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Advancements in Face Lift Techniques: Preservation Face Lift With a Rotating Pedicle Flap

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Background: Face lift surgery has witnessed a significant surge in popularity, particularly in the context of social media influence and heightened aesthetic awareness.
Methods: The preservation face lift technique combines elements of the extended deep plane and high superficial musculoaponeurotic system face lift while adopting a tissue-sparing approach, minimizing skin delamination and preserving deep anatomical structures as much as possible. High-definition neck contouring for mild midline neck laxity is achieved through an innovative technique using lateral platysma purse-string hammock sutures. Deep neck content and submandibular gland resections are typically reserved for cases with moderate to significant neck fullness, requiring a more comprehensive approach to contouring. To further enhance the jawline by increasing the depth of the gonial angle, the lateral superficial musculoaponeurotic system flap is incised, mobilized, and rotated as a pedicled flap along the body of the ramus, resulting in a more defined contour. Through a retrospective analysis of 134 patients undergoing face and neck lift procedures, we compared outcomes between preservation face lift and extended deep plane face lift.
Results: Results indicated shorter drainage durations and lower complication rates in the preservation face lift group, underscoring its efficacy and safety. Although our study provides valuable insights into the preservation face lift technique, future research should incorporate objective outcome measures such as patient-reported satisfaction surveys to further elucidate its benefits.
Conclusions: Overall, the preservation face lift represents a nuanced approach to face lift surgery, prioritizing both aesthetic refinement and patient safety in pursuit of natural-looking results. *(Plast Reconstr Surg Glob Open 2025;13:e6619; doi: 10.1097/GOX.0000000000006619; Published online 18 March 2025.)*

INTRODUCTION

According to the latest statistics produced by the American Society of Plastic Surgeons regarding procedures performed in cosmetic surgery in 2022, there was a significant 8% increase in face lift procedures.[1] A significant portion of this increase can be attributed to social media. This increase can also be attributed to a heightened awareness of facial aging, especially as individuals spent more time working on virtual platforms. Consistent with recent literature discussions,[2,3] our findings indicate that liberating and manipulating the cervicofacial gliding plane, known as the deep plane,[4] allows for more extensive lifting in both the face and neck, while minimizing resistance and tangling of underlying structures. Importantly, treating and lifting the neck and face as a single unit yields a more uniform, natural, and enduring outcome. However, certain areas may remain untreated and challenging to address in specific patients with complex anatomy. We describe a novel technique termed the "preservation face lift with a pedicle flap," designed to optimize face and neck definition while mitigating the risk of complications. This is achieved through strategic superficial musculoaponeurotic system (SMAS) flap elevation and mobilization, which minimizes skin undermining, thereby preserving vascular integrity and reducing postoperative risks.

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METHODS

Surgical Technique of Preservation Face and Neck Lift

Our approach to preservation deep plane face lift is a combination of the extended deep plane face lift[5] and the high SMAS face lift.[6] (**See Video 1 [online]**, which displays the description of the main steps of the preservation face lift: part 1.) (**See Video 2 [online]**, which displays the description of the main steps of the preservation face lift: part 2.) It reduces the need for excessive delamination of skin in the face and neck area. The region corresponding to the elevation of the deep plane is infiltrated with a solution containing 250 mL of saline solution, 50 mL of 0.5% lidocaine, 50 mL of 0.25% bupivacaine with 1:200,000 epinephrine, and 250 mg of tranexamic acid using 21G needles. The incision begins 1 mm within the hairline at the temple, and then curves around the sideburns to reach the superior portion of the helical rim. Another crescent incision is made within the helical rim. The incision then extends downward, following the natural crease in front of the ear. The downward incision from the tragus region curves around the earlobe and should proceed 1 mm below the lobule-cheek junction to maintain the natural sulcus between the lobe and the cheek. The incision continues into the postauricular sulcus above the mastoid process, and then crosses into the hairline and moves down 1 mm within the hairline. Skin elevation is performed up to the entry point of the dissection under the SMAS, 2 mm anterior to the Pitanguy line—a parallel line located more laterally than that described in the deep plane technique (which extends from the gonion to the lateral canthus). The skin undermining is much less than that described in the high SMAS[6] or extended deep plane[5] technique (Fig. 1). Figure 2 illustrates the skin undermining performed during a preservation face lift. In the submental region, skin delamination is confined to the suprathyroid area. In the lateral neck, a narrow strip of skin undermining is performed approximately 2 finger widths below the mandibular line, connecting to the submental region. No skin delamination is performed above the jawline. For cases with moderate-to-severe platysma bands and substantial neck fullness (90% of cases), a submental approach is performed. The submental skin dissection is carefully restricted to the suprathyroid region to facilitate deep neck content reduction and platysmaplasty. The deep plane entry for the sub-SMAS dissection is initiated with an electrosurgical pencil (Medtronic, Minneapolis, MN) in a more lateral position than previously described, traditionally extending from the gonion to the lateral canthus. Specifically, the entry begins on the nonmobile SMAS, 2 mm anterior and parallel to the Pitanguy line, to safeguard the frontal branch of the facial nerve. During dissection, at the mid-portion of the zygomatic arch, the trajectory is redirected anteriorly, progressing toward the orbicularis oculi muscle. This strategic anterior shift is

