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New lift: the art of facial rejuvenation with minimal incisions rhytidectomy

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Abstract. – OBJECTIVE: The new lift is a procedure for facial rejuvenation with minimal incision, giving the patient a significant improvement of mid face and neck, with limited dissection and minimal scars. A further "One-stitch" of anchorage to the deep temporal fascia is required to hold tissues. By a minimal surgical access, we get a suitable cheek lift with the improvement of nose-labial folds, mandibular edge and neck contour.

PATIENTS AND METHODS: Between February 2009 and June 2012, 32 patients underwent facial rejuvenation surgery called new lift at a mean age of 46 years (range 35-55 years).

Seven of the patients had a previous facelift. 12 out of 32 patients (37.5%) had concomitant eyelid surgery and 4 (12.5%) neck contouring procedure.

RESULTS: The technique we used is a safe and effective procedure with a high satisfaction rate; 28 patients (89%) were very satisfied with their result at 24-months follow-up.

CONCLUSIONS: The surgical outcome was evaluated according to the analysis of photographs obtained before and after surgery and the analysis of pre- and postoperative measurements. Aesthetic results were evaluated also by patients themselves who indicated a high satisfaction rate at three months post-surgery questionary and by a surgeon not involved in the study using VAS (1-10) before and three months after surgery. Acquired data on the aesthetic result were statistically evaluated using Student *t*-test. This is a study aimed at assessing the effectiveness of the new-lift technique for facial rejuvenation. Based on the results of our study, the new-lift is a very effective surgery for rejuvenation of the face with mild to moderate aging. All patients healed uneventfully without any major postoperative problems. This technique responds to an increasing demand from a wide range of patients for less invasive, less expensive operations with faster healing time and fewer potential complications.

Key Words:
Facial rejuvenation, Fame, SMAS, New lift, Short scar, Rhytidectomy.

Introduction

Owsley[1-4] stated that "the purpose of a facelift is to eliminate the appearance of facial aging by removing lax redundancy of facial and neck skin.

In the years, several techniques have been used to maximize the results and minimize complications[5,6]; at the same time, plastic surgeons tried to embrace patients' desires but, frequently, the long recovering time was the limit for these methods to be popular.

Today, the request to look younger and healthy to stay competitive in the workforce is increased and it involves a larger number of patients then years ago; so, the need of procedures without a long downtime and fewer potential complications, less invasive, less expensive. A short-scar rhytidectomy has always been the goal for the surgeon, balancing the increasing demand of patients and the alternative to the traditional or deep-plane face-lift techniques.

In the last years, then, several short scar techniques have been developed. Baker[7] described the SMASectomy short scar facelift, and Tonnard and Verpaele[12] promoted the use of a cranial vector-based short scar facelift performed with suspension sutures.

A further reason for the increasing number of these techniques is also the change of the concept of facial rejuvenation in the last few years: the vertical lift[13,14].

To get a natural result, we do not need to pull tissues and skin backward, the way we used to, giving the characteristic "wind-blown appearance", but has to reposition the tissues where they used to be years ago; this is the issue and this is what patients want: a natural result without the stigma of a facelift with a minimum downtime. We do not need to remove a lot of skin anymore with the vertical lift, and this allows us to keep the scars shorter. Our new technique, called new lift, does not fit to all patients but represents an excellent option

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for facial rejuvenation in those cases with, mild to moderate, signs of facial aging, needing a midface lift. Patients with severe skin laxity and prominent nasolabial folds may benefit from more traditional procedures. Minimal incisions rhytidectomy has been very popular with endoscopic surgery, mostly for upper face and one of the problems has always been the treatment of extra skin[15-17].

The new lift technique is a procedure for facial rejuvenation with a minimal incision that gives the patient a successful improvement of mid face and neck, with limited dissection, minimal scar and downtime low complications rate.

A further "One-stitch" of anchorage to the deep temporal fascia is required to hold tissues. With a minimal incision, we get an effective cheek lift with the improvement of nose-labial folds, mandibular edge and neck contour.

Patients and Methods

Between February 2009 and October 2010, 32 patients underwent a procedure of facial rejuvenation new lift.

22 out of 32 patients were women (68.8%) and 10 men (31.2%).

The average age of the patient was 46 years (range 35-55 years).

7 patients (21.8%) had a previous facelift. 12 out of 32 patients (37.5%) received concomitant eyelid surgery and 4 (12.5%) a neck contouring procedure (Table I).

Follow-up was at 6 weeks, 3 months, 6 months, 12 months and 24 months.

Aesthetic results were evaluated also by patients themselves who indicated a high satisfaction rate at three months post-surgery questionnaire and by a surgeon not involved in the study using VAS (1-10) before and three months after surgery (Table II).

Acquired data on the aesthetic result were statistically evaluated using Student t-test (Tables III and IV).

Pigmentation (0-3 Scale), pliability (0-5 Scale), height (0-3 Scale) and vascularity (0-3 Scale) were evaluated according to the Vancouver Scar Scale[18].

Early and late complications were analyzed. In particular, 24 months after the surgery, features of the formed scar were evaluated: pigmentation, color, height, and elasticity. Pigmentation, height, and vascularity were evaluated on a scale from 0 to 3; Elasticity was evaluated on a scale from 0 to 5 according to the Vancouver scale.

Table I. Epidemiology.

