The Deep-Plane Approach to Neck Rejuvenation

Neil A. Gordon, MD[a,b], Stewart I. Adam, MD[a,*]

KEYWORDS

• Neck rejuvenation • Deep plane • Facelift • Rhytidectomy • Neck lift • Aging face
• Platysma muscle

KEY POINTS

- Neck changes are often the motivator for seeking treatment of the aging face.
- The platysma muscle/superficial muscular aponeurotic system/galea are the continuous superficial cervical fascia, encompassing most of the facial and neck fat. This superficial soft-tissue envelope is poorly anchored to the face and neck.
- Facial aging is mainly due to gravity's long-term effects on the superficial soft-tissue envelope, with more subtle effects on the deeper structural compartments, manifesting in soft-tissue redundancy throughout the face and neck.
- The deep cervical fascia binds the structural aspects of the face and neck, and covers the facial nerve and buccal fat pad.
- The deep plane is the embryologic cleavage plane between these fascial layers and is the logical place for midfacial dissection, which allows access to the buccal fat pad for treatment of jowling.
- Soft-tissue mobilization is maximized in deep-plane midface dissections. Because the superficial soft-tissue envelope is continuous from the midface to the neck, this technique creates the best opportunity for reestablishing proper neck contour.
- Flap advancement creates tension only at the fascia level and is the optimal technique for revision rhytidectomy.
- The lack of skin tension in the deep-plane advancement flap allows natural, long-lasting outcomes, and is resistant to complications.

A video of a complete extended deep-plane midface lift with platysma tightening accompanies the article.

INTRODUCTION

Change in neck contour is the most common complaint that motivates a potential patient to consider a rhytidectomy. Patients desire a youthful appearance, bolstered by a well-defined neck and clear jawline. Of all facial changes associated with aging, loss of neck contour and jawline are most often associated with advanced aging.

The principal goals in neck rejuvenation, which were defined by Ellenbogen and Karlin[1] in 1980, include creating a distinct mandibular border, subhyoid depression, thyroid bulge, a distinct border to the sternocleidomastoid muscle, and a cervicomental angle of 105° to 120°. Whereas the primary and often sole cause of blunted neck contour in younger patients is excess fat deposition, this

Funding Sources: None.
Conflict of Interest: None.
[a] Section of Otolaryngology, Head and Neck Surgery, Department of Surgery, Yale University School of Medicine, New Haven, CT 06510, USA; [b] New England Surgical Center, The Retreat at Split Rock, 539 Danbury Road, Wilton, CT 06897, USA
* Corresponding author. Yale Physicians Building, 4th Floor, 800 Howard Avenue, New Haven, CT 06510.
E-mail address: stewart.adam@yale.edu

Facial Plast Surg Clin N Am 22 (2014) 269–284
http://dx.doi.org/10.1016/j.fsc.2014.01.003
1064-7406/14/$ – see front matter

process is not the main factor in the aging neck. Gravity's lifetime effects on facial soft tissue, combined with facial skeletal changes and fat deposition, are the key factors that dictate neck aging. The proportions each factor contributes are based on case-specific age and anatomy.

In general, gravity's long-term downward pull on the poorly anchored facial superficial soft-tissue envelope is the central component in facial/neck aging. This process is confirmed by both facial palpation and intraoperative rhytidectomy views of the excessive, redundant facial soft tissue following sub–superficial muscular aponeurotic system (SMAS) facial dissection and flap mobilization (**Fig. 1**). Moreover, facial skeletal remodeling causes certain aging changes, specifically around the periorbital, pyriform, and mandible regions.[2] This process provides an explanation for the loosening of both fascial and muscular attachments, leading to pseudoherniation of fat pads and ptosis of these muscular structures. In addition, loss of mandibular height is responsible for the abrupt change in jawline and neck contour with advanced age.[2] Fat deposition can be a contributing factor to a suboptimal neck contour at any age.

