

Longevity of SMAS Facial Rejuvenation and Support

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Background: One of the most common questions asked by patients when they present for face lift surgery is “How long will this last?” The answer to this question is not clear from the literature.

Methods: The purpose of the study was to review a series of secondary face lifts performed between 2001 and 2008 with both the primary and secondary face lift performed by a single surgeon. There were 42 patients with full records available for review. Data were collected with regard to timing, surgical technique, complications, and reasons for early revision.

Results: The average age at the primary face lift was 50.2 years (range, 34.9 to 69.9 years) and the average age at the secondary face lift was 61.9 years (range, 43.6 to 77.2 years). The average length of time from the primary to secondary face lift was 11.9 years. Nine patients required a secondary face lift before it had been 5 years since the primary face lift (21.4 percent). Reasons for early secondary face lift (within 5 years of the primary) included loss of skin elasticity in five patients and increase in subplatysmal fat and skin neck folds due to weight gain, loss of elasticity secondary to protease inhibitors for human immunodeficiency virus infection, loss of skin elasticity due to corticosteroid use, and residual fullness of digastric and residual submental fat in one patient each.

Conclusions: On average, a well-performed superficial musculoaponeurotic system flap face lift will last 12 years. Those patients who present with very poor skin elasticity secondary to sun damage may require an earlier secondary face lift. (*Plast. Reconstr. Surg.* 126: 229, 2010.)

One of the most common questions asked by patients when they present for face lift surgery is “How long will my face lift last?” The answer to this question, however, is not clear from the literature. Although the literature is replete with studies promoting new techniques or occasional comparisons between techniques, there is little information regarding the longevity of different forms of face lifting.^{1,2} The purpose of our study was to review the experience of a single surgeon regarding the need for secondary face lifts following his primary procedure.

Face lift surgery has evolved considerably since its inception at the beginning of the twentieth century. Early techniques involved excision of skin with-

out undermining. Subsequent efforts focused on skin undermining with closure. The results of the skin-based face lift procedures suffered from a lack of persistence of the results and led to the use of the subcutaneous musculoaponeurotic system (SMAS) procedures pioneered by Tord Skoog.³

There seem to be nearly as many techniques for face lifting as there are surgeons performing them. Currently practiced techniques include subcutaneous face lifts with SMAS plication,^{4,5} lateral SMASectomy,⁶ variations of SMAS or extended SMAS procedures,⁷⁻¹³ deep plane or composite rhytidectomy,^{14,15} subperiosteal face lifts,¹⁶⁻¹⁸ and, most recently, “short scar” face lifts.¹⁹ To date, there is no clear evidence supporting the use of one surgical technique over another.^{20,21}

Dr. Ellenbogen is correct in stating that the primary concerns for face lifts are safety, a natural

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appearance, and visible correction of the presenting problem. His secondary concerns—a fast return to activity, minimization of discomfort, and durability of the results—are equally important.²²

PATIENTS AND METHODS

A retrospective chart review was performed of patients who underwent secondary face lifts performed by the senior author from January of 2001 to December of 2008. Patients who had their primary face lift performed by another surgeon were excluded. There were 43 patients who had both their primary and secondary face lifts performed by the senior author and there were 42 patients with full records available for review. The charts were reviewed for the dates of the initial surgery and subsequent operations, patient data, procedures performed, and complications. The patient photographs were also reviewed.

The technique of surgery generally used has been published previously but was individualized based on each patient's needs.^{7,8} The skin of the face and neck was undermined in the subcutaneous plane. The SMAS flap was elevated and advanced posteriorly and superiorly. Neck modifications included direct defatting, open liposuction, subplatysmal defatting, and modification of the digastric muscles as needed.^{23,24} Excess skin was tailored and inset over closed suction drains.

