The Management of Festoons

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KEYWORDS

- Festoons
 Oculoplasty
 Facial aging
 Tired eyes
 Aesthetic surgery
 Midface aging
- Surgical procedures

KEY POINTS

- The orbicularis retaining ligament (ORL) is the structure responsible for defining the palpebromalar groove and is a key structure in the appearance of aging of the midface.
- A major anatomic basis for the appearance of festoons seems to be the downward descent of tissues superior to a lax ORL and orbicularis muscle against the resistance of the stronger lower border, effectively creating a surface trough.
- 18 • The focus of treating festoons involves addressing the laxity of the ORL along with redistribution of 19 muscle, skin, and fat within the lid-cheek junction to re-establish a smooth and youthful contour.
- Q6 Historically, surgical technique addressed maximizing excision of the skin-muscle responsible for the visible appearance of the festoons; currently, surgical approaches involve direct excision of the affected tissue or indirect redraping of the affected soft tissue.

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26 INTRODUCTION

Aging of the midface and lower lid complex can be 27 evident even in the late 30s, making this one of the 28 29 earliest detectable areas of facial aging and frequently requested sites for surgical rejuvena-30 tion.¹ When present, malar festoons can compli-31 32 cate successful rejuvenation because they present a difficult problem to treat. Festoons occur 33 when portions of the orbicularis oculi muscle atten-34 35 uate, thereby undergoing a progressive course of sagging muscle that becomes visible to even the 36 most casual observer.^{2,3} Beyond aesthetic con-37 cerns, severe festoons can cause visual field 38 obscuration on downgaze, leading to difficulty 39 with near-vision tasks.⁴ Although typically seen 40 and referred to in the lower eyelid, because the or-41 bicularis oculi encircles the eye, festoons can 42

occur in the upper or lower eyelid. Because upper evelid festooning is uncommon and the emphasis in the literature is on lower eyelid festoons, the latter are the focus of this article.

Although a genetic basis for the etiology of festoon formation is suspected, the precise reason why some individuals are susceptible to this condition whereas others are not is largely unknown. When present, festoons can impart the appearance of being excessively tired and when more severe can be deforming, resulting in issues of selfconfidence. Every effort should, therefore, be made to improve the appearance of patients with this condition to enhance self-image and social well-being. Limitations in surgical correction are, however, a genuine challenge confounded by their unclear cause.

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ANATOMY

The midface is a complex anatomic area that separates the orbital cavity from the oral cavity.^{5–8} It is often defined as the area of the cheek medial to a line extending from the frontal zygoma to the oral commissure and the medial border defined by a line extending from the medial canthus to the nasolabial fold. The midcheek is composed of 2 functionally distinct parts7:

- 1. The prezygomatic part that overlies the midcheek skeleton
- The infrazygomatic part that covers the vestibule of the oral cavity

The prezygomatic area can be considered a transition zone where the skeletal attachments of the lower lid, including the ORL, are attached to the upper border of maxillary bone. The ORL (or malar septum) is the structure responsible for defining the palpebromalar groove; the junction between the preseptal portion of the lower lid and the cheek and is a key structure in the appearance of aging of the midface (Fig. 1).9,10 The ligament acts as a functional and structural barrier defining the lower extent of several clinical entities, including malar mounds, malar edema, periorbital ecchymosis, and malar festoons.¹⁰

Patients presenting for periorbital rejuvenation commonly complain of eyelid bags with a resulting tired look. The anatomic basis of eyelid bags is multifactorial, where orbital fat prolapse, eyelid fluid, tear trough depression, loss of skin elasticity, orbicularis prominence, and malar mounds and festoons can each contribute to their development.¹¹ Correct diagnosis of the cause of eyelid bags is, therefore, critical when addressing this



Fig. 1. Cross-sectional anatomy of the lower eyelid with graphical representation of the orbital septum, suborbicularis oculi fat (SOOF), and ORL (or malar septum). The ORL extends from the periosteum deep to the skin superficially, is responsible for defining the palpebromalar groove, and is critical in the characteristic appearance of the aged lower eyelid.

problem, with festoons one possible unique clinical entity among the possible causes.

