat’s fat ball to exert better traction on the jowl area. Finally, a sixth plication was performed by lifting the malar fat pad toward the lateral orbital rim. Each of the plications was used for a specific purpose according to the needs of each patient. The first plication was to join the anterior edges of the platysma when they presented flaccidity in that region. The second and third plications were to draw the SMAS upward and back, respectively. The fourth plication was to move the posterior edges of the platysma backward. The fifth plication was performed when there was too much flaccidity in the jowl area and further lifting was required in addition to what was achieved with plication 2. Plication 6 was to raise the malar pad when significant ptosis was present in that region. All these plications, along with the required undermining, are shown in Fig. 1.

During the second period, between January 2000 and December 2009, the undermining was more limited, including only what was necessary to perform plications 2, 3, and 4, i.e., to create the inverted “7.” To improve the areas that had been treated with the medial plications of the neck (plication 1), lifting of the jowl (plication 5), and lifting of the malar fat bag (plication 7), additional surgical procedures were used in which it was not necessary to do such extensive subcutaneous undermining. Therefore, to treat the medial platysma bands, greater posterior traction was obtained with plication 4. For very select cases in

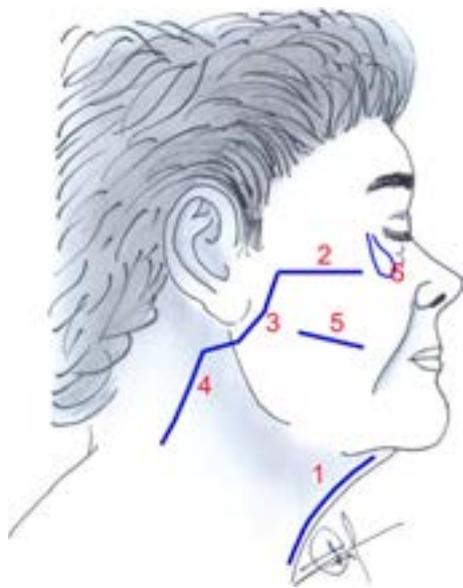


Fig. 1 Design of plications for SMAS management. Plication 1 joins the platysma's anterior edges. Plication 2 lifts the SMAS toward the zygomatic arch. Plication 3 makes posterior traction of the SMAS. Plication 4 performs posterior traction of the platysma muscle. Plication 5 elevates the jowl. Plication 6 lifts the adipose malar fat pad

which it was necessary to decrease very prominent bands, a cut was made across the bands with a small submental incision. Likewise, when there was lipodystrophy or cervical flaccidity, aggressive liposuction of the area was performed. To improve the jowl area, instead of performing plication 5, very light liposuction was performed on that region to decrease the weight and prominence of the area and enable it to be lifted with plications 2 and 3. In cases of malar ptosis, instead of doing malar plication 6, subperiosteal malar pexy was done through a subciliary incision [7]. Surgical procedures performed and their indications in both periods are summarized in Table 1. Assessment of the results was based on clinical parameters in accordance with patient satisfaction.

Results

From January 1995 to December 2009, 576 patients [498 females and 78 males, age range = 34–78 (median = 47) years] underwent aesthetic cheek and neck surgery to improve the flaccidity. Follow-up ranged from 3 months to 13 years 6 months (median = 6 years 2 months). During the first period, between January 1995 and December 2000, the surgical procedure included the six plications discussed above [13]. During the second period, from January 2001 to December 2009, the surgical procedures were modified. In the first period, 220 patients [185 females and 35 males, age range = 41–78 (median = 52) years] were operated

Table 1 Summary of surgeries performed in both periods

	Jan 1995 to Dec 2000	Jan 2001 to Dec 2009
Number of patients operated	220	356
Female	185 (84%)	313 (88%)
Male	35 (16%)	43 (12%)
Number of plications		
Six plications	79 (36%)	0
Five plications	90 (41%)	0
Four plications	51 (23%)	0
Three plications	0	356 (100%)
Patients with additional procedures	164 (74%)	336 (94%)
Blepharoplasty	92 (42%)	162 (46%)
Cervical liposuction	65 (30%)	315 (88%)
Perioral dermabrasion	10 (5%)	18 (5%)
Complete frontal rhytidoplasty	18(8%)	22 (6%)
Eyebrow pexy through hairline	22 (10%)	18 (5%)
Eyebrow pexy via blepharoplasty	6 (3%)	116 (33%)
Chin implant	8 (4%)	22 (6%)
Lipoinjection		
Nasolabial fold	2 (1%)	74 (21%)
Glabellar lines	2 (1%)	56 (16%)
Midface	4(2%)	18 (5%)
Cut of platysma medial fibers	0(0%)	25 (7%)
Jowl liposuction	1 (0.5%)	125 (35%)
Subperiosteal malar pexy	0 (0%)	37(10%)