	Number	%
Number of patients	32	100%
Women	22	68.8%
Men	10	31.2%
Patients underwent a previous facelift	7	21.8%
Concomitant eyelid surgery	12	37.5%
Neck contouring procedure	4	12.5

Operative Technique (Figures 1 and 2)

All new lifts were performed under local anesthesia, 6 patients (19%) required oral sedation (10 mg diazepam 20 minutes before the procedure). This is possible because the operation takes between 45 minutes (for midface only) and one and half hours (including neck and post-tragal skin excision) when performed by a surgeon familiar with the technique. No patients received general or intravenous anesthesia even if the anesthesiologist is in the OR in case the patient needs a sedation.

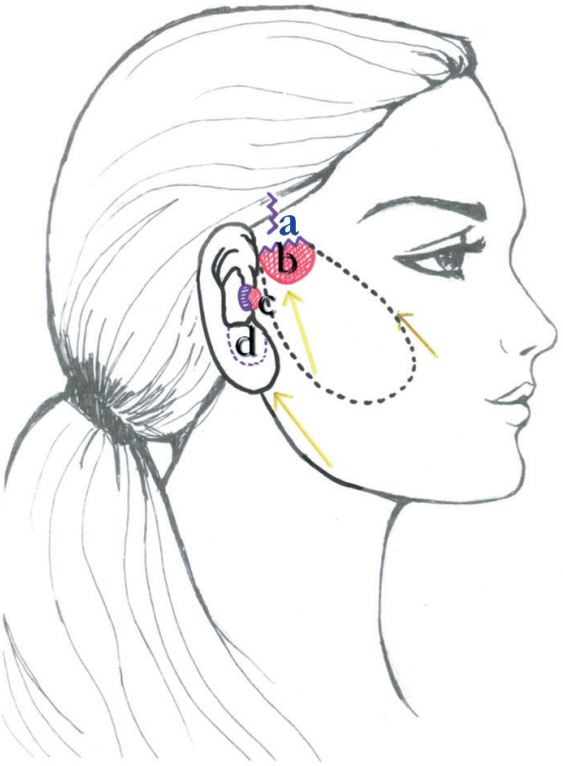

Figure 1. Operative technique: design new lift: Temporal incision; Skin flap dispithelization; Skin redraping in the pretragal region; Retroauricular incision. Yellow vector = Traction vector; Blue lines = Incision; Red lines = Excess skin.

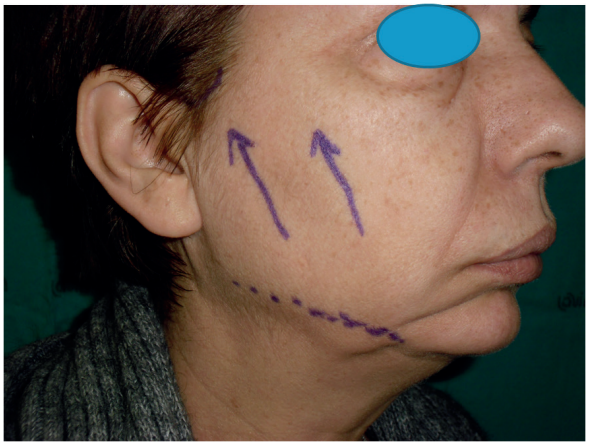

Figure 2. Operative technique: photo new lift.

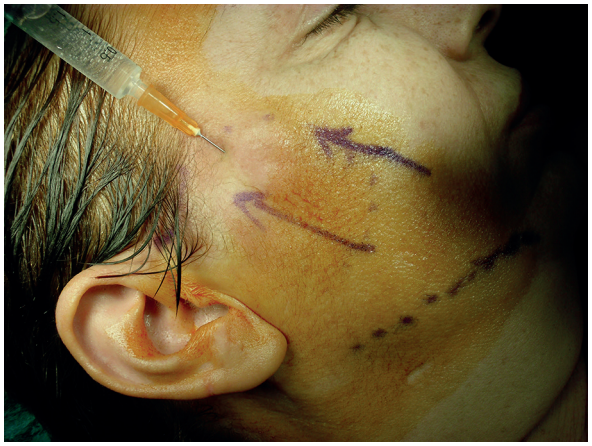

Figure 3. Local anesthesia.

Patients were marked in an upright position. Local anesthesia is infiltrated into the operative area with an average of 20 mL of 1% lidocaine with 1:100,000 epinephrine (Figure 3). We wait ten minutes as the blanching effect of epinephrine is

Table II. Patients and surgeon aesthetic evaluation.

Patients	Pe pre-surgery	Pe 3 M post-surgery	Se pre-surgery	Se 3 M post-surgery
1	5	8	4	7
2	4	6	5	6
3	6	7	5	7
4	5	8	5	7
5	4	6	5	7
6	4	7	5	7
7	5	8	5	6
8	4	5	4	7
9	5	5	5	8
10	6	8	5	6
11	5	9	4	7
12	5	6	4	6
13	5	8	5	8
14	4	6	5	7
15	5	7	4	7
16	5	8	5	7
17	4	6	5	7
18	5	6	5	6
19	5	7	4	7
20	6	8	5	8
21	5	7	4	7
22	5	7	5	8
23	5	7	6	8
24	4	6	5	7
25	5	7	5	7
26	6	8	5	8
27	5	7	4	7
28	4	6	4	7
29	5	7	5	8
30	5	7	4	6
31	6	6	5	7
32	6	7	6	8
Mean	4.94	6.91	4.72	7.03

Table III. Statistical analysis of patients evaluation.

