Facial Rejuvenation Surgery: A Retrospective Study of 8788 Cases

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Abstract

Background: Surgical rejuvenation of the aging face is common in aesthetic surgery, and many surgical techniques have been described for accomplishing it. The keys to consistent results are the surgeon’s judgment and ability to individualize a treatment plan according to the patient’s needs. To obtain natural-looking results, the surgeon must consider the morphological characteristics of the aging face.

Objectives: The authors describe their approach for “round” facelift technique and strategies for avoiding complications.

Methods: This retrospective study included 8788 consecutive patients who underwent facelift procedures in a single clinic between 1958 and 2010. All cases involved the round-lifting technique.

Results: Patients in this series ranged in age from 28 to 84 years. The percentage of male patients increased in later years (6.3% in 1970-1974 vs 18.6% in 1986-2010), and there was a trend toward increasing age after 1979 (17.7% of patients aged 60 years or older vs 8.3% before 1980). Submental liposuction was the most common facelift procedure performed (92.2% of patients, 1990-2010). Up to 97% of the cases treated after 1999 underwent repositioning of the malar fat pad. The overall complication rate was 4.5%, with the most frequent complications being hematoma (3%) and cutaneous slough or necrosis (1%).

Conclusions: Repositioning the vector connecting the tragus with the Darwin tubercle provides more natural correction of aging tissues than do other techniques. The authors’ intent was to keep the structures in their natural location, as they had been prior to aging. Superficial musculo-aponeurotic system (SMAS) plication, malar fat pad repositioning, and correct traction of facial tissues showed satisfactory results. This technique is less aggressive than undermining of the SMAS and deep-plane techniques.

Level of Evidence: 4

Keywords

complications, facelift, facial rejuvenation, rhytidectomy, rhytidoplasty, round-lifting technique

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Facial rejuvenation is one of the most frequently performed procedures in plastic surgery. The rhytidoplasty (facelift) is useful in enhancing appearance and, in our opinion, may help reestablish a patient’s personal integrity and dignity.1–3

Face and neck rejuvenation procedures have evolved from techniques relying on small incisions to more aggressive and multiplane dissections. The neck and midface became augmentation targets of researchers all over the world in the late 1990s, when many surgeons were looking for better and longer-lasting results with facelifting. Many authors, including the senior author (IP), have extensively published articles offering different techniques to treat the aging face. Multiple vectors of traction, different planes of dissection, endoscopic treatment, and volume restoration have been described as tools by which to achieve a desirable facelift result, as have superficial musculo-aponeurotic system (SMAS) treatment through plication, dissection, or resection; positioning of incisions for hairline preservation; hairline implantation; treatment of the neck with liposuction or direct lipectomy; and more controversial approaches such as submandibular gland resection.1–17

A wide variety of facelift techniques have been described, including two conceptually different surgical techniques still being practiced. The first technique involves undermining in a subcutaneous plane and relies on traction of the skin and SMAS with platysmal plication.
The extent of undermining varies according to the surgeon’s preference and according to the clinical case. The second involves dissection in a subfascial plane beneath the SMAS and platysma. This “round-lifting” technique was originally published by the senior author in 1967.2

The round-lifting approach to facial rejuvenation emphasizes rotation of the dissected flaps, as opposed to simple pulling of the flaps. In an article published in 1998,10 a computerized study of different vectors of traction revealed that the direction of traction proposed by the round-lifting approach was the most efficient way to correct signs of facial aging. The senior author, along with his colleagues,9 published a study in 1995 showing that the vectors of traction in the round-lifting technique effectively returned the aging face to its natural position. In that study, a photographic analysis was performed of 40 women, ages 25 to 65 years, who had photographs taken at the same facial position at various times during their lives. This study allowed the development of a computerized pattern that established the change parameters that occur during the aging process. Round lifting has proved to correct the aging lines to the right position,9,10 with natural results.

In this study, we retrospectively analyzed 8788 cases of cervicofacial augmentation performed with the round-lifting technique at a single clinic over a 52-year period. We describe indications, the technique, results, and complications observed during this period.