Viewing the neck in layers, most of the changes resulting from skin, fat, and muscular aging are confined to the superficial soft-tissue envelope, defined by the platysma and structures superficial to this muscle (**Fig. 2**). Aging changes also occur in the deeper structural layers of the neck, including the subplatysmal fat, digastric muscles, and submandibular glands (**Fig. 3**). Because these deeper neck structures can be accessed through most rhytidectomy techniques, it is the authors' considered opinion that the most effective rhytidectomy approach to the neck is the technique that maximizes the surgeon's ability to mobilize and resuspend the entire superficial soft-tissue envelope.

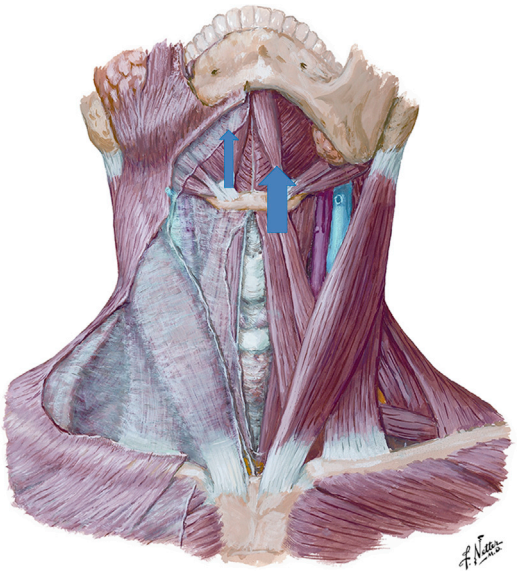

Fig. 2. Relevant centrally located muscular components for deep-plane neck lifting. The thin arrow points to the edge of the platysma muscle, which is deep to subcutaneous fat and part of the superficial cervical fascia. The thicker arrow points to the inferior end of the anterior belly of the digastric muscle, which is deep to the investing layer of the deep cervical fascia. Note that the digastric is deeper and more laterally based then the platysma muscle. (Netter illustration *from* www.netterimages. © Elsevier Inc. All rights reserved.)

Mitz and Peyronie[3] defined the superficial cervical facial fascia in 1976, demonstrating the SMAS

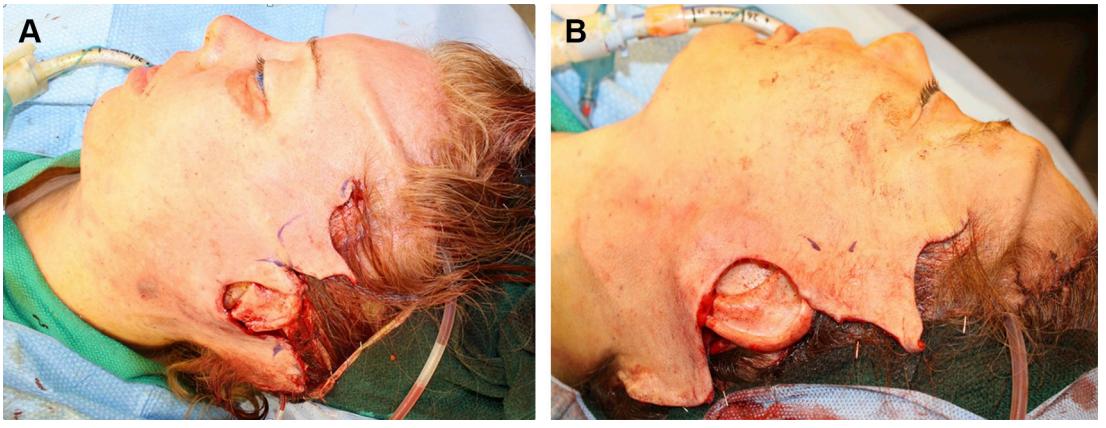

Fig. 1. Intraoperative photos demonstrating the excessive soft-tissue redundancy created after deep-plane dissection and mobilization of the facial soft tissues, even in the younger patient. This redundancy supports gravity's effects on facial soft tissue as the etiology in facial aging. Note the need to use hairline incisions to avoid the extreme superior displacement of the temporal hair tuft in these cases. (*A*) A 43-year-old woman undergoing deep plane face lift. (*B*) 59-year-old woman undergoing deep plane face lift.