on. In the second period, 365 patients [313 females and 43 males, age range = 34–77 (median = 44) years] were operated on. Of the 220 patients in the first period, 79 (36%) required the use of six plications, 90 required five plications (41%); and the remaining 51 patients (23 %) required only four plications. All 356 patients in the second period underwent the inverted “7” plication. According to the needs of each patient and the surgical procedure performed, adjunctive surgical procedures were done to complement or improve aesthetic results. These procedures included additional surgery such as blepharoplasty or frontal rhytidoplasty, or even simpler procedures such as dermabrasion or lipoinjection. During the first period, additional procedures were performed on 164 patients (74%), while in the second period, additional procedures were performed on 336 patients (94%). All of these additional procedures and the distribution of plications are shown in Table 1.

Satisfaction rate of the patients in the first period was 93% (204 patients), while the remaining 7% (16 patients) stated a certain degree of dissatisfaction. During the second period, 92% (328 patients) were satisfied with the results, while 8% (28 patients) were not entirely satisfied. In the first period, there were five postsurgery hematomas (2.2%)

Table 2 Complications and patient satisfaction

	Jan 1995 to Dec 2000	Jan 2001 to Dec 2009
Number of patients operated	220	356
Hematomas requiring surgical treatment	5 (2.2%)	3 (0.84%)
Superficial cutaneous necrosis	6 (2.7%)	2 (0.56%)
Total cutaneous necrosis	1 (0.45%)	0(0%)
Edema or prolonged ecchymosis	55 (25%)	43 (12%)
Patient satisfaction	204 (93%)	328 (92%)

that required drainage and surgical revision, six cases of superficial cutaneous necrosis (2.7%), and one case (0.45%) of total bilateral cutaneous necrosis secondary to a postsurgery hematoma not drained early. Fifty-five patients (25%) complained of edema or prolonged ecchymosis, longer than the 3 weeks that they were told was typical. In the second period, there were two cases of superficial cutaneous necrosis (0.56%), no cases of total cutaneous necrosis, three hematomas that required drainage in the operating room (0.84%), and 43 (only 12%) complained of disability from edema or prolonged ecchymosis that was greater than what was predicted. All these data are given in Table 2. Preoperative and postoperative photos of four patients are shown in Figs. 2, 3, 4, 5.

Discussion

Surgical techniques for rhytidoplasty have evolved during the last decade. The first reports for improving facial flaccidity consisted exclusively of small underminings only to draw and remove skin. [2]. With the description of the SMAS by Mitz and Peirone in 1976 [14], a number of surgical techniques arose for managing the SMAS. Some authors described pulling the SMAS into different shapes and in different places to tighten the flaccid tissues [1]. Other authors advocated lifting the SMAS and moving it around in different ways to achieve facial improvement [9]. Just as different techniques were developed for managing the SMAS, a number of descriptions also emerged regarding the depth of the undermining of facial tissues. Thus, we went from subcutaneous undermining [3] to sub-SMAS undermining [10, 15], to combined or composite undermining [8, 16], ending up with subperiosteal undermining [12]. Each of these techniques and each of these underminings have several advantages and disadvantages [3, 8–10, 15, 16], with excellent results being obtained by the authors of these techniques.