METHODS

Patients

This retrospective study analyzed 8788 consecutive cases of cervicofacial lifting performed with the round-lifting technique at a single clinic by the senior author (IP) in Rio de Janeiro, Brazil, between 1958 and 2010. Cases were identified by review of medical charts.

Surgical Technique

The type of anesthesia was chosen according to the preferences of the surgeon and patient. Most often, general anesthesia was administered. After preparation of the hair with a bactericidal solution, the hair was separated in tufts above and below the shaved area. Eyes were irrigated and protected. Rubber earplugs were inserted in the external auditory canals to prevent accumulation of blood clots, and an adherent towel was fixed to the scalp with a few sutures.

The tissues were infiltrated with local anesthetic (eg, 0.5% lidocaine and epinephrine at a concentration of 1:200,000). This decreased bleeding and introduced a plane of tissue cleavage to facilitate undermining. This step required extensive knowledge of the anatomy of the tissues underlying the skin. Patients usually received intravenous antibiotic therapy at anesthetic induction, and this regimen was maintained for 24 hours.

Preservation of all anatomical elements and landmarks was essential for a natural result. Facelift was usually performed through an incision that began in a curve at the temporal aspect of the scalp and proceeded following the preauricular anatomical landmarks. Placement of incisions was discussed with the patient during the pretreatment visit. Secondary procedures often required different positions because of previous incisions. The hairline was preserved whenever possible.18,19 Usually, a pretragal incision was made. Posttragal incisions were avoided to preserve the delicate structures that can be distorted or even destroyed in facelifting. Even in male patients, a pretragal incision could be placed when incisions in a non-hair-bearing area would be too obvious, and lasers helped in cases in which incisions brought the hair close to the ear (Figure 1). Alternatively, an oblique incision could be made in men at the temporal region (Figure 2) when sideburns were short.

The incision line passed around the base of the earlobe and onto the posterior conchal surface. From there, it rose parallel to the postauricular crease, so that when closure of the wound was complete, tension pulled the wound and subsequent scar into the postauricular sulcus and rendered it less visible. At the auricular ligament, the incision line passed directly backward over the mastoid pilous area of the scalp, forming a gentle downward curve, similar to an italic S (Figure 3).
Although many authors have described multiplane dissections, we performed undermining at the subcutaneous tissue plane. The extent of the procedure varied according to the characteristics of the patient’s skin and the severity of the local problem. At the upper insertion of the sternocleidomastoid muscle, the subcutaneous layer is very thin, and it is difficult to find a clear plane of dissection. Undermining was carried out cautiously in this region to avoid damaging important underlying structures, particularly the great auricular nerve. The level of undermining in our study was at the subareolar plane. The danger area lies beneath the non-hair-bearing skin over the temples, where the most frequent variation of the facial nerve, the frontal branches, are particularly vulnerable.

The undermining of the skin flap was continued along the body of the mandible and was extended medially and downward beyond the jowl. Undermining of the two jowl areas was not routinely extended to the midline of the neck. However, this was necessary if the patient had prominent deformities of the neck and submental regions. Neck liposuction was routinely performed to help release the neck flap for better skin resection, as previously described. The release of retaining ligaments on the face and mandibular border was essential and was carried out with scissors or tissue dissectors (Figures 4 and 5). Tissue dissectors were useful in patients with a history of receiving anticoagulation drugs, because this device kept major vessels intact.

An inferomedial tissue descent causes increasing depth of nasolabial folds, loss of projection of the cheek prominence, and mainly loss of definition of the mandibular border. It therefore was imperative to perform SMAS treatment and malar fat pad repositioning to obtain midface rejuvenation. These procedures were performed through traction and fixation with sutures placed in the

Figure 2. Oblique incision performed at the temporal region.

Figure 3. Classic incision for facelift, front (A) and back (B) views.

