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Over the past two decades, new techniques for facial rejuvenation have been developed to address not only the excess laxity of the aging facial skin, but also the inferior descent that characterizes the aging face. The traditional facelift, even with a SMAS plication, is directed at correcting excess laxity, but in the author's opinion it has the drawback of tightening the tissues in an anteroposterior direction without adequately addressing age-related tissue descent. A vertical lift is a more anatomically correct method of counteracting the vertical displacement of the face that is responsible for prominent nasolabial folds, a skeletonized appearance of the lower eyelids and malar prominence, and, to a lesser degree, the pre-jowl sulcus.

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Patient Selection

The pre-surgical consultation seeks to identify the features that are most concerning to the patient. Special emphasis should be placed on the position of the pre-malar fat pad, the prominence of the nasolabial folds, and the presence or absence of a pre-jowl sulcus. In addition to this, it is important to identify potential access points for surgical dissection; if the patient has a receding hairline, rarefied hair density, or a high forehead, the infra-ciliary or transconjunctival approach may be preferable. On the other hand, if the patient undergoes a simultaneous forehead and brow lift, the same incisions can be utilized for an endoscopic midface lift. It is important to consider the presence or absence of herniated orbital fat, redundant lower eyelid skin, tear trough deformity, or any bony asymmetry between the orbits by carefully palpating the orbital rims. The quality of the apposition of the patient's lower eyelids to the ocular globes should also be examined and documented. The author's preferred method to assess the integrity of the canthal tendons is to perform the eyelid distraction and snapback tests. A distraction of less than 3 mm from the ocular surface with gentle anterior traction on the lower eyelid, and a prompt return to apposition against the globe upon release, is confirmatory of adequate lower eyelid medial and lateral canthal tendon integrity. If the patient has had previous surgery in the periorcular region,

it is important to note any anterior or posterior lamellar deficits. The position of the lower eyelids should be noted by taking a careful MRD2 measurement. The buccal-gingival sulcus should be evaluated, as sometimes it is necessary to perform an incision in this location to complete the subperiosteal dissection. Any volume deficits should be noted, paying special attention to the skeletal prominences of the face, as sometimes it is necessary to address these with implanted fat, fat transfers from the orbit, fillers, or alloplastic implants.

Informed Consent

The consent should emphasize the standard risks of any surgical procedure on the face, which include scarring, asymmetric results, risk of bleeding, infection, and damage to neurovascular structures. It is particularly important to discuss with the patient the possibility of temporary or permanent paresis of the facial nerve with resultant asymmetry and weakness of the affected half of the face. It is also important to discuss the possibility of stretching and neuroapraxia to the infraorbital nerve. The latter is the most common complication, occurring in approximately 15% of patients. The authors always discuss with the patients the likelihood of numbness to the midface, lips, and upper teeth. In our experience this has resolved in the vast majority of patients within 3 months of surgery.

Surgical Technique

There are several surgical approaches to the midface, and the incision site should be selected according to the patient's overall anatomy, as well as any additional surgical procedures that would be accomplished simultaneously. The authors frequently combined endoscopic midface lift with removal of herniated orbital fat. The midface can then be accessed in the subperiosteal plane through a transconjunctival incision, following removal of the herniated

orbital fat. If the surgeon wishes to transpose orbital fat to compensate for loss of suborbicularis oculi fat (SOOF), this is the method of choice. Conversely, if the surgeon wishes to perform further suspension of the temporal midface via an orbicularis sling, an infra-ciliary incision is preferred. Lastly, if the patient will be having an endoscopic forehead lift, the temporal scalp incisions can be utilized to access the midface without any additional incisions on the face (Figs. 4.1 and 4.2). The latter is our most common approach to the midface. We reserve the transoral approach for patients with very prominent maxillae, or for patients with tightly adherent periosteum that is difficult to elevate via other approaches. There are also several options for fixation of the elevated mid face. We prefer alloplastic, absorbable implants, but permanent solutions are adequate in some cases. The position of the fixation device must also be decided prior to surgery. Options include the orbital rim, a malar hang-back, or a temporoparietal fixation point with a long leash to support the midface anchoring device.