During the first 5 years of our study, we handled the SMAS-platysma complex with six different plications to draw the tissues in different ways and different shapes,



Fig. 2 Patient 1: **a, b** Preoperative photos of 51-year-old female. **c, d** Two years postsurgery. Cervicofacial rhytidoplasty with all plications, except plication 6 to lift the malar fat pad. Neck liposuction and blepharoplasty were also performed

according to the needs of each patient [13]. Four of these plications had already been described by previous authors [1, 6, 7], and we added two more to complement the handling of deep facial tissues. Each of these plications had a specific purpose. By joining the medial edges of the platysma and drawing that muscle back to the level of the sternocleidal mastoid muscle, substantial improvement of the flaccidity of the cervical region was achieved. By pulling the SMAS upward toward the zygomatic arch and back toward the auricular region, we improved the melolabial fold and lifted the medial portion of the face. With traction at the level of Bichat's fat ball, we improved extreme flaccidity of the jowl, and by lifting the malar fat pad toward the orbital edge, improvement of the whole area was achieved. The results obtained by using the described plications were very satisfactory, as a greater than 90% patient satisfaction rating shows and as is observed in the examples of clinical cases (Figs. 2, 3).

To perform the plications described above and achieve the results reported, it was necessary to perform extensive supra-SMAS cutaneous undermining. This undermining



Fig. 3 Patient 2: **a, b** Preoperative photos of 58-year-old female. **c, d** Three years postsurgery. Cervicofacial rhytidoplasty with all plications. Neck liposuction and blepharoplasty were also performed. Medium chemical peeling performed several times following rhytidoplasty

often covered the entire cervical, facial, and frontal regions. It is evident that extensive undermining led to edema and significant ecchymosis, which was very uncomfortable and disabling for patients, so much so that 25% of patients manifested more edema and disabling ecchymosis than they expected. It is obvious that greater undermining leads to greater devascularization of tissue as well as a higher risk for hematomas. The incidence of both complications was 3.1 and 2.2%, respectively. Although these rates were not higher than those found in the literature, they were a concern. After analyzing the complications and determining that they were caused mainly by performing such extensive undermining, we decided to limit the undermining and seek surgical alternatives to the plications. Therefore, starting in November 2000, different surgical procedures were used to compensate for the decreased undermining. Frontal undermining was limited and eyebrow lifting was performed through the superior blepharoplasty. Instead of performing extensive subcutaneous undermining to lift the malar pad, we performed subperiosteal malar pexy through the inferior blepharoplasty incision. We were able



Fig. 4 Patient 3: **a, b** Preoperative photos of 49-year-old female. **c, d** Two years postsurgery. Cervicofacial rhytidoplasty with only three plications: 2, 3, and 4. Blepharoplasty, eyebrow lift via blepharoplasty, and subciliary malar pexy performed during the same surgery. No plications were performed on neck or malar area

to improve the neck with more frequent liposuction, even when there was only a small amount of fat in the region. This liposuction not only allowed us to remove excess fat, but in many patients it allowed us to tunnel and partially undermine tissue without the risks of bloody undermining and aided later cutaneous traction. Likewise, instead of performing a medial cervical plication and later a posterior lateral one, we achieved adequate traction of the platysma by increasing the traction and extension of the plication at the sternocleidal mastoid level. Also, if the medial platysma bands were too obvious, we achieved improvement with a single transverse cut through a small submental incision. To avoid the plication at the level of Bichat's fat ball to lift the jowl, we achieved substantial improvement in the area by performing limited liposuction of the region. This liposuction decreased the weight in the area and avoided early relapse. It also removed a lot of excess tissue when the jowl was quite pronounced. Improvement of the melolabial and glabellar folds was achieved with more fat infiltration.

By changing surgical procedures and compensating for some of the plications, the incidence of complications and



Fig. 5 Patient 4: **a, b** Preoperative photos of 53-year-old female. **c, d** Two years postsurgery. Cervicofacial rhytidoplasty with only three plications: 2, 3, and 4. Blepharoplasty, eyebrow pexy via blepharoplasty, neck liposuction, and chin implant placement were also performed. No plications were performed on neck or malar area

morbidity decreased significantly. Thus, the degree of disability from prolonged edema and ecchymosis decreased more than 50%. Use of extensive undermining prolonged disability in more than 25% of patients, while only 12% of patients had these disabilities when the surgical procedures were changed. Hematomas decreased from 2.2 to 0.84% and cutaneous slough decreased from 3.1 to 0.5% after changing the procedures. We also have to consider the fact that the severity of a hematoma or necrosis was directly proportional to the degree of undermining, i.e., the greater the undermining, the greater the severity (Figs. 6, 7). However, the most important result was that the degree of patient satisfaction remained practically the same after significantly changing the surgical procedures.