Figure 4. Undermining (A) and liberation (B) of mandibular and zygomatic retaining ligaments for facelift.
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Deep structures of the face. During senescence, the malar fat pad tends to become flat, long, and narrow, extending inferiorly on the face. The surgeon had the option of performing plication, dissection, or SMAS resection and repositioning of the malar fat pad (Figures 6 and 7). This decision was made during the surgical procedure, according to each clinical case. Malar fat pad plication was considered for most patients. With this technique, the

Figure 5. Marking (A) and subcutaneous undermining (B) allowing liberation of mandibular and zygomatic retaining ligaments. (C) The face and cervical lines are now free to be properly rotated.

Figure 6. (A) Superficial musculo-aponeurotic system individualization and treatment. (B) Malar fat pad plication.
bizygomatic distance was enhanced, thus enlarging and improving the vertical appearance of the aging face. A prominent malar region results in the appearance of enlargement in the face, so malar fat pad plication was usually not performed in patients with this anatomical characteristic. As soon as the volume was restored in these patients, the face exhibited an augmentation of bizygomatic distance, thus enlarging the face and diminishing its vertical appearance. Malar fat pad elevation allowed the aging, elongated face to recover a more angled contour.

Both SMAS plication and malar fat pad repositioning were carried out in an individualized manner, as previously described. After SMAS plication, any fat irregularities were removed. Restoration of the neck shape is an important part of successful facelifting, but treatment of the cervical region can be a challenge. Some patients had accentuated flaccidity, lipodystrophy in the submental area, small chins, low positioning of hyoid bone, and/or ptosis of submandibular glands. Ancillary procedures, especially liposuction and chin augmentation, helped us to obtain a better mandibular border and cervical contour. Direct excision of redundant neck skin was not performed, since the techniques we utilized allowed the resection of skin excess, minimizing perceptible scars. Undermining was performed judiciously to preserve a uniform and healthy outer layer.

Myotomies and platysmal plication were often needed to reshape the cervical contour. The medial portion of the platysma was inspected and treated when necessary with submental access through a small incision, depending on decussation of platysmal fibers (Figure 8). Muscle borders were reunited through plication and, if necessary, a section of muscular fibers was divided. Traction and plication of the posterior cervical portion of the platysma was performed to achieve better definition of this region. We carefully performed SMAS excision (“SMASEctomy”) and plication, since irregularities can lead to the appearance of bumps and dimples after scar formation. The whole area was inspected, any irregularities were corrected, and hemostasis was achieved. When generous neck liposuction did not effectively recontour the excess cervical fat, we treated it with direct lpectomy. We removed just enough excess fat to obtain a better cervical contour, while attempting to avoid the risk of neurapraxia and neck skeletonization. Ptosis of the mandibular gland can become more evident when adjacent tissues are repositioned after facelifting, and if mandibular gland ptosis was obvious in a particular patient, surgical correction was habitually limited to reinforcement of the platysma that sustained it. Direct submandibular gland excision was usually avoided. We discussed this specific limitation with the patient before the surgical procedure to avoid unrealistic postoperative expectations.

Traction was then applied to the flaps. The amount of traction applied depended on the state of the skin and the nature and degree of correction required. Correction was obtained by applying traction to the anterior skin in the region between the tragus and the Darwin tubercle, which yielded a natural appearance. This step was repeated on the opposite side (when needed) to prevent distortions. While the preauricular flap was held by two forceps, the surgeon applied countertraction with a Pitanguy flap demarcator. The desired tension over the facial skin was accomplished, and Point A was established, anchored at a point no higher than the insertion of the helix. The position of the face was then fixed. By pulling the scalp downward, the surgeon removed the excess skin. This traction preserved the level of the sideburn (Figure 9).

The posterior, or cervical, flap also was pulled in an equally precise manner, in a superior and slightly anterior vector, to avoid a “step-off” of the hairline. Tension was applied to the cervical flap in a line parallel to the line joining the tragus and the Darwin tubercle. When the desired tension was obtained, a flap demarcator was placed at the angle of the mastoid incision to determine Point B. Point B was anchored at the retroauricular fold. Tension was maximum and was limited to these two points, A and B, which allowed anatomical landmarks such as the temporal hairline and the earlobe to remain unaltered.
The posterior incision resembled an italic $S$, yielding an advancement flap (Figure 10). This avoided a step-off in the hairline. The ear remained in its position, with no traction. By trimming the flap, we restored the very delicate condition of the pretragal skin (Figure 11A). Again, the earlobe must fall into its natural position, without tension on the ear (Figure 11B). If, to obtain better results, a patient needed an ancillary procedure such as volume restoration or surgical treatment of the forehead, we performed it at this point.