We will begin by describing the procedure to access the midface via a temporal scalp incision (Video 4.1). Once the plane of dissection reaches the malar prominence, the procedure is the same regardless of the surgical approach. Surgery is performed under monitored local anesthesia with sedation or under general anesthesia, depending on surgeon and patient preference. Nerve blocks of the supraorbital, orbitozygomatic, and infraorbital nerves are administered with a combination of 2% lidocaine with epinephrine and 0.5% Bupivacaine with epinephrine in a 50:50 mixture. A temporal scalp incision is made with a #15 Bard-Parker blade. Hemostasis is obtained with the monopolar cautery, being careful to preserve the hair follicles in this location. The monopolar cautery with a needle tip is then utilized to continue the dissection until the deep temporalis fascia is identified. For the novice surgeon it is sometimes reassuring to make a small incision on the deep temporalis fascia with a 15 blade to confirm that the temporalis muscle lies beneath, and that the dissection is thus in the correct plane. Initially under direct

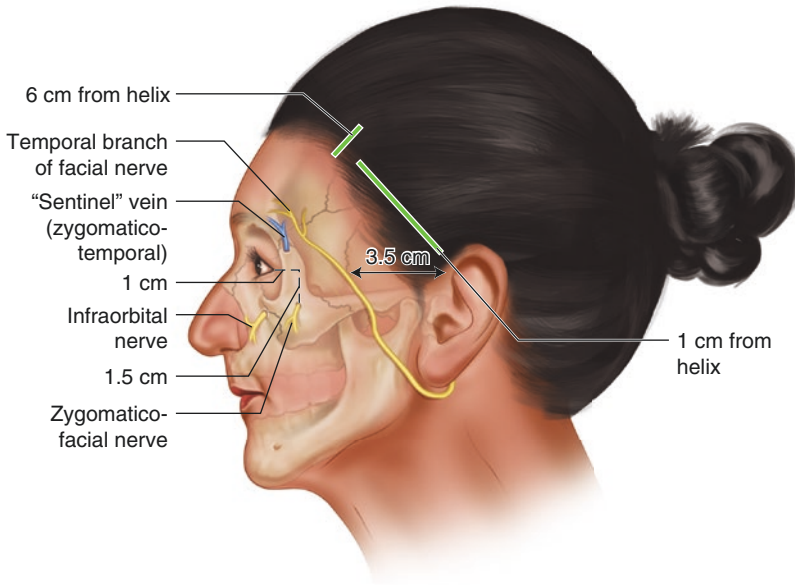


Fig. 4.1 Incision sites and important anatomy for endoscopic midface lift. Lateral view

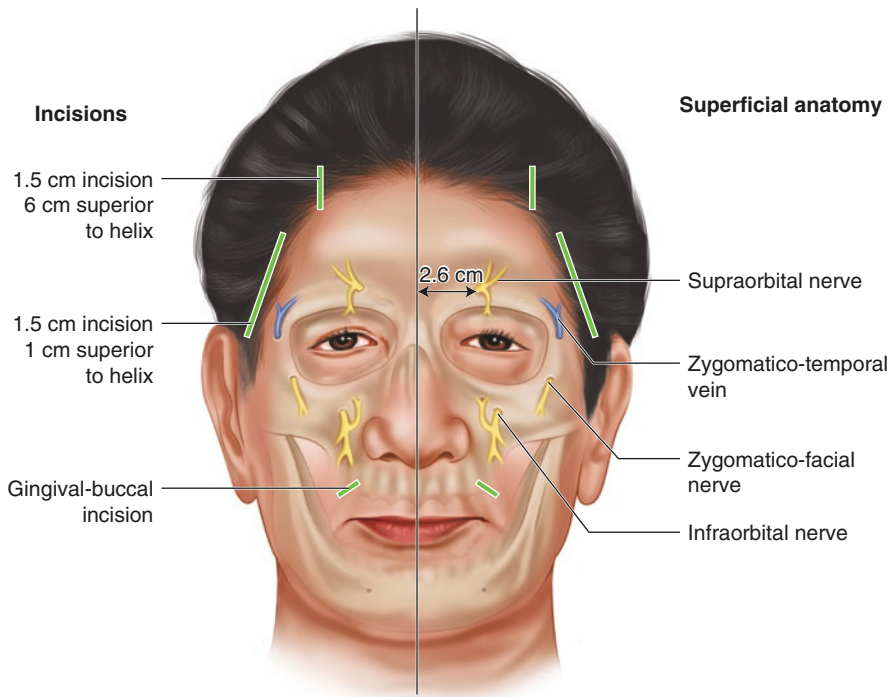


Fig. 4.2 Incision sites and important anatomy for endoscopic midface lift. Frontal view

visualization, by lifting the flap with an angled retractor, and then under endoscopic visualization after the plane has been started, dissection is carried out between the shiny, gray, deep temporalis fascia and the overlying gauzy superficial temporoparietal fascia. The facial nerve lies in the superficial temporoparietal fascia, so care must be taken to maintain an accurate plane immediately superficial to the deep fascia to avoid injury to this structure. The endoscope is utilized to carry the dissection inferomedially toward the lateral canthal region. As the superior orbital rim is approached, the deep temporalis fascia splits into two layers, separated by the intermediate temporal (Yasergil's) fat pad (Fig. 4.3) (Video 4.2).