Takeaways

Question: Can the preservation face lift improve aesthetic outcomes while reducing complications compared with traditional face lift methods?

Findings: The preservation face lift blends aspects of the extended deep plane and high superficial musculoaponeurotic system face lift, focusing on limited skin undermining and preserving anatomical structures. Techniques such as the "platysma hammock" and purse-string hammock sutures are used for neck contouring. Submandibular gland resection is reserved for severe cases.

Meaning: The preservation face lift represents an innovative approach that reduces skin dissection, enhances jawline definition, and minimizes complications, offering a safer and more natural result.

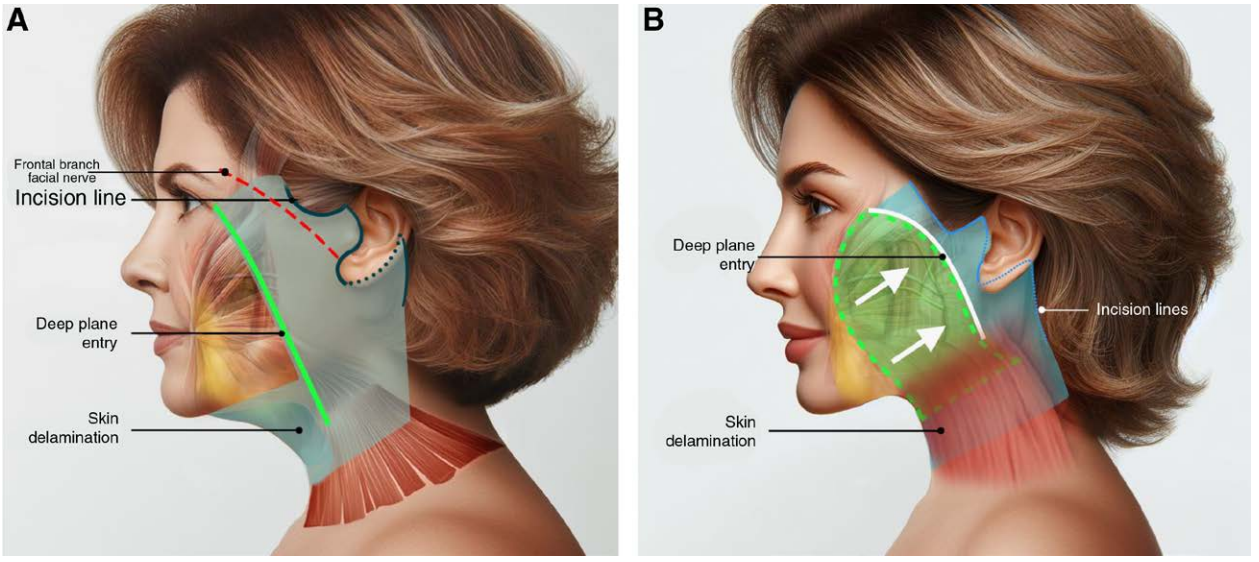

Fig. 1. Evolution of the position of anatomical structures between the beginning (A) and the end (B) of the extended deep plane face lift procedure.

