



Extended Superolateral Cheek Lift With a Short Preauricular Scar: A Local Anesthesia-based Practicable Technique for the Correction of Moderate-degree Facial Aging Signs

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Abstract: An ideal technique applicable to middle-aged individuals with a moderate degree of facial aging signs has not yet been established. This study aimed to evaluate the utility of an extended superolateral cheek lift with a short preauricular scar technique for the correction of facial aging signs. A total of 200 female patients (mean age: 43 y, range 27–56 y) who underwent a local anesthesia-based extended superolateral cheek lift for the correction of facial aging signs confined to the malar and nasolabial area, lower eyelid, jawline, and neck were included. Data on the Global Aesthetic Improvement Scale, patient-reported outcomes, and complications were recorded at 1, 6, 12, and 24 months postoperatively. The Global Aesthetic Improvement Scale scores revealed exceptional improvement in 90% of patients along with no complications at month 24. None of the patients developed a depressed scar, skin necrosis, breaking of the superficial musculoaponeurotic system plication sutures, asymmetry, or facial nerve problems. At postoperative month 24, the appearance was reported to be very much improved by 90% of patients, and 94% of patients reported that they were very satisfied with the treatment and that they would recommend this treatment to friends and acquaintances. Our findings revealed the potential utility of an extended superolateral cheek lift with a short preauricular scar as a local anesthesia-based practicable technique for the correction of facial aging signs in middle-aged patients, offering a favorable postoperative outcome, lack of complications and high patient satisfaction in addition to invisible scars and a short-term postoperative recovery.

Key words: Facial aging signs, local anesthesia, objective assessment, patient-reported outcome, short preauricular scar, superolateral cheek lift

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The distinctive aging signs of the face are caused by the age-related weakening of the scaffolding dermal facial skin and the fat component, as well as the thinning of connective tissue and collapse of elastic fibers.^{1–4} These changes are associated with the consequent dermatochalasis of the facial and neck soft tissues, including the superficial musculoaponeurotic system (SMAS) and the muscular tissue.^{1–4} Thus, the SMAS, associated with these soft tissues, is the focus of attention for most surgeons to enable the restoration of the face along with a more youthful look.

Surgical procedures (facelift and less invasive alternatives such as absorbable barbed sutures producing a lifting action) and nonsurgical rejuvenation procedures (neuromodulator and filler injections) are the main options in the management of facial aging that involve the cheeks, eyebrows, mandibular area, and neck.^{1,4–8} Although it offers a permanent and clear outcome, the facelift is a complicated procedure that takes a long time to recover from, along with the fear of postoperative scarring,^{5,7} while nonsurgical rejuvenation procedures are associated with temporary or limited efficacy.^{4,6,7}

Nonetheless, patients between 30 and 50 years of age, with aging signs limited to malar and nasolabial segments of the mid-cheek and the neck, do not yet require major interventions for aging signs in other areas of the face and therefore seek less complicated options such as day surgeries.^{8–10} For such patients, the use of the SMAS flap is found to be effective for the enhancement of the neck, jowls, and midface and does not require hospitalization.¹¹

Hence, while a facelift was mostly performed to improve the features of advanced facial aging in the past, young women have increasingly chosen facial rejuvenation surgery for esthetic purposes in recent years.⁹ These individuals are too young to be an appropriate candidates for facelift surgery; however, while noninvasive methods may increase the quality of the skin, they cannot eliminate sagging in addition to their limited and temporary efficacy and risk of unnecessary volumizing effects.⁷ Most of these techniques developed for age-related changes cannot be used in young women seeking mouth lift surgery for purely esthetic purposes.⁷ Thus, a useful technique applicable to this age group of patients has not yet been established.

Accordingly, a local anesthesia-based esthetic procedure enabling minimal and invisible scarring without adversely affecting the daily life routines of middle-aged individuals with a moderate degree of facial aging signs seems to be an ideal solution.

This study aimed to evaluate the utility of an extended superolateral cheek lift with a short preauricular scar as a local anesthesia-based practicable surgical method for the correction of moderate-degree facial aging signs in middle-aged patients.

MATERIAL AND METHODS

Study Population

A total of 200 patients (mean age: 43 y, range 27–56 y, all were females) who underwent a local anesthesia-based extended superolateral cheek lift for the correction of facial aging signs confined to the malar and nasolabial area, lower eyelid, jawline, and neck were included in this study conducted between March 2019 and May 2022 at a single surgical center. Patients with remarkable sagging of their neck, entire mandibular margin, or face were excluded from the study.

The study was conducted in accordance with the ethical principles stated in the “Declaration of Helsinki.” Written informed consent was obtained from each subject for the operative procedures and for the use of patient data for publication purposes.