Over time, rhytidoplasty has evolved significantly, primarily with respect to greater undermining and more extensive procedures. This philosophy has led to more complete results, but at the same time it has produced increased morbidity and longer recovery time. The same thing happened in our cases when we performed very extensive procedures for trying to work on the platysma-SMAS complex completely.



Fig. 6 Postsurgical hematoma in patient on whom extensive undermining was necessary to perform all plications



Fig. 7 Postsurgical hematoma in a patient who underwent limited undermining to perform only three plications, 2, 3, and 4, improving results with additional procedures

However, by changing our technique, substituting procedures to make it less aggressive, we found that morbidity and recovery time decreased significantly, with the same results and patient satisfaction. Therefore, we have concluded that in cervicofacial rhytidoplasty, more does not mean better, since doing more extensive and deeper surgery does not give us a better result than if we do more limited surgery but with adjunct procedures that substitute for the extensive and aggressive underminings. Therefore, we recommend performing a less aggressive procedure for undermining, but complementing it with the necessary surgical procedures to obtain the desired result.

Disclosures L. Cárdenas-Camarena, J. Encinas-Brambila, and M. T. Guerrero have no conflicts of interest or financial ties to disclose.

References

1. Connell BF, Marten TJ (1995) The trifurcated SMAS flap: three-part segmentation of the conventional flap for improved results in the midface, cheek and neck. *Aesthetic Plast Surg* 19:415–420
2. González-Ulloa M (1980) The history of rhytidectomy. *Aesthetic Plast Surg* 4:1–45
3. Lassus C (1997) Cervicofacial rhytidectomy: the superficial plane. *Aesthetic Plast Surg* 21:25–31
4. Rees TD (1980) The SMAS and the platysma. In: *Aesthetic plastic surgery*, vol II. Saunders, Philadelphia, pp 634–682
5. Feldman JJ (1990) Corset platysmaplasty. *Plast Reconstr Surg* 85:333–343
6. Guerrerosantos J (1991) Rhytidoplasty: improving cheek and neck with simplified and refined surgical technique. In: Russell RC (ed) *Instructional courses: plastic surgery educational foundation*, vol 4. Mosby-Year Book, St Louis, p 27
7. Robbins LB, Brothers DB, Marshall DM (1995) Anterior SMAS plication for treatment of prominent nasomandibular folds and restoration of normal cheek contour. *Plast Reconstr Surg* 96:1279–1287
8. Hamra ST (1992) Composite rhytidectomy. *Plast Reconstr Surg* 90:1–13
9. Lewis JR Jr (1983) Multiple-tiered deep support of cheeks in meloplasty and rhytidectomy. *Aesthetic Plast Surg* 7:21–25
10. Rubin LR, Simpson RL (1996) The new deep plane face lift dissections versus the old superficial techniques: a comparison of neurologic complications. *Plast Reconstr Surg* 97:1461–1465
11. Ivy EJ, Lorenc ZP, Aston SJ (1996) Is there a difference? A prospective study comparing lateral and standard SMAS face lifts with extended SMAS and composite rhytidectomies. *Plast Reconstr Surg* 98:1135–1143
12. Hinderer UT (1999) Vertical preperiosteal rejuvenation of the frame of the eyelids and midface. *Plast Reconstr Surg* 104:1482–1499
13. Cárdenas-Camarena L, González LE (1999) Multiple, combined plications of the SMAS–platysma complex: breaking down the face-aging vectors. *Plast Reconstr Surg* 104:1093–1100
14. Mitz V, Peyronie M (1976) The superficial musculoaponeurotic system (SMAS) in the parotid and cheek area. *Plast Reconstr Surg* 58:80–88
15. Kamer FM, Frankel AS (1998) SMAS rhytidectomy versus deep plane rhytidectomy: an objective comparison. *Plast Reconstr Surg* 102:878–881
16. Hamra ST (1996) Is there a difference? A prospective study comparing lateral and standard SMAS face lifts with extended SMAS and composite rhytidectomies (discussion). *Plast Reconstr Surg* 98:1144–1147