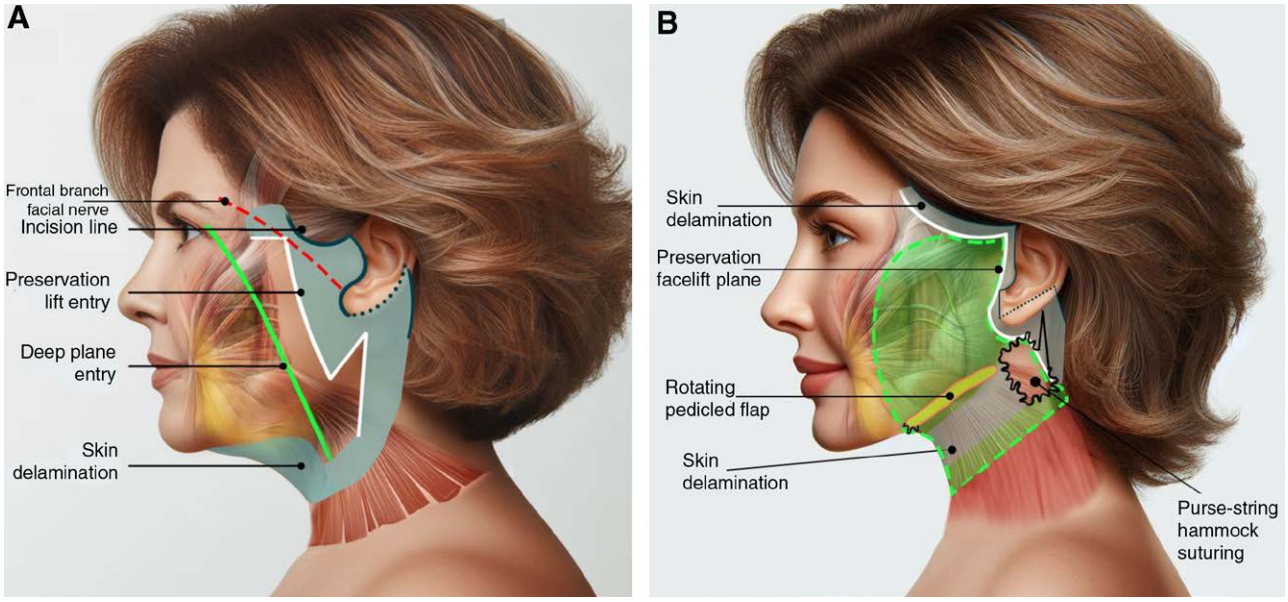

Fig. 2. Evolution of the position of anatomical structures between the beginning (A) and the end (B) of the preservation face lift procedure. The skin delamination is limited. The entry point for sub-SMAS dissection (blue line) is similar to that used in the high SMAS face lift technique and therefore more lateral than that used in the deep plane face lift technique (green line). An SMAS flap is created to accentuate the gonial angle and jawline. Quilting sutures are performed to give strength to the platysma flap and to secure it to the mastoid periosteum.