Assessments

Data on the objective assessment by the investigator using the Global Aesthetic Improvement Scale (GAIS), the patient-reported outcome (appearance after treatment, satisfaction with the treatment), and complications were recorded at 1, 6, 12, and 24 months postoperatively.

Objective assessment was based on the GAIS, which is a 5-point scale (worse, no change, improved, much improved, and very much improved) used to rate global esthetic improvement in appearance compared with pretreatment, as judged by the investigator.

Patient-reported outcome assessment was based on subjective evaluation of appearance after treatment and satisfaction with the treatment using self-reported items before the investigator's evaluation. The appearance after treatment was assessed using a 5-point scale [very much improved (1), much improved (2), slightly improved (3), no change (4), or worsened (5)], while satisfaction with the treatment was assessed using a 3-point scale (very satisfied, satisfied, or not satisfied). Finally, the patients were asked whether they would recommend the treatment to friends and acquaintances.

In addition, 3 esthetic surgeons were asked to evaluate preoperative and postoperative pictures of the patients and to rate the change by using a checklist prepared by the investigator. The checklist involved sections regarding the intended areas of correction (malar area, nasolabial sulcus, jawline, and neck).

Operative Technique

All operations were office-based day surgical operations performed under local anesthesia with lidocaine (Jetokain, 2 vials) containing 1/200,000 adrenalin plus marcaine (5 mL) in 100 mL saline and applied bilaterally to a semicircular area extending from the preauricular area to the inferior temporal area, lateral orbital rim and mandibular angle below. A skin incision was performed, extending upward from the tragus to the scalp and then descending back anteriorly to form a reverse “V” within the sideburn area (Fig. 1). A thin skin flap was elevated within the local anesthetic area. During this process, the cut was made through the zygomatic cutaneous ligament and the masseteric cutaneous ligament to lift the skin easily. Following hemostasis, an SMAS flap was prepared. The superior margin of the flap is planned below the zygomatic arch with an oblique downward opening (45 degrees) and at varying widths depending on the extent of the problem (only 30 degrees in cases with sagging on only the nasolabial segment of the mid-cheek and parasymphysis region, but up to 90 degrees in cases with sagging also present on the malar segment of the mid-cheek and jawline) (Fig. 2). Afterward, the tightening of the SMAS flap was checked by

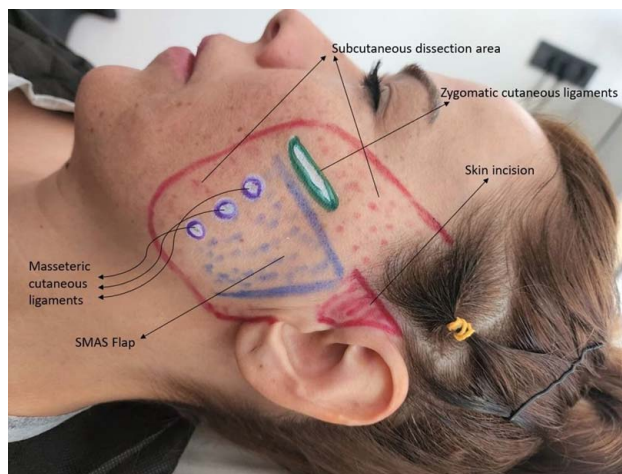


FIGURE 1. A reverse “V”-shaped skin incision, skin flap dissection zone, SMAS flap, zygomatic cutaneous ligaments, and masseteric cutaneous ligaments.

pulling it upward in a 45-degree oblique direction, and further advancing the flap toward the corner of the mouth was performed in case of insufficient tightening. In proper candidates, the SMAS flap was lifted until the lateral canthal region enabled sufficient tightening and outcome (Fig. 3). After oblique upward tightening of the flap, it was fixed to the deep temporal fascia superior to the zygomatic arch (Video 1, Supplemental Digital Content 2, <http://links.lww.com/SCS/F214>). Through this stabilization technique, neck contouring was also established. If an extra SMAS segment appeared, it could be folded below the flap or cut out. Cutting of the extra skin and tightening was very important (Fig. 4). The scalp above the reverse “V” was relieved by dissection. The upper medial tip of the reverse “V” within the posterior part of the sideburn area was pulled toward the area of SMAS fixation, enabling concomitant tightening of ~3 to 4 cm in the lateral eye and malar region (Video 2, Supplemental Digital Content 3, <http://links.lww.com/SCS/F215>, Video 3, Supplemental Digital Content 4, <http://links.lww.com/SCS/F216>). Skin remnants in the fixation point were removed by cutting through the tragus. The dog-ear formed over the suture was excised through the posterior temporal area (Fig. 4, Fig. 5, Video 4, Supplemental Digital Content 5, <http://links.lww.com/SCS/F217>), and three 4/0 polydioxanone (PDS) skin sutures were placed. Finally, after relieving