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A major anatomic basis for the appearance of 143 festoons seems to be the downward descent of 144 the tissues superior to a lax ORL and orbicularis 145 muscle against the resistance of the stronger lower 146 border, effectively creating a surface trough 147 (Fig. 2).^{2,3,8,10} The festoon phenomenon can affect 148 any part of the upper or lower eyelid, with 5 distinct 149 150 type of festoons described. They are divided by the 151 level of the orbicularis that they affect (Figs. 3-5): Q9

- 1. Upper eyelid
- 2. Pretarsal
- 3. Preseptal
- 4. Orbital 5. Malar

The outward appearance of this process can differ among individuals and can range from the sagging of individual levels in a cascade of festoons with overlapping folds to the coalescence of layers together, sagging into a single festoon.³ When present in the malar region, a festoon is defined superiorly by the ORL over the previously described prezygomatic area and inferiorly by the stout zygomatico-cutaneous ligament, which is considerably stronger than the ORL.⁸ The ORL is also important because it is the inferior boundary of the inferior orbital fat compartment and provides an area of fixation against which the prolapse of fat can lead to the appearance of eyelid bags and be confused with malar festoons.5,9-11

The focus of treating festoons involves addressing the laxity of the ORL along with redistribution of muscle, skin, and fat within the lid-cheek junction to re-establish a smooth and youthful contour.

EVALUATION

Prior to surgical intervention, a full examination of the periorbital and malar contents and anatomy should be performed. Patients should be evaluated with the head in neutral position, while they are either standing or sitting upright in good lighting. Examination should occur initially with the eyes at neutral gaze followed by upward and downward gaze to evaluate for any vision obstruction.4

During evaluation, as well as preoperative 189 190 marking, the surgeon should manipulate the peri-191 orbital skin with fingers or forceps. This allows for proper diagnosis as to the level of orbicularis 192 193 affected and the amount of tension in the skin. 194 Pinching the festoon (the pinch test) allows a sur-195 geon to judge the composition of the festoon (skin muscle or skin only) (see Fig. 2). A lower lid 196 197 snap test should be performed as well to assure

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Fig. 2. Graphical representation of the pathologic features and different anatomic variations of lower lid festoons. (A) Pure muscle-skin festoon: muscles have gravitated away from orbital septum due to lax skin and muscle creating a simple fold due to descent over the rigid ORL. (B) Muscle-skin festoon with orbital fat and cutaneous dewlap: the orbital septum has sagged into a skin-muscle festoon forming the lining of a pouch. A cutaneous dewlap (skin only) then sags beyond the muscle edge over the ORL. (C) Muscle-skin festoon with suborbicularis oculi fat (SOOF) sagging beyond the edge of the sagging orbicularis muscle over the ORL.

the integrity of the tarsoligamentous complex to determine if a canthoplasty is required. Finally, pa-tients should also be instructed to squinch (the squinch test [ie, tightening and lifting the lower lid]) to determine the integrity of the orbicularis muscle and its relationship to the underlying orbital and suborbicularis fat as well as the laxity of the orbital septum. In cases of lax septum, orbital fat can be seen protruding anteriorly into a separate septal pouch. In these cases, a squinching motion causes orbicularis contraction, which elevates and compresses the fat back into the orbit. It can, therefore, be appreciated how correction of fes-toons will improve the lower eyelid, whereas correction of the lower eyelid alone will not correct the festoon.

SURGICAL PROCEDURE

Currently there is no standard treatment of effective management of malar festoons, a fact that reflects the difficulty and dissatisfaction with repair. Nonsurgical options, including radiofrequency thermoplasty, carbon dioxide laser resurfacing, trichloroacetic acid peels, and the use of dermal fillers, have been reported, all with mixed results.^{4,12} Historically, operations were designed with the intent of maximizing excision of the skinmuscle responsible for the visible appearance of the festoons.^{2,3,13,14} Currently, surgical approaches can be divided into techniques involving direct excision of the affected tissue^{2,3,13,14} versus indirect redraping of the affected soft tissue.^{4,15–18}

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Fig. 3. Classification scheme of orbicularis oculi festoons based on the site and composition of the defect. (A, B) Sites of festoons: A, upper lid; B, pretarsal; C, preseptal; D, orbital; E, malar; and F, cutaneous dewlap (no muscle).

These indirect redraping techniques have in common limited skin excision and aggressive tightening as opposed to excision of the lax orbicularis muscle to optimize results with variations on those themes reported.4,15-18

Direct Excision

Excisional correction procedures have historically been used as a means of festoon correction as a result of the belief that the sagging of muscle resulted in excess muscle and skin that require removal for treatment.