critical for accessing the prezygomatic space while minimizing trauma to the surrounding tissues. Following the elevation of the nonmobile SMAS, the zygomatic ligaments are carefully approached with electrocautery at the superior boundary of the deep plane entry, located within the prezygomatic space. This precise technique enables controlled release of the ligaments, facilitating optimal mobilization of the overlying tissues. The authors use the Trepsat dissector (Carnegie Surgical LLC, East Windsor, NJ) and the finger-assisted malar elevation[7–9] maneuver to safely visualize and then transect the zygomatic cutaneous ligaments through the prezygomatic space with electrocautery. This technique allows for entry into the correct plane under direct visualization while keeping the malar fat pad attached to the skin. Finger-assisted malar elevation is performed in an avascular, gliding plane between the sub–orbicularis oculi fat and the preperiosteal fat. Finger dissection of this space is smooth and safe, as there are no facial nerve branches present. The only structure encountered is the zygomatic cutaneous neurovascular pedicle, located at the superior border of the zygomaticus minor muscle. On the floor of this prezygomatic space lie the preperiosteal fat, the periosteum of the zygoma, and the origins of the zygomaticus major, zygomaticus minor, and levator labii superior muscles. The next step involves releasing the zygomatic cutaneous and masseteric cutaneous ligaments. The posterior superior corner of the major zygomatic cutaneous ligament is transected from a superior (suborbicular) to an inferior direction, as superficially as possible, to ensure a clear and safe entry into the precise plane above the zygomaticus major and minor muscles under direct visualization. This technique helps avoid damaging the facial nerve subbranches, which enter the zygomatic muscles from below and deep, and also penetrate the zygomatic major muscle. Then, the platysma and the lower SMAS are elevated using the Trepsat dissector to access the deep plane area. The platysma is elevated from the fascia of the underlying sternocleidomastoid muscle, 3 mm anterior to the great auricular nerve and two finger widths below the ramus. This maneuver allows for connecting the elevated posterior platysma fascia to the previously elevated subplatysmal tissue using the Trepsat dissector, extending anteriorly up to the posterior edges of the submandibular gland, thus creating a well-mobilized platysma flap. The dissection of the SMAS-platysma flap used to redefine the neck is similar to that described by Barton.[10] Subsequently, the lateral platysma flap is secured to the mastoid process fascia in a superolateral direction using a purse-string hammock suture. Initially, however, the apex of the SMAS flap is anchored to the temporal fascia with 2/0 Vicryl (Ethicon, Inc., Somerville, NJ) through a vector perpendicular to the nasolabial fold. Next, the superior SMAS flap is anchored above the zygoma using 2/0 Vicryl to accentuate the zygomatic arch and further elevate the malar fat pads. A 3 mm strip of the lateral SMAS is then trimmed from the apex down to the lower earlobe area, leaving a pedicled flap over the gonial angle. The pedicled flap is rotated under the SMAS along the jawline and secured with 4/0 Vicryl sutures (Ethicon, Inc.) along the ramus of the mandible to the masseteric fascia (Fig. 2). This maneuver will accentuate the gonial angle and jawline. The tail of this flap is anchored to the sublobular area. The remaining lateral SMAS portion of the deep plane flap is secured near the preauricular incision line, minimizing skin flap exposure and delamination. In the neck, a purse-string suturing

technique is used to reinforce the lateral platysma flap, securing it to the fascia of the mastoid process with O-Vicryl sutures on a UR6 needle (Ethicon, Inc.). Injury to the great auricular nerve is prevented by 2 maneuvers: first, elevating the platysma from the sternocleidomastoid fascia 3 mm anterior to the nerve, and second, anchoring the purse-string sutures to the mastoid process fascia lateral to the greater auricular nerve.

In our experience, the original "hammock flap" described by Jacono et al[11] has shown a tendency to tear when securing it to the mastoid process fascia. To address this, we utilize a modified purse-string suturing technique, which reinforces the hammock flap by creating multiple anchoring points. These additional weaving sutures passing through the platysma flap significantly enhance its tensile strength. The purse-string sutures anchor the platysma flap to the mastoid fascia, gliding it under the ramus and gonial angle, lifting the deep neck contents in a superolateral direction along the vector of the posterior digastric muscle. This maneuver also prevents the movement of one tissue plane over another, thereby reducing the risk of seroma formation.[12]

Furthermore, the minimized dead space restricts the potential expansion of a hematoma.[13,14]Then, excess fat over the flap is trimmed to deepen the gonial angle. The limited skin delamination significantly reduces the drainage duration. Typically, a subcutaneous suction drain is placed on each side of the neck. The drain is placed subcutaneously within the strip of skin undermining below the jawline. It is removed when it produces less than 20 mL for 24 hours.

Data Collection

We retrospectively analyzed a series of patients who underwent a face and neck lift, either using the extended deep plane face lift technique or the preservation face lift technique as described in this article. A total of 134 face and neck lift procedures were performed from January 2023 to December 2023. All procedures were performed by the first author (K.S.). Throughout the year during which the study was conducted, the 2 techniques were performed alternately without a real transition from one to the other. During the consultation, patients were given the option of both techniques, with the risks and benefits explained. Some patients chose to proceed with the preservation deep plane face lift, whereas others preferred the extended deep plane technique. After performing the preservation face lift technique on more than 50 patients, the author developed a high degree of certainty and began highly recommending the procedure. Since then, the authors have exclusively performed the preservation face lift technique.