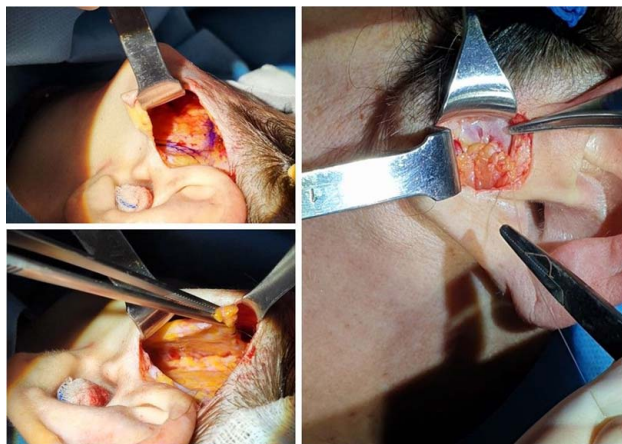


FIGURE 2. Creation of an SMAS flap with an oblique downward opening (45 degrees) and varying width depending on the extent of the problem.



FIGURE 3. Lifting of the SMAS flap until it reached the lateral orbital rim upward and the mandibular angle below enabled sufficient tightening and a satisfactory outcome. The upper medial tip of the reverse “V” within the posterior part of the sideburn area was pulled toward the area of SMAS fixation, enabling concomitant tightening of ~2-4 cm in the lateral eye and malar region.

the tightness on the suture line, the subcuticular closure technique was applied upward from the tragus using 5/0 PDS along with adhesive strips; thus, skin suture was not necessary. The operation revealed a 3 to 4 cm final cut from the tragus to the scalp over the ear (Fig. 5). Figure 6 (A-E) illustrates the entire steps of the operative technique from skin incision to creation, tightening, and fixation of the SMAS flap and removal of the skin remnants in the fixation point and the dog-ear formed over the suture, as well as the appearance of the final scar. Owing to the small dissection area and easily applied pressure through a postoperative corset over the strips, drain usage was not required in any patient. All patients were sent home 30 minutes after the operation and were followed for up to 24 months.

RESULTS

The results from multiple sources of data (GAIS scores, patient self-reports, and expert surgeons’ examinations) revealed that there was a distinctive improvement in the patients’ facial appearance as a result of the technique that was applied in the current study. The duration of median follow-up was 13 months (range, 6–24 mo).

Objective Assessment Via GAIS

GAIS scores revealed exceptional improvement in 95% of patients at month 1, 90.5% at month 6, and 90% at months 12



FIGURE 4. The flap was fixed to the temporal fascia, while extra SMAS segments folding below and upward were revised by cutting. Cutting of the extra skin and subsequent tightening is very important.



FIGURE 5. Preoperative incision planning and the appearance of the scar at 24 months after surgery. The operation revealed a 3 to 4 cm final cut from the tragus to the scalp over the ear. The dog-ear that formed over the suture placed at the level of the hairline was repaired.

and 24. None of the patients were considered to be unaltered or worsened postoperatively (Supplemental Table 1, Supplemental Digital Content 1, <http://links.lww.com/SCS/F213>, Fig. 7–10).

Complications

Postoperatively, ecchymosis, and mild hematoma were observed unilaterally in 13 patients and bilaterally in 3 patients. At month 1, suture exposure (7.5%) and hypertrophic scarring (7.5%) were the reported complications, while hypertrophic scarring (3% and 1%, respectively) was the only complication noted at months 6 and 12. Overall, subcutaneous 4/0 and 5/0 polydioxanone absorbable sutures (PDS) were used. Suture exposure occurred in areas where subcuticular 5/0 PDS was used, particularly in underweight patients with thin skin. However, no exposure was observed in fixation areas where 4/0 PDS was used. Only silicone gels were used for patients who developed hypertrophic scars. Hypertrophic scar ameliorated over time with no need for intralesional injections. No complications occurred at month 24. None of the