After completion of the operative procedures, the external auditory meatus was carefully cleaned, and moistened gauze dressings were wrapped around the auricle and spread over the flaps. These areas were covered with cotton pads, and gentle compression was then applied with an elastic bandage. Neither the compressive dressings nor drains were substitutes for careful hemostasis. Antibiotics were given prophylactically. Sedation was sometimes required for the first few postoperative hours, and analgesics were given as required.

To diminish hematoma occurrences, we developed a protocol that included strict control of blood pressure. The administration of clonidine at anesthetic induction or one hour before the surgical procedure helped to keep blood pressure low in the perioperative period. Intraoperative blood pressure was monitored hourly, and if it increased to 150 mm Hg, captopril was administered. For the same purpose, sometimes we prescribed dexmedetomidine, a sedative from the group of $\alpha_2$-adrenergic agonists. In patients at risk for deep vein thrombosis, administration of enoxaparin sodium was considered.
Additional intraoperative images and clinical examples are shown in Figures 12 through 16.

**RESULTS**

A total of 8788 patients underwent a cervicofacial lift at the authors’ private clinic between 1958 and 2010. Their ages ranged from 28 years (with a surgical indication of acne sequelae) to 84 years. Of the patients, 39.96% were ages 40 to 49 years (Figure 17), which may represent a cultural difference. In Brazil, many patients choose to undergo facelifting at a relatively early age, whereas in other cultures, blepharoplasty is performed initially, thus postponing facelifting. The number of older patients (50 years or older) increased in the later years of the study period (1980-2010). We believe that this was due to patients developing greater confidence in the safety of the
Figure 13. (A, C) This 53-year-old woman had skin flaccidity before undergoing a cervicofacial lift by the round-lifting technique. (B, D) One month after cervicofacial lift. This patient also underwent upper blepharoplasty, inferior transconjunctival blepharoplasty, and periorbital rejuvenation with the carbon dioxide (CO2) laser.
Figure 14. (A, C) This 58-year-old woman had a heavy-set face before undergoing a facelift. (B, D) Two months after facelift.
anesthetic and the procedure as it became more well known, as well as to older individuals (potential patients) being healthier and expecting to live longer. From 1970 to 2010, the number of male patients increased, reaching 18.6% in recent years (Figure 18). We believe that this increase was due to our photographic evidence of natural results and increased public acceptance of aesthetic procedures for men.

As we gained a better understanding of age-related changes on facial anatomy, our techniques were refined. The different techniques performed to enhance long-term results are shown in Figure 19. Submental liposuction was performed in 92.2% of the patients, and almost all patients treated after 1999 underwent malar fat pad repositioning.

The rate of complications was 4.5% and included hematoma in 3% of treated patients (Table 1). Cutaneous

Figure 15. (A, C) This 61-year-old woman presented for facial treatment. (B) Three months after a facelift, submental liposuction, upper blepharoplasty, and full-face CO2 laser skin resurfacing.
slough occurred in small areas, but no major areas of necrosis were observed. Some sequelae of this complication were treated. A natural result was obtained for all patients treated with the round-lifting technique.

**DISCUSSION**

Despite the attempts of other surgeons to substitute nonsurgical procedures for facial augmentation, facelifting is still our choice for rejuvenation (when indicated). Patient
expectations and demands in aesthetic facial surgery have grown, just as surgical techniques have evolved. Despite the surgeon’s best efforts to prevent them, complications can occur after any surgical procedure, including facelifiting. A patient’s history of hypertension, diabetes, or asthma can raise the risk of complications.