N	Mean	Df	95% CID	SD	SEM	*p*-value	*t*-value
32	4.94	62	-2.38-1.55	0.67	0.12	<0.0001	9.5
32	6.91			0.96	0.17		

Table IV. Statistical analysis of surgeon evaluation.

N	Mean	Df	95% CID	SD	SEM	*p*-value	*t*-value
32	4.72	62	-2.61-2.02	0.52	0.09	<0.0001	15.73
32	7.03			0.65	0.11		

Df = degree of freedom, 95%CID = 95% confidence interval of this difference, SD = standard deviation, SEM = standard error of mean.

established, then an incision is first made along the sideburn (Figure 4). A skin flap is elevated according to the preoperative marking sharply and with a Colorado tip. SMAS dissection is performed for about 6-8 cm inferiorly and anteriorly (Figure 5). A stitch is placed with a permanent suture (3/0 Mersilene) between the SMAS flap to the zygomatic arch periosteum (Figure 6). Another incision (about 1,5cm) is then placed in the temporal area (Figure 7) through the deep layer of the deep temporal fascia; a tunnel is created bluntly to the sideburn incision (Figure 8). The amount of extra skin is evaluated lifting it in a vertical direction, marked and de-epithelialized: a permanent suture is placed on this dermal flap with three passages (Figure 9) and then, through the tunnel to the deep temporal fascia (Figure 10). The de-epithelialized flap is now inside the temporal area, holding the skin flap, so a 5/0 Prolene running suture is used to approximate the edges of the sideburn incision to the skin with no tension. The temporal incision is closed with a 4/0 Prolene (Figure 11). If moderate wrinkles show up in the preauricular area after suture, an incision is

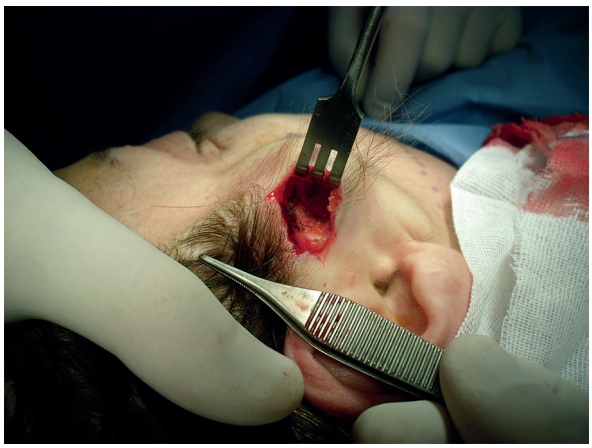

Figure 5. SMAS dissection performed for about 6-8 cm inferiorly and anteriorly.

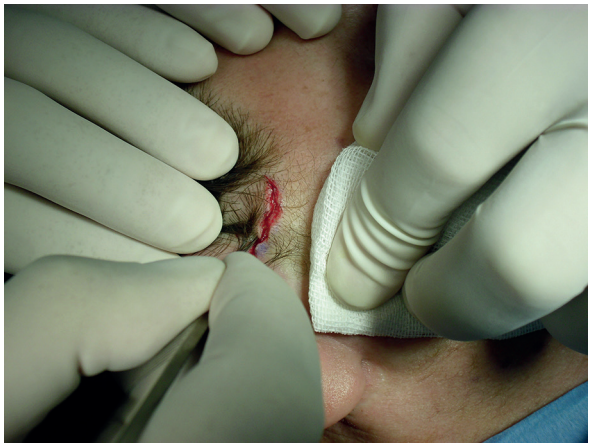

Figure 4. Incision first made along the sideburn.

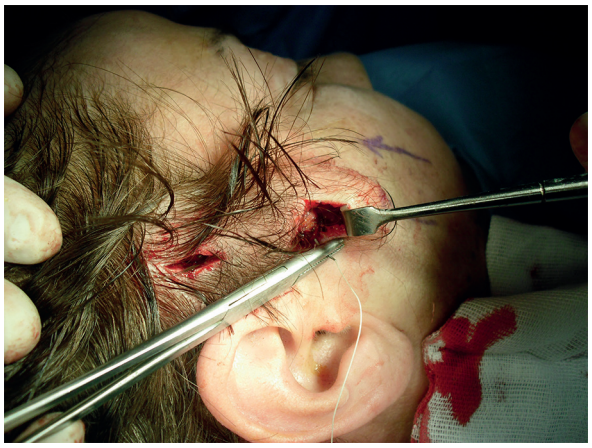

Figure 6. A stitch placed with a permanent suture (3/0 Mersilene) between the SMAS flap to the zygomatic arch periosteum.