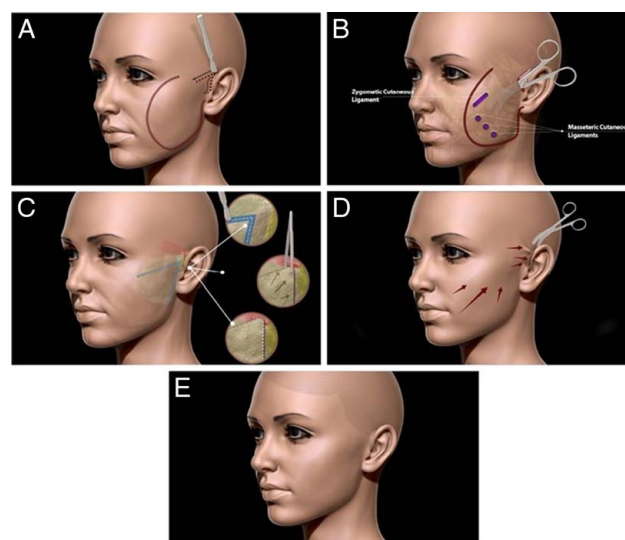


FIGURE 6. The entire steps of the operative technique: (A) Skin incision area and skin flap border, (B) Skin flap elevation and cuts to the zygomatic and masseteric cutaneous ligaments, (C) Preparation, tightening, and temporal fascial fixation of the SMAS flap, (D) Tightening of the skin and fixation over the ear with the removal of skin remnants, and (E) Final appearance of the scar.



FIGURE 7. Anterior, oblique, and lateral views of a patient. Upper row: Preoperatively and Lower row: In the postoperative 24th month.

patients developed a depressed scar, skin necrosis, breaking of the SMAS plication sutures, asymmetry, or facial nerve problems (loss of mimics or motor loss). Partial sagging in the cheeks and the jawline was observed in 4.5% of the patients at month 6 and in 5% of the patients at months 12 and 24 (Supplemental Table 2, Supplemental Digital Content 1, <http://links.lww.com/SCS/F213>).

Patient-reported Outcome

The appearance after treatment was reported to be very much improved by 95% of patients at month 1, by 90.5% of patients at month 6, and by 90% of patients at months 12 and 24. At post-operative month 24, 94% of patients reported that they were very satisfied with the treatment and that they would recommend this treatment to friends and acquaintances (Supplemental Table 3, Supplemental Digital Content 1, <http://links.lww.com/SCS/F213>).



FIGURE 8. Anterior, oblique and lateral views of a patient. Upper row: Preoperatively and Lower row: In the postoperative 24th month.



FIGURE 9. Anterior, oblique and lateral views of a patient. Upper row: Preoperatively and Lower row: In the postoperative 24th month.

Expert Surgeon Opinions

The results were also confirmed by consulting with 3 other independent plastic surgeons. After examining the pre-operative and postoperative pictures, all 3 surgeons agreed that there were visible and effective corrections in the jawline, nasolabial sulcus, and malar area. In addition, they all agreed that there was a distinctive improvement in the sagging of the neck.



FIGURE 10. Anterior, oblique and lateral views of a patient. Upper row: Preoperatively and Lower row: In the postoperative 24th month.

DISCUSSION

Our findings revealed the potential utility of an extended superolateral cheek lift with a short preauricular scar as a local anesthesia-based practicable day surgical method for the correction of facial aging signs confined to the malar and nasolabial area, lower eyelid, jawline, and neck in middle-aged patients. According to the results of the GAIS objective assessment, the technique has proven to be safe and successful with favorable postoperative outcomes. The results received from GAIS and patient self-reported forms revealed a lack of complications and a high rate of patient satisfaction, along with important advantages. Two of these advantages are an almost invisible postoperative scar hidden in the hairline and possible discharge of patients within 30 minutes of the operation. Patients' 24-month follow-up revealed exceptional improvement, while according to their self-reports, patient satisfaction was found to be very high. The most remarkable finding was that almost all patients had no complications at all. None of the patients developed a depressed scar, skin necrosis, breaking of the SMAS plication sutures, asymmetry, facial nerve problems (loss of mimics or motor loss), or undercorrection. All of the patients indicated that they noticed the correction, and none of them complained about the undercorrection. The examinations of the 3 independent surgeons also supported the patient's views regarding their facial improvement. All surgeons claimed that the postoperative results indicated remarkable improvement in the jawline, neck, nasolabial sulcus, and malar area.