Unfavorable results in plastic surgery can be divided into two distinct groups. The first group represents true surgical complications: hematoma, infection, cutaneous slough, or tissue necrosis. Despite careful handling of facial tissues and effective preoperative preparation, these complications are unavoidable in a small percentage of patients.19-27 The second group of complications is best described as unfavorable results, which are sometimes caused by errors in preoperative aesthetic analysis. Addressing complications is frustrating to both surgeon and patient. Patients with unfavorable results must be seen frequently, to maintain a good relationship and avoid patient dissatisfaction and legal problems. A disruptive patient is sometimes the worst complication.

In this section, we discuss some complications of facelifting procedures and outline the methods on which we rely to diminish their incidence or to avoid them whenever possible.

Nerve Injury

After rhytidectomy, patients frequently report some sensory disturbances, such as numbness of the face. This loss of sensation is temporary, and normal feeling typically returns after several months. Slight paralysis of the facial muscles may persist for up to 12 hours after the operation, caused by prolonged action of the local anesthetic agent or by edema of the nerve.23,24

The facial nerve (seventh cranial nerve) has two principal branches: ascending and descending. These branches divide and subdivide to produce a neural network known as the parotid plexus or “goose’s foot.” True facial paralysis is a rare complication and can be prevented by a correct plane of undermining. Some anomalies are occasionally found in certain patients, especially on the frontal branch, in a zone delimited by the temporal branch of the superficial temporal artery and by an imaginary line that runs from the tragus to the eyebrow. This area is sometimes referred as “no man’s land.”1,25 (Figures 20 and 21).

The most commonly injured nerve during rhynioplasty is the great auricular, followed by the mandibular branch of the facial nerve.1 The “danger area” in which the great auricular nerve is usually damaged is situated over the anterior surface of the sternocleidomastoid muscle, 4 to 8 cm below the earlobe. Lesions of this nerve may cause painful neuromas and varying degrees of anesthesia of the auricle. The mandibular branch becomes superficial close to the site at which the facial artery crosses the mandibular ramus, at a point that is level with the angle of the mandible. Therefore, superficial undermining of the chin can damage this branch if it is carried beyond the nasolabial fold or its caudal extension.1 Neurapraxia generally resolves spontaneously after two months (Figure 22).

Hematoma

The most frequently encountered complication of facelifting procedures, hematoma, has a higher incidence in male patients because they have thicker and more vascular skin. Hematomas can be avoided through rigorous hemostasis and by taking a thorough clinical history and physical examination. Patients must be healthy and suitable for elective surgery, and underlying medical conditions must be analyzed and stabilized preoperatively.1,26,27

Patients with hypertension must be monitored closely in the immediate postoperative period, and those with a history of bruises and spontaneous ecchymosis or gingival bleeding—or with abnormal laboratory findings—must be
extensively investigated. Many patients deny taking medications that contain vitamins, formulations that alter blood clotting, salicylic acid products (including aspirin), or platelet function-altering medications. In this way, they can unknowingly jeopardize the surgical procedure. A list of medications containing these substances should be presented to the patient, with instructions to stop taking them at least 15 days before the surgical procedure.

After treatment, nausea and blood pressure must be controlled. Patients must be closely monitored because large hematomas usually develop during the first postoperative hours. Hematomas tend to be unilateral and manifest through abnormal pain, swelling, and ecchymosis. If the swelling is severe, retraction of the labial commissure occurs. It is imperative to promptly detect and properly evacuate any hematoma so the skin flap is not compromised. In our opinion, this can be performed in the patient’s room, after sedation and blood pressure control. One or two sutures are removed, and most of the blood clot is removed by light pressure with a finger and forceps (Figure 23). A catheter with polyethylene tubing is inserted under the skin, and the smaller residual clots are extracted by irrigation with saline solution.\textsuperscript{1,26} It is often necessary to aspirate serosanguineous secretion for two or three days after this technique.

If residual or smaller hematomas are left untreated, they result in a marked inflammatory reaction, followed by localized induration. They liquefy within seven to 12 days and can be evacuated by syringe.