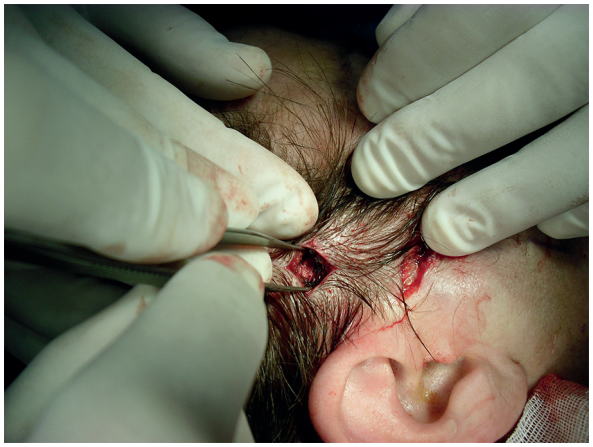

Figure 7. Another incision (about 1.5 cm) placed in the temporal area.

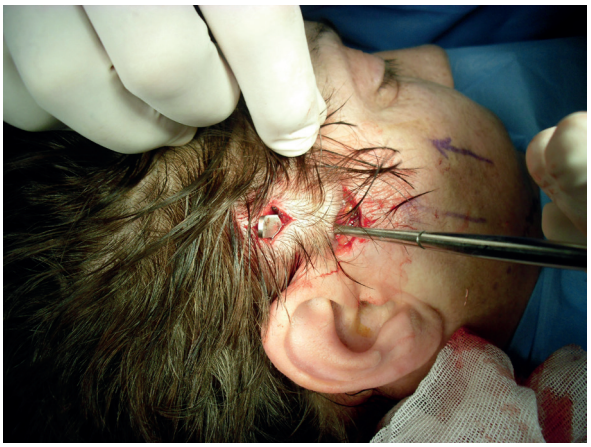

Figure 8. Through the deep layer of the deep temporal fascia; a tunnel is created bluntly to the sideburn incision.

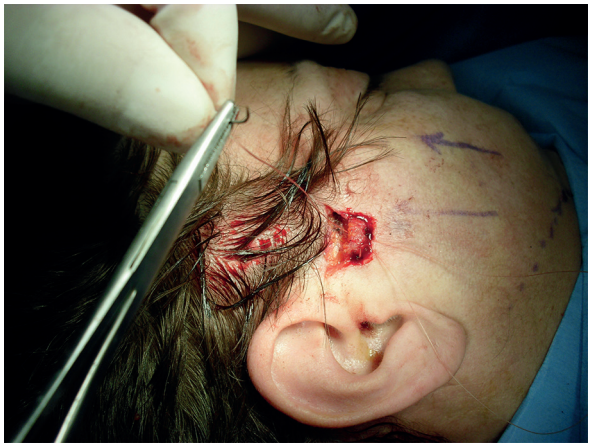

Figure 9. Suture is placed on this dermal flap with three passages.

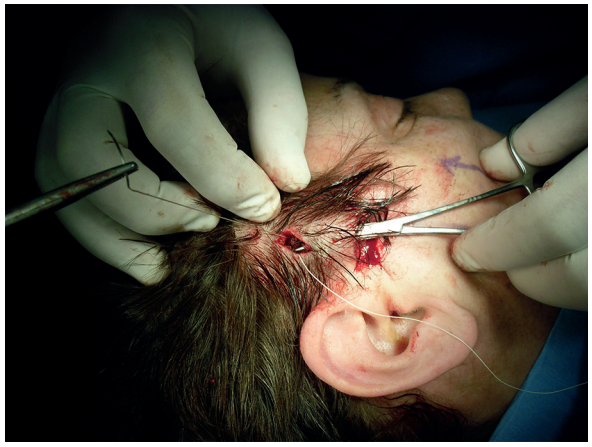

Figure 10. Permanent suture is placed through the tunnel to the deep temporal fascia.

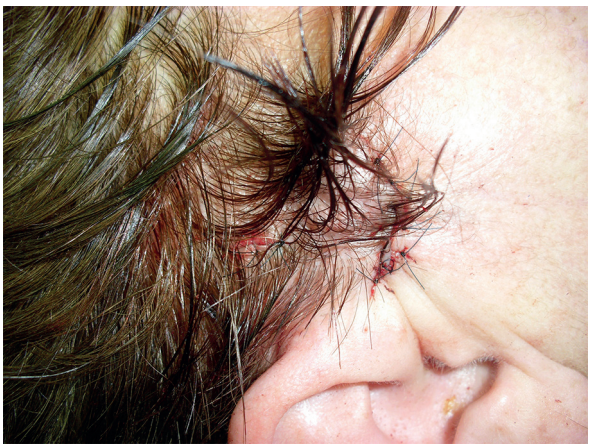

Figure 11. Suture with 5/0 and 4/0 Prolene.

made at the apex of the tragus and through this a limited skin undermining is performed in the preauricular area in order to excise a little amount of skin and smooth the wrinkles. For patients that need to improve the neck contour, an incision is made around the ear lobule extending posteriorly about 2 or 3 cm depending on the case, a moderate skin dissection is carried out inferiorly and anteriorly and a small SMAS/platysma strip is upwarded to check the best angle for suture placement and then sutured anchored on the periosteum in the mastoid area with a 3/0 Mersilene. The extra skin is then evaluated and excised. Skin repair is performed with a few 3/0 Monocril subcutaneous suture around the ear lobule and a 5/0 Prolene suture for the skin. We use no drains. An elastic cervical support is placed for 24h and then to be worn during the night for nine more days. Sutures are removed at postoperative day 7 around the ear lobule and day 9 in the sideburn and postauricular area. All patients are prescribed postoperative antibiotics for five days.