Once Yasergil's fat pad is identified, the appropriate plane of dissection is on its surface, which is the undersurface of the superficial layer of the deep temporal fascia. This plane is followed down to the takeoff of the zygomatic arch, which can be palpated with the dissector before it is actually visualized. Careful blunt dissection

should be performed in this region. Typically, a large vein emerges from Yasergil's fat pad approximately 2 cm lateral to the orbital rim and at about the level of the superior orbital rim; this sentinel vein should be sought and preemptively cauterized with bipolar cautery. The dissection is then continued subperiosteally over the zygoma along the lateral orbital rim, and infero-caudally in the subperiosteal plane on the zygomatic arch. If the surgeon decides to access this plane via an infra-ciliary or a transconjunctival incision, the dissection is carried in the subperiosteal plane starting at the inferior orbital rim, and extended laterally over the body of the zygoma. The dissection is continued nasally, being careful to identify the infraorbital neurovascular bundle. The dissection can then be continued both superior and inferior to the nerve all the way to the pyriform aperture. This is a lot easier to perform via a transconjunctival approach. It is not imperative to complete the dissection all the way to the pyriform aperture in most patients, and this should be aborted if further dissection would

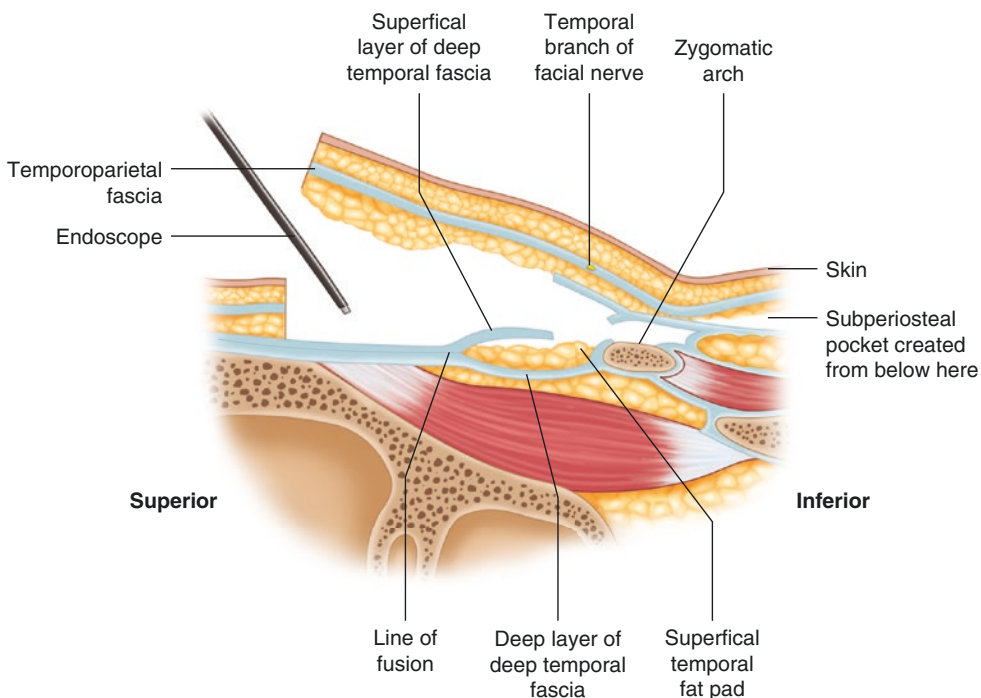


Fig. 4.3 Surgical approach for endoscopic midface lift

compromise the safety of the procedure. Once this has been completed, the dissection is carried caudally and temporally. The inferior edge of dissection should be the gingival cul de sac. In some patients, the periosteum over the maxilla is tightly adherent. In other patients, the curvature of the zygomatic arch over the maxillary bone is such that dissection over the body of the maxilla is difficult. In these patients, a gingival cul de sac incision can be performed and the dissection is carried in the subperiosteal plane via a transoral approach until both planes of dissection are joined together. Laterally, the surgeon seeks to identify the masseter muscle. The conjoined masseteric fascia is identified as a striated fibrous band emanating from the inferior edge of the zygomatic arch. This must be divided sharply in close apposition to the masseter muscle. The maxillary branch of the facial nerve courses over the masseteric fascia and is at risk during extensive dissection over the masseter. The periosteal attachments over the arch and the attachments of the masseteric aponeurosis and ligaments on the vertical medial edge of the masseteric fascia are critical to the success or failure of the surgery. Only by completely releasing these attachments can the midface be effectively elevated in the subperiosteal plane (Fig. 4.4).