Extensive qualitative and quantitative data were collected before, during, and after surgery for subsequent statistical analysis. The collected variables were as follows: age, sex, smoking history, weight loss history, type of procedure (primary, secondary, and tertiary), ancillary procedures, drain duration, and complications. The patients underwent one of the following procedures: either the deep plane face and neck lift or the preservation face and neck lift. We then compared each of the groups (preservation face lift group versus deep plane face lift group). Several ancillary procedures could be performed concurrently with the face lift: upper blepharoplasty, lower blepharoplasty, endoscopic browlift, buccal fat reduction, lip lift, chin augmentation, rhinoplasty, fat grafting, and neuromodulator.

Statistical Analysis

To compare the 2 groups, we used a chi-square test for categorical variables (such as sex, smoking history, type of procedure, and complications) and a Student *t* test for quantitative variables (such as age and duration of drainage). The results were considered statistically significant at a *P* value less than 0.05.

RESULTS

We have included all patients of K.S. (first author) who underwent a face and neck lift during the period January 1, 2023 to December 31, 2023. One hundred thirty-four patients underwent these procedures by the first author (K.S.) during the year 2023. No patients were excluded. There were 57 patients in the preservation face lift group and 77 patients in the deep plane face lift group (Table 1). The mean age between the groups was comparable (58 y for

Table 1. Comparison of Demographic Characteristics and Patient Outcomes Between Those Who Underwent Preservation Face Lift and Deep Plane Face Lift

	Preservation Face and Neck Lift, n = 57	Deep Plane Face and Neck Lift, n = 77	*P*
Age, y	58 (41–75)	61 (47–78)	0.39
Sex			0.44
Female	55 (96)	72 (94)	
Male	2 (4)	5 (6)	
Smoking history			0.07
Active	6 (11)	4 (5)	
Former	16 (28)	12 (16)	
Never	35 (61)	61 (79)	
Weight loss history	0	1 (1)	n/a
Type of procedure			0.20
Primary	51	68	
Secondary	3	9	
Tertiary	3	0	
Ancillary procedures			0.17
Upper blepharoplasty	9	18	
Lower blepharoplasty	11	15	
Lip lift	10	19	
Endoscopic browlift	20	26	
Buccal fat reduction	5	15	
Chin implant	0	2	
Rhinoplasty	1	4	
Fat grafting	6	7	
Neuromodulator	7	10	
Drain duration	1.5 (0–7)	4.3 (1–7)	0.00001
Complications			0.03
Seroma	2	9	
Hematoma	0	7	
Temporary facial paresis	3	6	
Wound dehiscence	1	4	
Skin necrosis	1	6	
Sialocele	0	3	