RESULTS

From January of 2001 to December of 2008, the senior author performed 299 face lift procedures. Of these procedures, there were 43 secondary face lifts performed where the primary face lift had been performed by the senior author. Com-

plete data were available for 42 of the secondary face lift patients, which is the population for this investigation. There were 33 women and nine men in the study. The average age at the time of the primary face lift was 50.7 years (range, 34.9 to 69.9 years), and the average age at the time of the secondary face lift was 61.9 years (range, 43.6 to 77.2 years). The average length of time from the primary to secondary face lift was 11.9 years (range, 1.0 to 34.5 years). The distribution of the interval from the primary face lift to the secondary face lift is further characterized in Figure 1. A clinical example is provided in Figure 2 with a patient who presented for a secondary face lift 18 years after her primary procedure. A second example is provided in Figure 3 of a patient who presented for a secondary face lift 17 years after her primary face lift.

A secondary SMAS flap was able to be elevated in 38 patients (90.5 percent). Three patients required SMAS plication (7.1 percent), and one patient (2.4 percent) required only secondary fat contouring (Table 1). Among the patients in whom a secondary SMAS flap was elevated, two had temporal branch paresis and three had a marginal mandibular branch paresis (11.9 percent with nerve paresis). All of the nerve injuries resolved completely and there were no permanent nerve injuries. There were no hematomas that required evacuation, and there were no skin sloughs.

Nine patients required a secondary face lift within 5 years of the primary face lift (Table 2). The reasons for early the secondary face lift included significant loss of skin elasticity in five patients and increase in subplatysmal fat and skin neck folds due to weight gain, loss of skin elasticity secondary

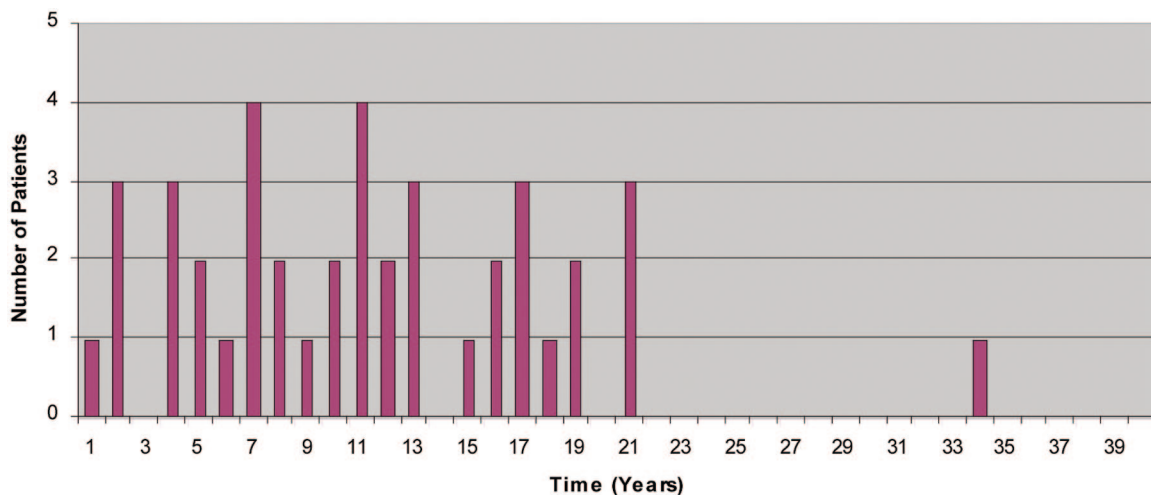


Fig. 1. Histogram of the interval between primary and secondary face lift.



Fig. 2. (Above, left) Preoperative view of a 51-year-old woman before primary face lift, (above, right) 5 months postoperatively, (below, left) before her secondary face lift 19 years postoperatively, and (below, right) 14 months after her secondary face lift.

to protease inhibitors for human immunodeficiency virus infection, loss of skin elasticity due to corticosteroid use, and residual fullness of the digastric muscle and residual submental fat in one patient each.