### Table 1. Rate of Complications for 8788 Cases, 1958-2010

<table>
<thead>
<tr>
<th>Complication</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hematoma</td>
<td>3.0</td>
</tr>
<tr>
<td>Cutaneous slough or necrosis</td>
<td>1.0</td>
</tr>
<tr>
<td>Infection</td>
<td>0.05</td>
</tr>
<tr>
<td>Alopecia</td>
<td>0.3</td>
</tr>
<tr>
<td>Wound dehiscence</td>
<td>0.08</td>
</tr>
<tr>
<td>Nerve damage</td>
<td>0.07</td>
</tr>
<tr>
<td>Total</td>
<td>4.5</td>
</tr>
</tbody>
</table>

**Figure 19.** Techniques utilized in 4968 facelifts performed from 1980 to 2010. “Platysma” indicates platysmal fibers treatment by plication or section.

**Figure 20.** Imaginary line from the tragus to the eyebrow, called “no man’s land.” Anomalies can occur in this area.
Figure 21. (A) This 46-year-old woman had damage to the temporal branch of the facial nerve that resulted from a facelift. (B) After treatment with botulinum toxin, the asymmetry was diminished. Six months after facelift, she experienced a spontaneous recovery of nerve function.

Figure 22. (A, C) Facelift-induced neurapraxia of the mandibular branch of the facial nerve. (B, D) Spontaneous improvement of the nerve injury two months after facelift.
Alopecia and Hair Loss

Hair loss after facelift occurs most commonly in the temporal area adjacent to the skin incisions. Another cause for hair loss is scalp flap necrosis close to the incision, if the wound was closed under excessive tension. Damage to the hair follicles is one of the causes and can be prevented with making bevelled scalp incisions and

Figure 23. (A) This 54-year-old woman had a large hematoma after undergoing facelift. (B) The hematoma was treated conservatively in the patient’s room with light pressure and irrigation with saline solution. (C, D) Satisfactory evolution of healing 18 days and four months after treatment.
deeper undermining. Follicles can also be damaged by
injudicious hemostasis at the wound margins.1,24
Poor positioning of incisions can cause facelift stigmata,
and excessive elevation of receding hairlines or sideburns
may result in a strange appearance of the face. Hair restora-
tion surgery may be an alternative solution in these cases.
Excessive elevation of the hairline is more likely to occur in
patients with a high temporal hairline or in those undergoing
secondary rhytidectomy. It can be prevented by rotation of
the scalp flap after fixation of the flaps.

Facial Distortion and Other Stigmata

Errors in traction can cause facial distortion and other
stigmata. Adhering to a routine technique and established
guidelines can prevent these problems. Most often, a sec-
ondary procedure, conducted after swelling subsides, is
necessary to correct the defect (Figure 24).24

Necrosis

Despite the low incidence of complications in our practice,
through the years we have encountered some cases of
necrosis and slough, especially in patients who smoke. In
these cases, lymphatic drainage is performed daily, and
hyperbaric oxygen therapy can be considered.
Skin slough and necrosis can occur because of several
factors, each of which has a common base: impairment of
flap circulation. The most important risk factors for flap
impairment and necrosis are cigarette smoking and exces-
sive flap tension caused by ischemia from an expanding
hematoma (Figure 25), errors in resection planning
(closing the wound under excessive tension), or applica-
tion of occlusive and tied dressings.24,26-28
Presence of nicotine in the flap’s microcirculation is a
known factor in reducing flap survival (Figure 26). Retauricular slough is three times more frequent in ciga-
rette smokers. Nicotine has a thrombogenic effect mediated
in part by stimulation of thromboxane A₂. Smokers must
discontinue tobacco use at least 15 days before the surgical
procedure, and they should not resume smoking until
at least 15 days after surgery or until complete healing has
occurred. We also prescribe pentoxifylline as an adjunct to
vitamin C; it should be taken, two to three times daily,
beginning seven days before the procedure.
Success in treating failing flaps depends on early recog-
nition and treatment of possible causative factors. Clean
and dry crusts must not be debrided, but necrotic and

Figure 24. (A) This 64-year-old woman experienced a severe stigma on the cervical region because of a traction error during a
facelift performed in another surgical service. (B) Three months after tissue repositioning by the round-lifting technique.
Figure 25. (A) This 52-year-old woman experienced skin necrosis secondary to an unidentified hematoma after a facelift performed elsewhere. (B) After second-intention cicatrization and before a secondary facelift. (C) A secondary facelift allowed a large resection of the scar. (D) Six months after the secondary facelift.
infected areas must be removed. Secondary healing and scar revision should be performed whenever necessary.\textsuperscript{24,28} Hyperbaric oxygen therapy may be considered for patients with extensive tissue necrosis, although its efficacy has not yet been clearly demonstrated.