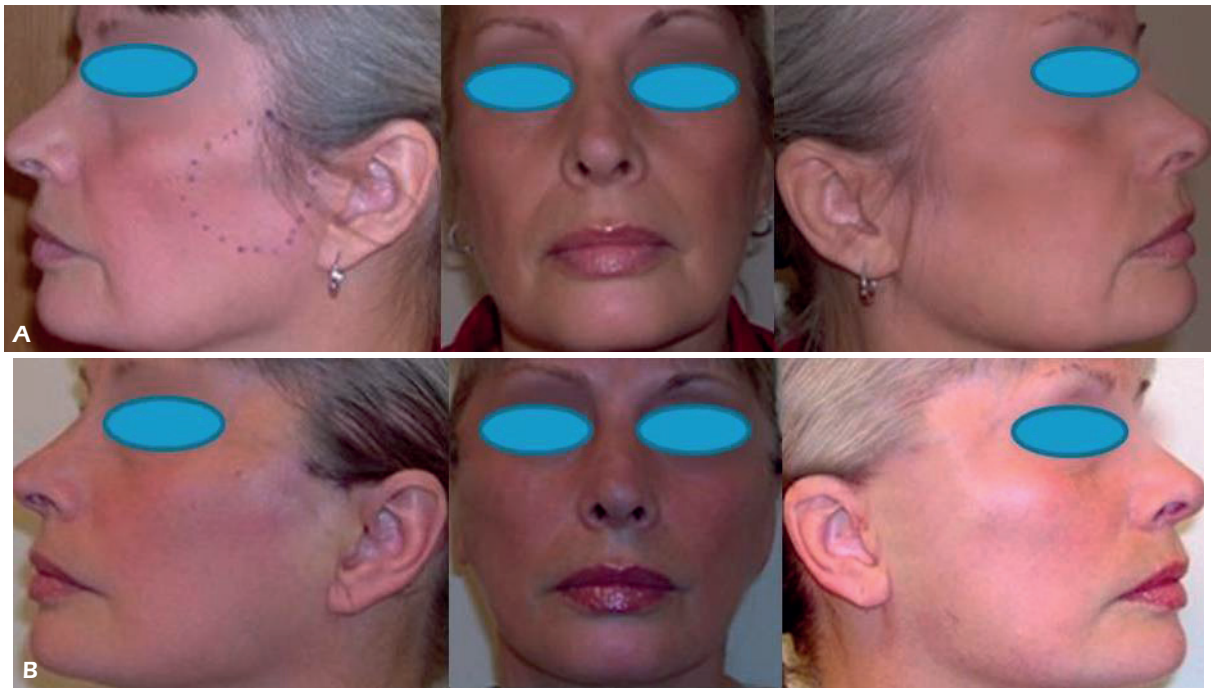

Figure 12. ***A-B,*** Case 1 – Right profile face, front face and left profile face pre and 12 months post-operative.

Results

The new lift surgery was performed as a primary rhytidectomy in 80% of the cases (25 patients) and as secondary in 20% of the cases (7 patients). 8 patients (25%) received concomitant upper or lower blepharoplasty, 4 (12.5%) of them full blepharoplasty.

We experienced minimal postoperative swelling, as well as ecchymosis in 8 patients (25%).

We had suture extrusion in five patients (15.6%), particularly of the absorbable sutures behind the ear that healed with no need of revision.

The complications observed were minimal. Moderate bunching of skin edges in the post-auricular area was observed in 5 patients (16%) and was resolved with a massage after suture removal and disappeared in two months, only 2 patients (6.2%) needed a scar revision.

6 patients (18.7%) experienced pain at the temporal area for the anchor sutures for the first two or three days.

3 patients (9.3%) had small (2) to moderate (1) hematomas in the immediate postoperative period, due to increasing of the blood pressure. They were diagnosed in the recovery room and evacuated at the bedside with immediate manual compression and an ice bag; no further procedures were needed.

2 patients (6.2%) presented hypertrophic scars around the ear lobe which resolved with massage and/or local corticosteroid injection.

1 patient (3.1%) who did not use sun block developed postoperative hyperpigmentation (Table V).

The results obtained by using the scale of Vancouver were as follows:

1. Pigmentation – 31 patients (96.9%), had a normal pigmentation of the scar (0 Vancouver scale) and 1 patient (3,1%) had a hyperpigmentation (2 Vancouver scale)
2. Vascularity – in all 32 (100%) patients a normal vascularity (0 Vancouver scale)
3. Height scar – 30 patients (93.8%) a normal height of the scar (0 Vancouver scale), while in 1 patient (3.1%) we had a height of degree 1 of Vancouver scale (less than 2 mm) and 1 patient (3.1%) with a height of Vancouver scale 2 (2-5 mm).
4. Pliability – in 30 patients (93.8%), we found a normal pliability (0 Vancouver scale), while 2 patients (6.2%) were found with supple skin (1 Vancouver scale) (Table VI).

A natural result without the stigma of a face-lift was achieved in all patients.

In all patients, an effective elevation of midface (Figure 12a and b), improvement of nasolabial folds (NLF) (Figure 13a and b), mandible and neck contour were obtained as well as a high satisfaction rate (Figure 14a b); 28 patients (89%)

Table V. Description of complications.

