Midface Restoration in the Management of the Lower Eyelid

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KEYWORDS

• Midface • Lower eyelid • Lipotransfer
• Fat transfer • Facial rejuvenation

Rejuvenation of the aging face has undergone significant transformation over the past 20 years. Collective understanding of the physiologic forces of aging on skin, soft tissue, and facial bony structures has permitted the development of various surgical and nonsurgical treatments to correct or limit these effects. Further, increased understanding of the importance of volume restoration in facial rejuvenation has improved the results of interventions and addressed a critical component of aging that was previously ignored. Although almost all aspects of facial plastic surgery have significantly evolved during this time, restoration of the aging midface has been particularly rewarding for most surgeons and patients. This article seeks to describe the importance of midface restoration, the evolution of various treatments that have been developed, a synopsis of the authors' current approach to rejuvenation of the midface complex, and the role of midface restoration in the management of the aging lower lid.

The anatomy of the midface has been well described by many investigators but often lacks clearly described anatomic boundaries. To simplify discussion on this topic, the midface is defined as an inverted triangular volume of tissue bordered laterally by a line drawn from the lateral canthus to the oral commissure and medially by a line drawn through the nasolabial fold from the medial canthus. Anatomically, this complex contains the lower sling of the orbicularis oculi muscle, orbicularis and zygomaticocutaneous retaining ligaments, the suborbicularis oculi fat (SOOF) pad, and the malar fat pad. One of the most challenging aspects encountered in the study of the midface is a thorough understanding of the relationship of the midface to the lower lid. It is difficult to know precisely where the lower lid ends and where the midface begins.[1] Even so, the authors have found that a precise anatomic separation between these 2 structures is often unnecessary, because it is the combined rejuvenation of the midface and lower lid complex that results in optimal aesthetic rejuvenation. For the authors, this concept of zonal rejuvenation has become a key driving force to obtaining natural results, and has resulted in improved midface restoration.

Aging of the midface and lower lid complex is a continual process that involves changes to the skin, soft tissue, and bony facial structures. Many women and men show clinical signs of aging to the midface and lower lid in their late 30s, making this one of the earliest detectable areas of facial aging and, consequently, one of the initial areas of patient concern. Aging of the midface and lower eyelid skin is largely exacerbated by environmental effects that include solar damage, as well as the formation of rhytids caused by

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repeated muscular contractions. Soft-tissue changes to the midface and lower lid include a weakening of the orbital retaining ligaments and an inferior displacement of the zygomaticocutaneous ligament (**Fig. 1**). These changes are thought to be largely caused by the gravitational effect on facial soft tissue.[2] A direct result of this effect is vertical displacement of the lower eyelid and the loss of a youthful-appearing, short, and full eyelid.[3] A youthful eyelid should be free of tarsal ligament laxity, with strong tone and an adequate septum that resists pseudoherniation of the orbital fat, whereas a youthful midface should demonstrate adequate vertical height of the SOOF and malar fat pads, providing support to the malar area.

One of the most important and previously overlooked features of an aged midface and lower lid is the loss of facial volume. This process is thought to be secondary to atrophy of the SOOF and malar fat pads. As a result of these changes, the midface and lower lid appears deflated, flat, and hollow, exacerbating the underlying bony facial structure. The periorbital changes described above are observed in continuity with deepening of the nasolabial fold and ptosis of the midface with vertical descent of the SOOF and malar fat pad.[4,5] The combined result of these aging changes creates a loss of facial width in the malar region, a tear trough deformity, and the projection of a tired appearance (**Fig. 2**).

One of the earliest interventions in countering the effects of midface aging was a surgical approach to specifically address the ptotic fat pads and soft tissue. A historical review of surgical midface lifts has recently been published.[2] The senior author (E.F.W.) employed an endoscopic subperiosteal approach to the midface in the mid

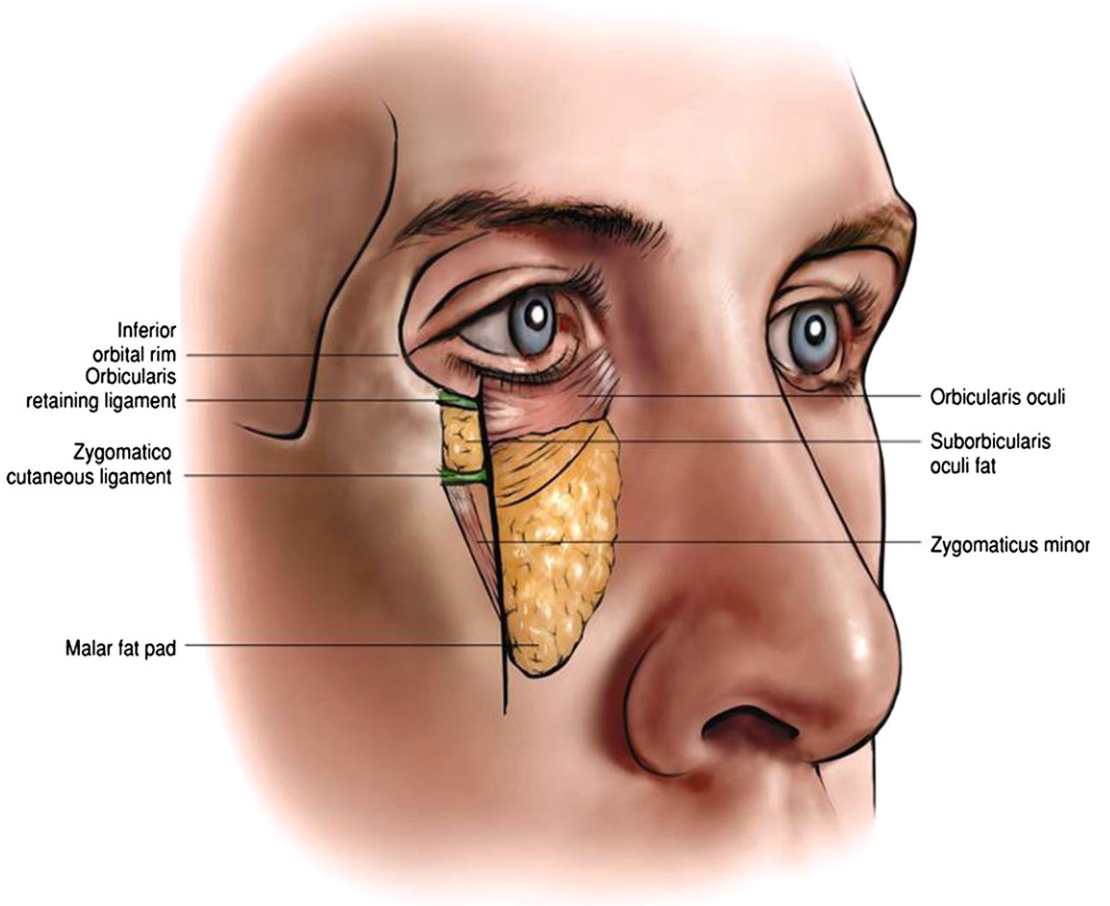

Fig. 1. Aging of the midface and lower lid results in weakening of the orbicularis oculi muscle sling and the gravitational descent of the SOOF and malar fat pads. *Reprinted from* Krishna S, Williams EF 3rd. Lipocontouring in conjunction with the minimal incision brow and subperiosteal midface lift: the next dimension in midface rejuvenation. Facial Plast Surg Clin North Am 2006;14(3):222; with permission.