Once the entire dissection is completed, the surgeon can grasp the deep temporoparietal fascia with toothed forceps and mobilize the entire midface. If the flap is not freely mobilized, a finger should be introduced to identify any remaining bands of attachment. These should be released to ensure free mobilization of the midface. Only then can a long-lasting result be assured. Once the flap is adequately mobilized, it is secured in the elevated position. This can be accomplished with a fixation suture through the superficial temporoparietal fascia. The authors prefer the endotine midface™ fixation device (Micro-Aire®). After the endotine is inserted, the surgeon aims to secure the periosteum of the midface to the tine at the point of maximum desired lift. The authors typically select a point immediately lateral to the most prominent aspect of the nasolabial fold. Once the periosteum has been secured to the endotine, the leash is elevated to the desired

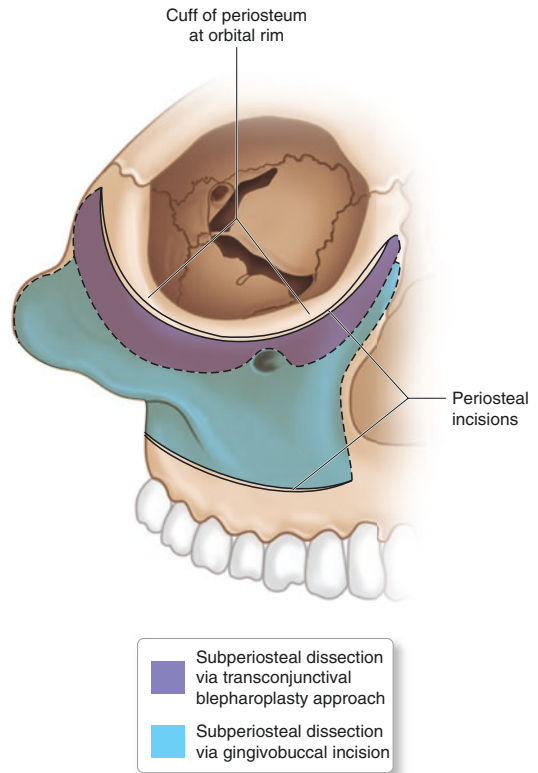


Fig. 4.4 Areas of subperiosteal dissection with transconjunctival and gingivobuccal incisions

final position of the midface. This is marked through one of the lash holes with a marking pen on either the orbital rim or the deep temporal fascia. The endotine is then secured according to the manufacturer's instructions. In very heavy-set patients, it is sometimes necessary to place a SMAS fixation suture in addition to the endotine to adequately support the midface. The authors prefer to utilize a 3-0 Vicryl in these patients. For patients with significant lateral midface descent, or patients with significant dermatochalasis of the lower eyelids or prominent festoons, the authors will sometimes combine a midface elevation procedure with an orbicularis sling. This further elevates the lateral aspect of the cheek, and helps increase the projection of the malar prominence. It also allows the surgeon to be slightly more aggressive with skin tightening as the lateral midface is supported by the periosteum of the lateral orbital rim. If there is any doubt about

the integrity of the lateral canthal tendon, or if the preoperative evaluation suggests excess laxity of the lower eyelid, the authors routinely performed a lateral tarsal strip to avoid postoperative ectropion. Adequate positioning of the midface is confirmed, the incisions are closed in layers, and a surgical dressing is applied.

Postoperative Instructions

The patient is instructed to apply ice packs for 15 min of every hour while awake. Patients are asked to sleep with their head elevated with a couple extra pillows at night, and to avoid heavy exercise for 1 week. The patient is asked not to bend over and pick up anything over 5 pounds for 1 week. Postoperative medications include narcotic analgesia, a tapered dose-pak of 4 mg of methylprednisolone, a stool softener, and anti-nausea medication. The patient is also asked to keep the surgical dressing intact until it is removed by the treating surgeon 1 week postoperatively. If the procedure is combined with an

endoscopic forehead lift, the head wrap can be removed 24 h postoperatively and the patient can shower, but must be careful to keep dry any Steri-Strips placed on the face.

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