Complication	Number of patients	Incidence (%)
Hematoma	3	9.3%
Hypertrophic scarring	2	6.2%
Hyperpigmentation	1	3.1%
Dehiscence and revision of the scar.	2	6.2%
Pain at the temporal area	6	18.7%
Suture extrusion	2	6.2%

Table VI. Scars evaluation.

	Number of patients	%	Vancouver scale
Pigmentation	31	96.9%	0
	1	3.1%	2
Vascularity	32	100%	0
Height	30	93.8%	0
	1	3.1%	1
	1	3.1%	2
Pliability	30	93.8%	0
	2	6.2%	1

were very satisfied with their result at 24-months follow-up.

The aesthetic improvement assessed by patients before and three months after surgery was statistically extremely significant ($p<0.0001$). The mean value of aesthetic satisfaction before surgery was 4.94 and after surgery was 6.91. Aesthetic improvement evaluated by a plastic

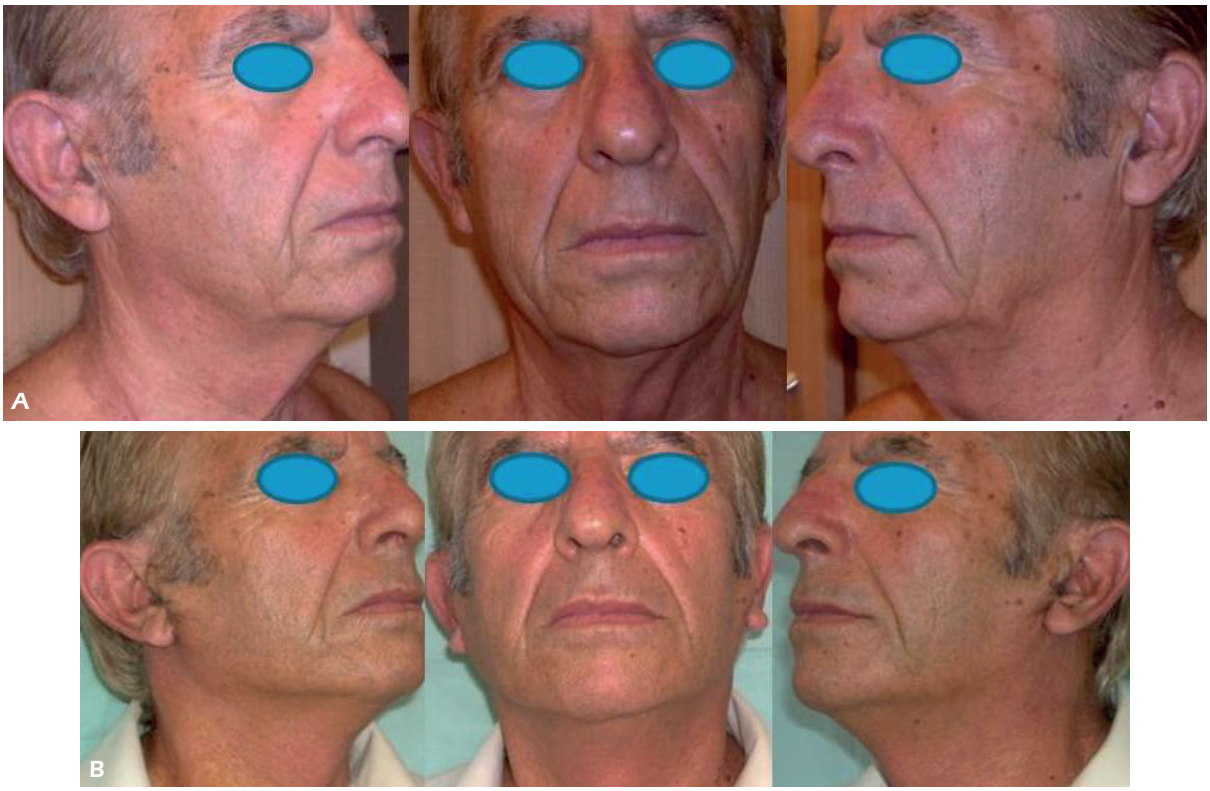

Figure 13. ***A-B***, Right profile three-quarter face, front face and left profile three-quarter face pre and 12 months post-operative.