In this regard, the extended superolateral cheek lift technique conducted through local anesthesia seems to enable permanent fixation. The technique requiring SMAS tightening and skin removal may offer an ideal solution that fits the middle-aged patient's need for the correction of moderate-degree facial aging signs with enhanced cosmetic results. The operational outcomes are highly favorable, with minimal and invisible scars that enable the return to daily activities within hours of the operation. The findings also suggest high patient satisfaction and reduced operative morbidity, which seems to correlate not only with the correction of facial aging signs but also with a lack of complications related to facelift surgeries (ie, seroma, hematoma, infection, scarring, ear lobule deformity, and dog-ear deformity) and the preference of patients for noninvasive day-case procedures rather than surgeries that necessitate general anesthesia and postoperative hospitalization.^{12,13} This also seems notable given the association of the COVID-19 pandemic with a significantly increased demand for esthetic surgery, facial surgery in particular; moreover, minor cosmetic procedures (up to 60 min) under local anesthesia are considered much safer for patients during the pandemic.^{13–15}

Likewise, in a study with 145 women and 15 men (aged 38–65 y) who underwent a high SMAS lamellar facelift operation for the midface, the authors reported high patient satisfaction and considered the high SMAS facelift operation to be a successful technique for the correction of midface aging signs that can be easily performed under local anesthesia, offering an alternative for patients who do not want or are at risk when undergoing general anesthesia.¹³ The authors also noted that the nasolabial improvement was more limited compared with that of other parts of the face, and generally, no disturbing scar was observed after the mid-facelift.¹³ However, our technique offers a smaller postoperative scar despite the use of a more extensive dissection than many other local facelift techniques,^{13,16} in addition to marked correction of facial aging signs confined to the nasolabial area, which seems notable given that it is a challenging area in facelift surgery with a high complication rate.^{17,18}

Despite the use of anticatrical methods, such as postoperative taping using the Steri-Strip for 2 weeks, scar gel and sunblock cream, triamcinolone injection, or implementation of rotation flap using an extended incision through the oral commissure, the noticeable scar remains the most common complication following the surgery for rejuvenation of aging signs in the mouth. Thus, ~3.4% of patients need scar revision surgery.^{7,8,19–23}

Revealing a 3 to 4 cm final preauricular scar with no complaints of hypertrophic scars or depressed scars in any patient, our technique seems to represent a favorable alternative with long-term efficacy and reduced risk of complications or a resultant hypertrophic scar. The technique not only has implications for the correction of moderate-degree facial aging signs in middle-aged patients but also for older patients with advanced facial aging signs who prefer milder rejuvenation rather than a full facelift operation that requires hospitalization.

Notably, in a study on the outcomes of thread lifts for facial rejuvenation using Happy Lift Revitalizing, Savoia et al reported that severe selection criteria (the most suitable candidates are those with mild aging signs and that necessitate a lifting of modest degree) must be adopted when selecting the patients, given that the technique is indicated for moderate cutaneous sagging.⁴

The proposed technique does not require general anesthesia, does not produce scars that are visible on the skin, and does not require postoperative recovery, while it is also practicable as a day surgery, and the patient may immediately return to everyday activities shortly following the procedure. The technique also seems to be associated with further advantages. The oblique upward lift of the cheek during the surgery seems to enable malar fullness and, thus a reduction in tear-through deformity. The technique offers the correction of wrinkles and sagging of the eyelid skin. In addition, due to the extension of the dissection line to the lateral orbital area, a postoperative fox eye (slanted eye) effect is seen. Given that the technique involves a partial temporal lift, it can be combined with a temporal lift by extending the scar 1 to 2 cm upward into the scalp. Successful postoperative outcomes in terms of both objective (GAIS scores) and subjective (patient satisfaction) assessments, which were maintained throughout the 24-month follow-up in our study, seem to support the finding that methods based on SMAS ensure and prolong the longevity of the results.²⁴ Because the aging of the facial skin and SMAS occur at different rates and in different vectors, skin-only techniques or composite techniques cannot offer a solution for the treatment of each layer. Thus, it is proven in this study that dissection of the skin and an SMAS flap offer multiple advantages in terms of patient satisfaction and visible skin restoration, a younger-looking appearance, and the comfort of day surgery. Moreover, the technique overcomes the limitations and problems associated with skin-only facelifts. The SMAS flap used in this technique is more advantageous than skin-only techniques as well, as it affects the midface, perioral regions, and neck.

In conclusion, our findings revealed the potential utility of an extended superolateral cheek lift with a short preauricular scar as a local anesthesia-based practicable day surgical method for the correction of facial aging signs confined to the malar and nasolabial area, lower eyelid, jawline, and neck. It seems to be a safe and successful technique with favorable postoperative outcomes in terms of objective assessment, a lack of complications, and a high rate of patient satisfaction as well as the advantages of being associated with minimal scarring and short-term postoperative recovery. In this regard, the local anesthesia-based extended superolateral cheek lift surgery technique described in the current study seems to offer an ideal solution that fits a patient's need for the correction of moderate-degree facial aging signs while leaving

minimal or invisible scars and offering the comfort of an immediate return to everyday activities.

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