DISCUSSION

Face lifting continues to be a source of controversy in the literature. Despite multiple techniques available for facial rejuvenation, no single technique has emerged as the procedure of choice. The literature has many published studies regarding the different techniques, along with oc-

casional studies comparing various techniques. These publications very clearly define anatomy and their aesthetic concept, but they frequently lack long-term follow-up of their results, with the authors frequently changing to a different preferred procedure only a few short years later.

With the increasing popularity of cosmetic procedures, it is very important for patients to have good information regarding the outcomes following various procedures. The patient who needs her primary face lift in her late thirties or early forties is likely going to desire maintenance of her appearance with a secondary and possibly



Fig. 3. (Left) A 40-year-old woman before her primary face lift. (Center) Patient's appearance 1 year after her primary face lift. (Right) Patient at age 57 years, before her secondary face lift.

Table 1. Treatment of Deep Layer at Secondary Face Lift

	No. of Patients
SMAS flap	38 (90.5%)
SMAS plication	3 (7.1%)
Contouring	1 (2.4%)

SMAS, subcutaneous musculoaponeurotic system.

Table 2. Reasons for Early Secondary Face Lift

	No. of Patients
Loss of skin elasticity due to sun damage	5
Loss of skin elasticity due to protease inhibitors	1
Loss of skin elasticity due to corticosteroids	1
Increase in subplatysmal fat due to weight gain	1
Residual fullness of digastric and submental fat	1



Fig. 4. Patient with rapid deterioration in skin elasticity due to solar damage. (Left) Patient before face and neck lift, (center) 9 months postoperatively, and (right) 3 years postoperatively showing rapid deterioration in elasticity.

tertiary face lift. Therefore, it is important to be able to accurately convey the longevity of the face lift procedure.

There is a paucity of studies regarding secondary face lift procedures.^{25–29} Within these studies, there are very few patients who underwent both the primary and secondary face lift with the same

surgeon. Guyuron et al. reported on a series of 33 patients who had secondary face lifts.²⁸ They noted that the average time from primary to secondary face lift was 8.48 years. Only three of the patients had both the primary and secondary face lift performed by the author (Guyuron), and the longevity of his own results was not specifically reported.



Fig. 5. Patient with rapid deterioration in skin elasticity due to protease inhibitors. (Above, left) Patient before face and neck lift, (above, right) 2 months postoperatively, (below, left) 2 years postoperatively, showing rapid deterioration in elasticity, and (below, right) 9 months after from secondary face lift.

The type of primary face lift performed in the patients was also not defined. Cardoso de Castro and Braga reported on a series of 19 patients who had secondary face lifts.²⁵ Although they did not specifically report on the average time interval between the primary and secondary face lift, the majority of the patients had the secondary procedure performed between 5 and 10 years after the primary. De la Torre et al. reported on a series of 14 patients out of a total series of 458 patients who required malar fat pad elevation.²⁷ The average length of time between the original procedure and the re-elevation was 40 months (3.3 years), with a range of 4 to 120 months. The results of our study showed an average longevity of 12 years.

The distinction between a revision procedure and a secondary procedure has not been defined in the literature. A revision procedure implies that the initial procedure was not performed in a satisfactory manner and the procedure is being performed to correct inadequacies of the primary operation, whereas a secondary procedure implies that the patient has had an adequate result from the operation but the continuing effects of the aging process and skin laxity have returned and the patient requires another procedure to maintain his or her appearance. A couple of authors have used the term “tuck-up” or “tuck” procedure to define procedures that are performed within 18 months of the primary procedure and usually involve tightening some skin redundancy.^{22,30} Based

on the criteria of 18 months, only three patients (7.1 percent) required revisional surgery in our series. Of these three patients, only one had significant skin laxity; the other two patients had neck irregularities that needed to be addressed.

In the vast majority of cases (90.5 percent), a secondary SMAS flap could be elevated and was used to support the midface and reduce tension on the skin. It is often difficult in the secondary SMAS flap to have enough SMAS available to transpose a flap posteriorly to the mastoid area. The SMAS flap was inadequate in three patients and plication was utilized for deep layer support. In only one patient was no SMAS work required and only revisional neck surgery was performed. Of the five patients who had temporary paresis of facial nerve branches resulting from raising the secondary SMAS flap, all completely recovered facial nerve function.