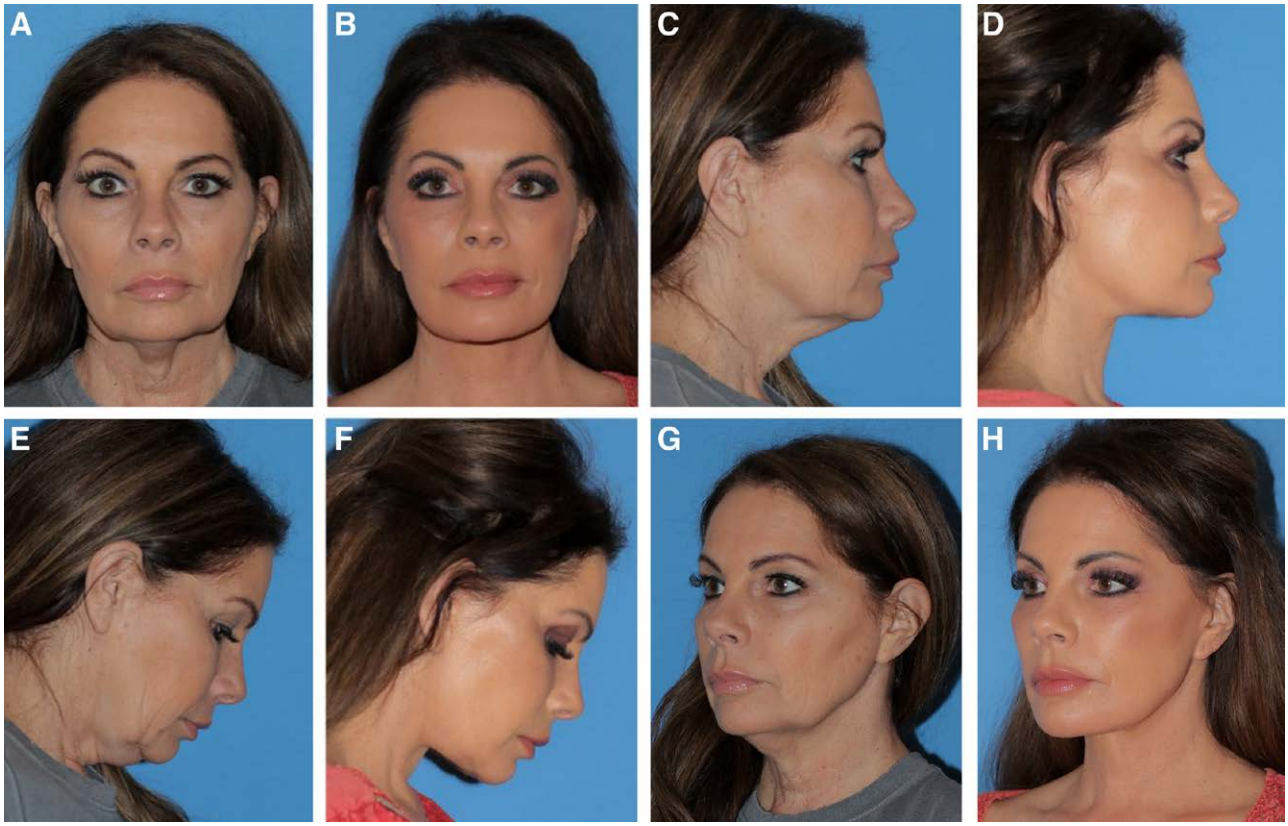

Fig. 3. Preoperative and 6-month postoperative views of a 56-year-old woman who underwent preservation face lift. A, Preoperative frontal view. B, Postoperative frontal view. C, Preoperative right-profile view. D, Postoperative right-profile view. E, Preoperative right-profile view, looking downward. F, Postoperative right-profile view, looking downward. G, Preoperative left three-quarter view. H, Postoperative left three-quarter view.

the preservation face lift group and 61 y for the deep plane face lift group, $P = 0.39$). The proportion of female patients was similar between the groups (96% in the preservation face lift group and 94% in the deep plane face lift group, $P = 0.44$). The proportion of smokers was generally comparable between the groups, with a slight tendency towards a higher proportion of smokers in the preservation face lift group ($P = 0.07$). The duration of drainage was significantly shorter in the preservation face lift group ($P = 0.00001$).

The rate of total complications (including seroma, hematoma, facial paresis, wound dehiscence, skin necrosis, and sialocele) was significantly lower in the preservation face lift group ($P = 0.03$). The 3 cases of facial paresis described in the preservation face lift group affected the frontal branch of the facial nerve. They resolved within 6 weeks. The 6 cases of facial paresis described in the deep plane face lift group affected either the frontal branch, the cervical branch, or the buccal branch of the facial nerve. They resolved in less than 8 weeks. The only case of skin necrosis identified in the preservation face lift group affected the left tragus. The 6 cases of skin necrosis identified in the deep plane face lift group affected the postauricular, submental area, and temple. They were moderate necroses treated with nonsurgical wound care and conservative treatment. We attribute the higher rate of skin necrosis in the deep plane face lift group to the extensive skin undermining performed in that group. The limited skin undermining in the preservation face lift group may have contributed to the lower rate of skin necrosis.

The postoperative results of 2 women, 56 and 69 years of age, who underwent a preservation face lift are presented in Figures 3 and 4.

DISCUSSION

The results of this study demonstrate that the preservation face lift technique carries a lower risk of complications and reduces the duration of postoperative drainage. The preservation face lift as described in this article is suitable for most patients. According to the authors, the best candidates for the preservation face lift are patients 40–70 years of age undergoing a primary procedure and without significant platysma bands. However, in cases of moderate-to-severe platysma bands or a heavy neck, a submental approach to perform a platysmaplasty or a deep plane neck procedure is required to achieve a well-contoured neck. The creation of the "platysma hammock" with a purse-string suturing and the rotating SMAS-pedicled flap are sufficient to redefine the neck effectively for mild anterior neck laxity. Patients with thin, inelastic, and sun-damaged skin are eligible for the preservation face lift technique. The authors do not recommend any modification of the described technique in cases of poor-quality skin. However, to improve the

Fig. 4. Preoperative and 12-month postoperative views of 69-year-old woman who underwent preservation face lift. A, Preoperative frontal view. B, Postoperative frontal view. C, Preoperative left-profile view, looking downward. D, Postoperative left-profile view, looking downward. E, Preoperative right three-quarter view. F, Postoperative right three-quarter view.

texture of sun-damaged skin, they perform complementary aesthetic procedures such as laser treatment, chemical peels, or photobiomodulation.