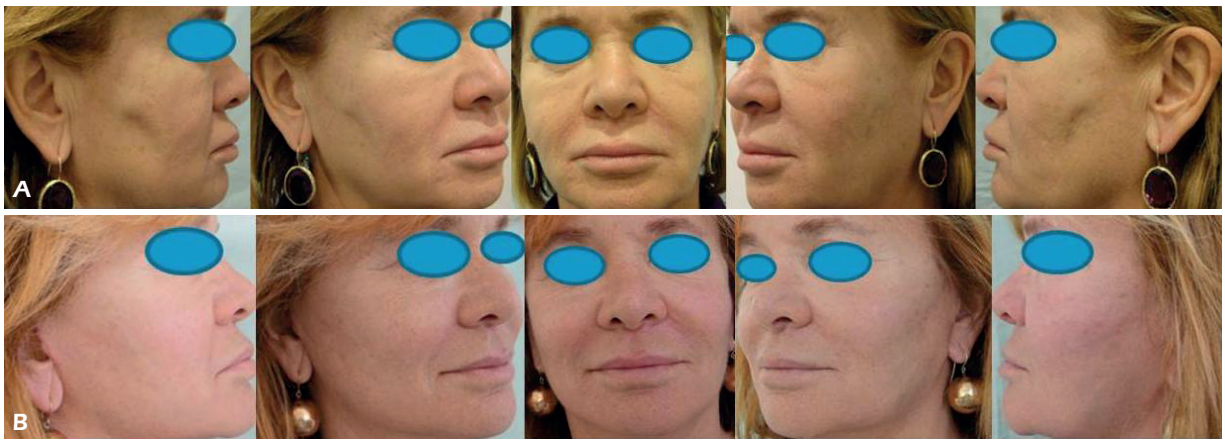

Figure 14. ***A-B,*** Right profile face, right profile three-quarter face, front face, left profile face and left profile three-quarter face pre and 12 months post-operative.

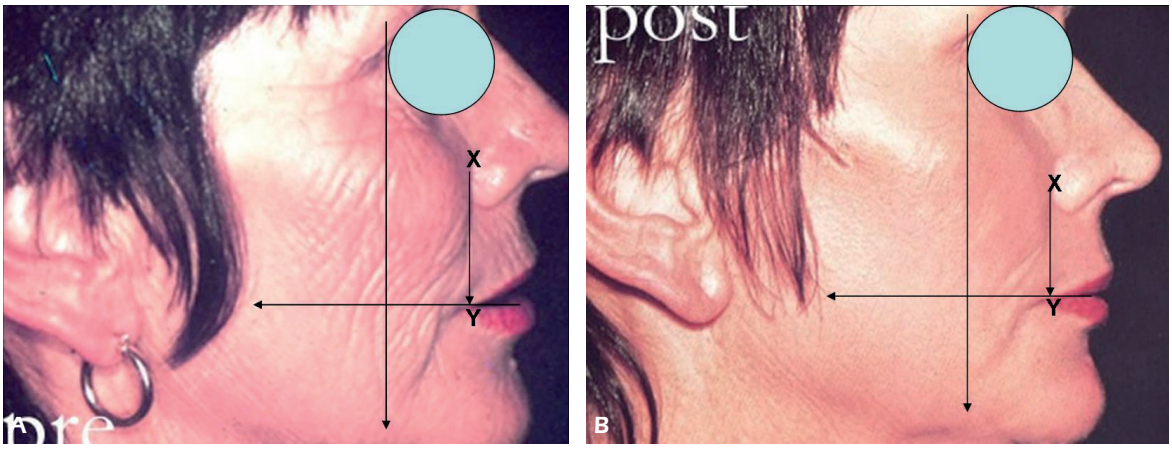

Figure 15. ***A-B***, Distance between the oral commissure and the nasojugal groove position.

surgeon not involved in the study was extremely significant ($p<0.0001$), with an average pre-surgery result of 4.72 and 7.03 and 3-month post-surgery.

The surgical outcome was evaluated by analyzing photographs made before and after surgery, and by analyzing pre- and postoperative measurements. Measurements were made along a perpendicular line from the eye outer canthus to a horizontal line of the oral commissure to evaluate, before and after surgery, the position of distance between the oral commissure and the nasojugal groove position (Figure 15a and b).

New lift technique accomplished a significant rejuvenation of the midface with a stable result at 24 months follow-up (Table VII).

Discussion

Facial rejuvenation with minimal incision is now very popular for patients that want achieve significant improvement in the midface, mandible and neck contour without main concerns of traditional face-lifts.

Short-scar rhytidectomy can realize significant changes in facial and neck rejuvenation.

Table VII. Evaluation of the nasojugal groove position after a new lift.

Preoperative	12-month postoperative	24-month postoperative
(X-Y) mm 50 ± 0.6	68 ± 0.2	65 ± 0.4
X-Y Distance between the oral commissure and the nasojugal groove position		

The new lift can obtain substantial changes in facial and neck rejuvenation giving a very natural look[19,21]. Firstly, downtime is minimized by limited dissection and many patients return to normal activities the following day unless is combined with another procedure[20,21]. Secondly, main complications as hematoma, seroma, and injury to the facial nerve are very uncommon[22-24]. We had three cases in our series due to an increase of blood pressure. Thirdly, performing this procedure under local or minimal oral sedation, risks associated with anesthesia are eliminated[19]. Last but not least, costs related with the procedure can be kept significantly low because of the short time required for the operation and avoiding anesthesia charges common with traditional lifts[21-25].

Finally, the authors believe that short-scar rhytidectomy offers a good suspension with long-lasting results in selected patients.

The surgical key factors in achieving results in short-scar rhytidectomy without significant increases in complications or downtime, are SMAS suspension, postauricular skin excision and tension-free closure.

The operation follows the vertical vectors reshaping the face by restoring volume to the midface and improving the neck and mandible contour with minimal scars on the sideburn, behind the tragus and retroauricular, hidden in natural folds and along the hairline[24-27].

The new-lift has a limited skin dissection; the skin is lifted with minimal tension; the vectors of the lift are mostly in the vertical direction, making the incision as short as possible. It is also important to respect the vertical vectors in order to reshape the face by restoring volume to the midface.

This technique also improves mandible contour and neck. There is a significant learning curve associated with these "mini procedures" to get the best results. It has, of course, specific indications for selected patients, but it can be a suitable alternative to the traditional face-lift techniques in cases of mild to moderate signs of facial aging.