An important concept is the analysis of the reasons for revisional or early secondary surgery. In seven of the nine patients who required secondary surgery within 5 years of the primary surgery, the reason was a rapid loss of elasticity. Most cases were due to solar damage to the skin (five patients) (Figs. 4 and 6). Other causes of the rapid elasticity were corticosteroid use (one patient) and the use of protease inhibitors (one patient) to treat human immunodeficiency virus infection (Fig. 5). Two patients had irregularity or fat accumulations in the neck along with residual full-



Fig. 6. (Left) A 58-year-old man before face and neck lift, (center) 7 months after face lift and earlobe reduction, demonstrating early relaxation of skin due to solar damage, and (right) after secondary face lift 1.5 years after the primary face lift.

ness of the digastric muscle. Patients who report a rapid decline in skin elasticity may need an early secondary face lift. This need should be explained to them at the time of their consultation. Skoog attributed this concept of early secondary face lift to Gilles.³ Kamer has also utilized early secondary face lift and a two-stage concept for some of his face lift procedures.³¹ It may be advisable to postpone surgery for 6 months, and if the skin elasticity has stabilized, then the patient may proceed with the primary face lift with less risk of an early secondary face lift.

Our observations indicate that the duration of result from the face lift will depend on the area of

the face. Open subgaleal treatment of frown muscles and depressor muscles of the forehead (superciliaris, procerus, corrugator superciliaris, and depressor portion of the orbicularis oculi) results in rejuvenation of the upper third of the face for decades. The depression of the lateral brow will recur if the depressor portion of the lateral orbicularis oculi muscle is not transected.³² As we have reported, the support of the skin by the SMAS with our current technique will last 12 years. The fullness of the anterior belly of the digastric muscles can be corrected permanently with tangential resection of the muscles, and fullness of the submandibular glands is corrected permanently with



Fig. 7. (Above, left) A 46-year-old man before primary face and neck lift, (above, right) 5 years postoperatively, (below, left) before secondary face and neck lift (12 years after primary), and (below, right) 4 years after secondary face and neck lift.

subtotal resection. Unfortunately, errors in incision placement and objectionable shifting of the hair will last longer than any improvement achieved by the face lift, and great care must be taken in incision placement and planning of the face lift to prevent these untoward results.

The purpose of our study was to evaluate the long-term results of face lift surgery with both the primary and secondary face lift performed by a single surgeon using a fairly consistent technique. The determinations on the timing of the secondary procedure versus the revision procedure

were based on the patient's needs as determined by the senior author and the patient. The authors made no attempt to contact every patient the senior author performed a primary face lift on to determine whether any patients received a secondary face lift with another surgeon. There are many reasons why a patient who has had a primary face lift may not return for a secondary face lift, including health concerns, continued satisfaction with the primary procedure, financial concerns, family reasons, and possible dissatisfaction with the primary surgery



Fig. 8. (Above, left) A 48-year-old woman before primary face and neck lift, (above, right) 3 years postoperatively, (below, left) before secondary face and neck lift (15 years after primary), and (below, right) 13 years after secondary face lift (preoperative view for tertiary face and neck lift).

and surgeon. We did not make any attempt to sort out the reasons why any of the potential patients, in the time period of the study, who might want or need a secondary face lift did not have a procedure. The study does represent, however, a determination of when a secondary face lift is necessary in a carefully followed cohort of patients. With the use of the authors' high SMAS technique for face and neck lifting, excellent cosmetic results were found to have an average longevity of 12 years. Additional preoperative and postoperative photographs of patients before and after their primary and secondary face lift procedures are shown in Figures 7 and 8.

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PATIENT CONSENT

The patients in this study provided written consent for the use of their photographs.

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