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Facelift

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The facelift procedure is intended to smooth redundant skin in the lower face (jowls) and neck (bands and wattles), providing less improvement in the midface (nasolabial folds). Over the last century, several types of lifting have emerged. Of these, the most popular are the superficial musculoaponeurotic system (SMAS) and deep plane lifts. Knowledge of facial nerve and ligamentous anatomy is critical to performing facelifts successfully, as is an understanding of facial aesthetics and the changes brought about by age. The technical aspects of the SMAS and deep plane lifts are discussed in some detail. Common complications are listed, and methods of avoiding these are described.

The aging process induces several changes in the face, including dyschromias, irregularities, wrinkles, and folds. Injectable fillers, soft-tissue implants, chemical peels, dermabrasion, and laser resurfacing have been used to successfully treat the former problems, but the facelift has been the workhorse procedure for addressing folds. Specifically, the facelift is primarily intended to smooth redundant skin in the lower face (jowls) and neck (bands and wattles), providing less improvement in the midface (nasolabial folds). During the last century, several types of lifting have emerged, including the subcutaneous, the superficial musculoaponeurotic system (SMAS), the deep plane/composite, the subperiosteal, and the midface lift. These permutations of the procedure have arisen while surgeons have attempted to provide more significant improvements, longer-lasting results, and fewer complications.

Anatomy

When performing a facelift, one must consider not only the skin of the face and neck but also to the nerves, SMAS, and ligaments. Skin changes include atrophy of collagen, breakup of elastin, and loss of glycosaminoglycan content, all of which may lead to the lack of turgor and elasticity seen in the aging face.[1,2] Knowledge of facial nerve anatomy is critical to performing cosmetic surgery in the cheek and neck (Figure 1). The incidence of facial nerve injury after a facelift is low but real. The most frequently injured branches are the buccal, frontal, and marginal. The incidence and location of injury probably varies with the type of lift being performed. Inferior and anterior to the ear, the nerve is covered by the superficial lobe of the parotid gland. Near the arch of the zygoma, the frontal branch becomes more superficial, coursing just beneath the temporoparietal fascia. Therefore, when one is making incisions in the SMAS layer in the cheek, one should stay at least 1 cm inferior to the zygomatic arch. On the arch itself, areas either 20 mm from the posterior border of the lateral orbital rim or 10 mm anterior to the external auditory canal are considered safe regions of dissection. The zygomatic and buccal branches course toward the anterior edge of the parotid gland, which is located about 4 cm anterior to the tragus. This area is not one of concern for nerve injury in SMAS facelifts but can be a site of nerve injury for deep plane lifts. At the point where the facial artery ascends over the mandible, the marginal branches ascend over the mandibular border.

The important fascial structures to consider in the cheek and neck include the SMAS and the 3 retaining ligaments. In the lower two-thirds of the face, the SMAS or submuscular aponeurotic system is a layer comprising the platysma, the orbicularis oris muscle, and the fibrous aponeurosis extending between them. Ligaments arise from either the deep fascia or the periosteum and insert on both the SMAS and the skin. For facelift surgery, the critical ligaments have been defined as the zygomatic, massateric, and mandibular-cutaneous ligaments. The zygomatic and massateric liga-

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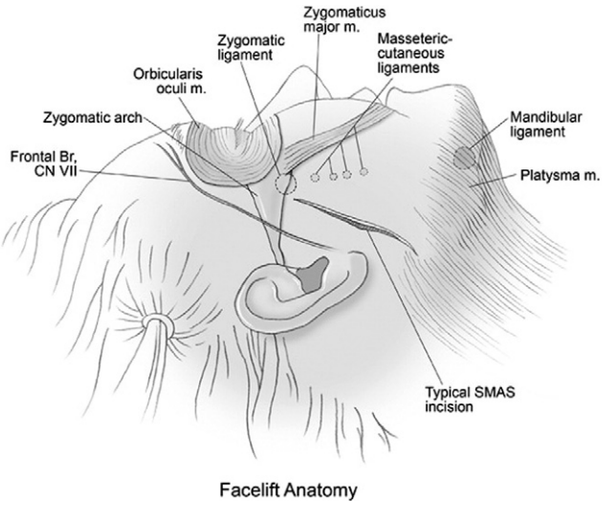

Figure 1 Important structures are shown. With a SMAS plication, no SMAS incision is made. The SMAS incision shown is typical for embrication techniques. A portion of SMAS may also be excised. In a deep-plane lift, the incision is extended anteriorly toward the zygomatic ligament. Dissection then proceeds deep to the SMAS toward the zygomaticus major.

ments must be cut during deep plane facelifts. The mandibular ligaments extend from the periosteum of the parasagital mandible to the dermis. This ligament is transected during placement of a prejowl implant. In the cheek, the SMAS closely adheres to the parotid gland and is not separated from it by any significant lipomatous layer. The SMAS and parotid fascia may or may not be distinct anatomic layers. More distally, most of the muscles of facial expression lie in the SMAS layer.