In selected patients, medium and long-term results can be overlapped to traditional facelift techniques.

Conclusions

Based on the results of our study the new-lift is a very successful procedure for rejuvenation of the face with mild to moderate aging. There is minimal post-operative edema, as well as minimal post-operative ecchymosis. It responds to an increasing demand from a wide range of patients for less invasive, less expensive operations with faster healing time and fewer potential complications.

The increasing demand for minimally invasive surgery, the desire of patients to have a fast recovering time and the exigency to be socially presentable, as quick as possible made our techniques highly requested, especially if compared with traditional techniques that in these days do not seem to meet the favor of patients.

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Conflicts of interest

The authors declare no conflicts of interest.

References

1) Owsley JQ. Face lifting: problems, solutions, and an outcome study. Plast Reconstr Surg 2000; 105: 302-315.
2) Owsley JQ, Fiala TG. Update: lifting the malar fat pad for correction of prominent nasolabial folds. Plast Reconstr Surg 1997; 100: 715-722.
3) Owsley JQ. Lifting the malar fat pad for correction of prominent nasolabial folds. Plast Reconstr Surg 1993; 91: 463-476.
4) Owsley JQ. Face lift. Plast Reconstr Surg 1997; 100: 514-519.
5) Bao S, Zhou C, Li S, Zhao M. A new simple technique for making facial dimples. Aesthetic Plast Surg 2007; 31: 380-383.
6) Brackup AB. Advances and controversies in face lift surgery. Curr Opin Ophthalmol 2003; 14: 253-259.
7) Baker DC. Lateral SMASectomy, plication and shortscar facelifts: indications and techniques. Clin Plast Surg 2008; 35: 533-550.
8) Baker DC. Minimal incision rhytidectomy (short scar face lift) with lateral SMASectomy. Aesthet Surg J 2001; 21: 68-79.
9) Baker DC. Minimal incision rhytidectomy (short scar face lift) with lateral SMASectomy: evolution and application. Aesthet Surg J 2001; 21: 14-26.

10) Baker DC, Nahai F, Massiha H, Tonnard P. Short scar face lift. Aesthet Surg J 2005; 25: 607-617.

11) Verpaele A, Tonnard P, Gaia S, Guerao FP, Pirayesh A. The third suture in MACS-lifting: making midface-lifting simple and safe. J Plast Reconstr Aesthet Surg 2007; 60: 1287-1295.

12) Tonnard P, Verpaele A. The MACS-lift short scar rhytidectomy. Aesthet Surg J 2007; 27: 188-198.

13) Ramirez OM. Three-dimensional endoscopic midface enhancement: a personal quest for the ideal cheek rejuvenation. Plast Reconstr Surg 2002; 109: 329-349.

14) Sykes JM, Liang J, Kim JE. Contemporary deep plane rhytidectomy. Facial Plast Surg 2011; 27: 124-132.

15) Seify H, Jones G, Bostwick J, Hester TR. Endoscopic-assisted face lift: review of 200 cases. Ann Plast Surg 2004; 52: 234-239.

16) Viksraitis S, Astrauskas T, Karbonskiene A, Budnikas G. Endoscopic aesthetic facial surgery: technique and results. Medicina (Kaunas) 2004; 40: 149-155.

17) De Cordier BC, de la Torre JI, Al-Hakeem MS, Rosenberg LZ, Gardner PM, Costa-Ferreira A, Fix RJ, Vasconez LO. Endoscopic forehead lift: review of technique, cases, and complications. Plast Reconstr Surg 2002; 110: 1558-1570.

18) Sullivan T, Smith J, Kermode J, et al. Rating the burn scar. J Burn Care Rehabil 1990; 11: 256-260.

19) Harris DM, Fried D, Reinisch L, Bell T, Schachter D, From L, Burkart J. Eyelid resurfacing. Lasers Surg Med 1999; 25: 107-122.

20) Graf R, Groth AK, Pace D, Neto LG. Facial rejuvenation with SMASectomy and FAME using vertical vectors. Aesthetic Plast Surg 2008; 32: 585-592.

21) Tanna N, Lindsey WH. Review of 1,000 consecutive short-scar rhytidectomies. Dermatol Surg 2008; 34: 196-203.

22) Massiha H. Short-scar face lift with extended SMAS platysma dissection and lifting and limited skin undermining. Plast Reconstr Surg 2003; 112: 663-669.

23) Baker DC, Nahai F, Massiha H, Tonnard P. Short scar face lift. Aesthet Surg J 2005; 25: 607-617.

24) Graf R, Neto LG, Araújo LR, Bernardes A, Rippel R, Auersvald A. Vertical vectors in SMASectomy to reshape the aging face. Aesthet Surg J 2003; 23: 198-201.

25) Somoano B, Chan J, Morganroth G. Vertical vector face lift. Dermatol Ther 2011; 24: 108-120.

26) Jacono AA, Parikh SS. The minimal access deep plane extended vertical facelift. Aesthet Surg J 2011; 31: 874-890.

27) Fino P, Maruccia M, Ciotti M, Amorosi V, Scuderi N. Patient satisfaction as an excellent track record in nonsurgical rejuvenation procedures. Eur Rev Med Pharmacol Sci 2016; 20: 1911-1917.