In traditional SMAS face lift surgery, a laminar surgical dissection is utilized to separate the skin from the SMAS layer, followed by tightening of the SMAS to address jowls and neck laxity.[6] The extended deep plane face lift uses a composite technique for the face lift flap, lifting both the skin and subcutaneous fat.[5] However, it involves an extended skin dissection in the neck area. Yousif et al[15] proposed treating the neck with a wide skin dissection, removal of excess fat, and suturing of the platysma to the fascia of the hyoid bone. When the neck skin is delaminated, the skin and adjacent platysma are separated from their underlying blood supply. The anatomic study by Rogers and Freeland[16] showed that the superficial vascular network lies between the platysma muscle and the skin. Lifting the skin away from the platysma could harm the vessels and jeopardize skin viability. Therefore, as we have previously described, we believe that skin dissection should be as limited as possible[17] and that the platysma muscle should be included in the lifted flap.

In 2022, Jacono et al[11] described the "platysma hammock flap" technique. They showed that the hammock flap significantly reduced platysma bands, skin laxity, and submandibular gland visibility. In the same vein, the pedicled SMAS flap we propose allows for an increase in the depth of the gonial angle, thus enhancing the definition of the jawline. Additionally, we also secure the platysma flap to the anterior wall of the mastoid process fascia. To achieve the desired neck contour during the revision rhytidectomy, addressing ptotic submandibular glands can be

done in 2 ways: elevating them into the submandibular fossa using platysma hammock suspension or reducing them through partial resection.[18] In the authors' experience, purse-string sutures help strengthen the platysma flap, thereby providing better suspension of the submandibular contents. Submandibular gland resection is reserved for moderate-to-severe cases of ptosis. With the purse-string suturing technique, mild submandibular gland ptosis is corrected without resection. Thus, no complications such as sialocele occurred in the preservation face lift group (3 cases of sialocele occurred in the extended deep plane face lift group). This difference between the groups can be explained by the absence of reduction or excision of the submandibular gland in the preservation face lift group.

The traditional deep plane, as described by Hamra[19] and refined by Jacono,[5] elevated below the zygomatic arch, is inherently unable to affect the tissues of the midface and infraorbital region. Planning the flap higher, as we describe (Fig. 2), along the zygomatic arch and extending the dissection medially in an "extended SMAS" manner to release and mobilize midface tissue addresses this issue.[20] Deep plane face lift surgery and preservation face lift surgery are procedures in which the facial nerve is at the risk of injury. Limited dissection of the platysma is a factor that reduces the risk of facial nerve injury. The use of sharp dissection is very limited during the procedure. Whenever dissection involves an area at risk of facial nerve injury, it is performed using Trepsat dissectors or digitally, particularly in the finger-assisted malar elevation.

One limitation of our study is the lack of an objective outcome measure. Recently, La Padula et al[21] developed a reliable and reproducible scale for evaluating the outcomes of face and neck lifts. Another way to objectively measure the results would have been to have preoperative and postoperative photographs evaluated by blinded reviewers. Another limitation of the study is its retrospective nature. Further studies evaluating satisfaction, quality of life, the degree of social exclusion, and the ability to engage in work activities are necessary to assess the benefits of the preservation face lift technique.

In summary, the preservation face lift presents a refined approach to face lift surgery, aiming to enhance jawline definition while minimizing complications. The term preservation face lift refers to limited skin dissection. It also refers to the aim of preserving anatomical structures as much as possible. Combining elements of established techniques, this approach prioritizes patient safety and natural-looking results.

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DISCLOSURE

The authors have no financial interest to declare in relation to the content of this article.

PATIENT CONSENT

Patients provided written consent for the use of their images.

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