Esthetics

With aging, there is descent of the malar fat pad in an inferior and medial direction. There is also some resorption of the bone at the malar eminence. These phenomena will result in loss of malar prominence and deepened nasal labial folds (Figure 2). As malar fat shifts forward and downward, the skin in the nasal labial fold is retained by the massateric-cutaneous ligaments, thus deepening the fold. More inferiorly, melolabial folds ("marionette lines") between the chin and cheek are formed by the same phenomena. As the fat pad migrates, "drool lines" at the corners of the mouth may form, giving the mouth a downturned appearance. With age, the descent of soft tissue around the mandibular ligament causes a perceptible jowl to form. This may be compounded by loss of bony chin prominence, which allows the soft tissue of the jawline to relax. Esthetically speaking, therefore, the youthful cheek should exhibit minimal jowling. The nasolabial and melolabial folds should be relatively inconspicuous. On profile, the beautiful neck is considered to have no wrinkles or bands, but also to have a well-defined break between the neck and chin. The ideal cervicomental angle is 90° to 100°. Aging and weight gain will cause the angle to become more obtuse. Certain patients have obtuse cervicomental angles in youth, however, either due to localized adiposity or a low hyoid bone. A low hyoid bone will limit the surgeon's ability to improve the neck line unless special procedures are considered. Weak or fibrotic platysma muscles will cause visible bands to form in the neck. The platysma muscles should be examined for the amount of decussation. In most situations, the muscles will meet and cross in the midline as they approach the chin.

Implants

Bone loss occurs with aging, and many patients seeking rejuvenation surgery will benefit from some chin augmentation. Cheek implants may alleviate lack of malar prominence. Another advantage is that subperiosteal elevating over the zygoma during facelift disrupts the zygomatic ligament, allowing the traction on the soft tissue to be more effective. To help rid jowling, the mandibular ligaments may be separated at the anterior mandibular groove during dissection for a prejowl implant. This maneuver will also allow a more effect lateral pull on the SMAS.

SMAS lifts

There are many ways to perform a facelift, but they all involve the steps of incision, undermining, and redraping the skin. When the facelift operation was first described, undermining was performed extensively into the cheek and neck. However, concern developed over these "long-flap"

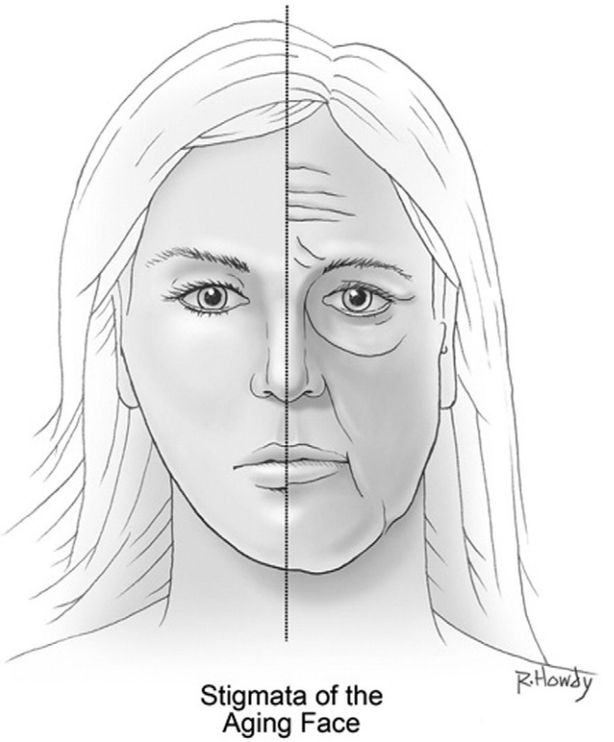

Figure 2 With age, the soft tissue of the face descends medially and inferiorly, being anchored by the massateric, zygomatic, and mandibular ligaments. Jowls, nasolabial folds, and marionette lines are formed.