**Infection**

Infection after a facelift procedure is rare and can cause aggressive tissue destruction. Most cases occur as a result of bacteria present on skin and in the auditory canals, mouth, and upper airways. \textit{Staphylococcus} and \textit{Streptococcus} organisms are responsible for most of the infections, but pathogens such as \textit{Pseudomonas} also contribute substantially. Infection usually manifests between the third and fifth postoperative days. Signs and symptoms of infection include erythema, pain, fever, swelling, and pus. These skin reactions are especially evident on the neck because of the poorer blood supply there. Bacterial infections involving the tragus are usually caused by gram-negative bacteria and begin several days after the procedure. The patient will have local hypersensitivity and hyperemia. Long-term antibiotic therapy is required.\textsuperscript{1,24}

Severe purulent infection is rare and must be drained and treated with generous wound irrigation and a pathogen-specific antibiotic. Some wounds may require debridement, but when infection is controlled, the surgeon should wait for complete healing to occur. Branchial fistulas at the preauricular region must be identified, as they can cause infection.

**Other Complications**

Patients with systemic cardiovascular conditions and diabetes must be followed closely after the surgical procedure because they have an increased risk of wound-healing problems and infection. Special consideration must be given to the administration of chemotherapeutic agents and corticosteroids, as they can alter wound healing. Surgery must be postponed for at least 15 days after the patient stops taking these medications.

Remaining neck fat must be proportional, and the surgeon must avoid the aggressive and exaggerated liposuction or lipectomy that leaves a thin neck flap. Observing
these cautions avoids skeletonization of the neck and irregularities of cervical contour such as bumps and local prominences (Figure 27). Seromas also can occur by excessive manipulation of fat tissue.

Some other possible complications include distortion in retrotragal incisions, earlobe malposition, and wound dehiscence at maximum tension points.

Widening of the scar is more likely to occur in the temporal and preauricular regions. Hypertrophic scars can occur specifically in the postauricular fold. For treatment of hypertrophic scars, intralesional corticosteroids are injected directly into the scar tissue. These injections can diminish redness and pruritus, result in atrophy of scar tissue, and improve the appearance of the scar, thus avoiding the need for surgical revision. Scar revision, if needed, should ideally be performed six months after the procedure, when residual swelling has subsided and tissues are more supple, allowing better surgical manipulation.1,24,28 Keloids are fortunately rare. Hypopigmentation can be seen in some patients, especially smokers.

One further complication, which is restricted to deeper-plane dissection, is damage to the parotid gland. This damage occurs particularly when the fascia is very adherent to the parotid sheath. Careful, slow, sharp dissection will minimize this risk.

**CONCLUSIONS**

The round-lifting technique, which emphasizes flap rotation, was first described in 1967. In a series of 8788 patients treated over 52 years, we achieved natural results in all patients with a low complication rate of 4.5%. When performing this type of facelift, our intent is not to change the position of the structures; rather, we endeavor to keep them in their natural location, as they appeared prior to the aging process. SMAS plication, malar fat pad repositioning, and correct traction of facial tissues provided satisfactory results in our study, and these methods were less aggressive compared with undermining of the SMAS and other techniques.

The aesthetic surgeon’s goal, in our opinion, should not be the pursuit of exceptional results but instead the search for natural results. In our view, a satisfactory result depends on the surgeon-patient relationship, a careful and complete clinical examination, and a surgical strategy to correct specific problems, with a pretreatment discussion of various ancillary procedures. The guidelines provided in this article for preventing errors and distortions of anatomical landmarks that can result in undesirable stigmata should be helpful to all aesthetic surgeons performing facelift procedures.

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