- The procedure begins with a subciliary incision 2 to 3 mm below the lid line followed by creation of a split-level flap consisting of a skin-only flap laterally and a skin-muscle flap medially.
- The lateral skin-only flap is dissected from the orbicularis muscle until the pretarsal orbicularis is reached wherein elevation of the skinmuscle flap is begun using blunt dissection and proceeding downward with wide exposure of the orbital septum. Any identified excess fat is excised off the flaps during this dissection.
- Excision of a portion of the orbicularis muscle is then planned and designed to be perpendicular to the direction of the muscle fibers.

- The muscle is gathered and folded along the proposed myomectomy axis and the optimal pattern (rectangle, trapezoid, triangle, and so forth) is chosen for the myomectomy and marked.
- The muscle is excised layer by layer until only a thin layer of muscle fibers and posterior fascia remains. The remaining muscle and fascia act as a protective layer for the underlying facial nerve branches.
- The cut edges of the orbicularis muscle are then joined with simple and horizontal mattress sutures and the upper border of the orbicularis is anchored to the periosteum or deep fascia of the lateral canthus.
- · Excess skin is excised next in the form of a wedge resection guided by the initial skin markings.
- A trial suture is placed subcutaneously to close the skin wedge, and the tautness of the lid and level of the lid margin are adjusted as necessary.
- The lateral wedge is resected and closure is completed with fine absorbable suture.

Indirect Redraping

More recent recognition of the effect that gravita-tional migration has on the formation of festoons and midface descent has resulted in a paradigm

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Fig. 4. Orbitomalar festoons composed purely of muscle and skin, corrected by extensive subperiosteal dissection, with obliteration of the ORL followed by aggressive tightening of the orbicularis muscle and limited skin excision (see **Fig. 5** for operative views). (*A*, *B*) Preoperative appearance of patient. (*C*, *D*) Postoperative result.

shift that has focused more on enhancing lower lid-cheek shape and contour rather than simple elevation and tissue removal.4,15-18 Where segmental myectomy and myorrhaphy of the orbi-cularis previously dominated treatment plans, now extensive dissection with aggressive redraping of the muscle and limited skin excision are key ele-ments of surgical management and the preferred techniques of the senior authors (SB and SD). Var-iations of these techniques have been reported in the literature and are described.

The extensive dissection necessary to address
festoons involves some form of subperiosteal midface lift to properly correct the gravitation descent
of all involved structures while creating an aesthetically pleasing eyelid and midcheek unit.

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These techniques begin with a subciliary incision followed by creation of either a skin-only or skin-muscle flap. The senior authors' preferred technique is use of a skin-only flap initially, with the amount of elevation based on how much skin excision is planned, followed by a skin-muscle flap.

- Once elevation to the level of the orbital rim is complete, an incision is made in the orbicularis oculi muscle lateral to the lateral canthal angle down to the level of the bone.
- A subperiosteal dissection is then carried inferiorly to at least the inferior border of the festoon and can extend to below and around the zygomaticofacial nerve and vascular complex.
- The ORL is released during this dissection and care is taken to avoid injury to the neurovascular bundle.
- Once the dissection is complete and mobility confirmed, redraping of the soft tissue is performed through a variety of techniques.

SOFT TISSUE REDRAPING

Patipa^{19,20} begins with tightening of the lateral canthus via the use of a canthotomy of 3 mm and cantholysis followed by vertical elevation of the midface via the lateral orbicualris oculi muscle. The muscle and malar fat pad are then sutured to the periosteum from deep to superficial where they



Fig. 5. Festoon correction through indirect redraping. Operative technique (operating room pictures of patient pictured in **Fig. 4**). (*A*) A skin-only flap is developed through a subciliary incision and elevated for 6 to 8 mm. (*B*) An incision is made in the orbicularis oculi muscle down to the level of the orbital rim and a subperiosteal dissection carried inferiorly to the inferior border of the festoon, releasing the ORL while avoiding injury to the neurovascular bundle. (*C*) Muscle and malar fat pad are sutured to the periosteum from deep to superficial elevating the midface and simulating the orbitomalar ligament. (*D*) Lateral canthotomy and cantholysis are performed. (*E*) The orbicularis oculi muscle is pulled above the lateral canthal angle and sutured to the lateral orbital rim periosteum.

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overlap the inferior lateral rim, effectively elevating
the midface and simulating the orbitomalar ligament. Finally, the orbicularis oculi muscle is tightened in a superolateral direction, pulled above
the lateral canthal angle and sutured to the lateral
orbital rim periosteum, which effectively eliminates
the festoon.

Krakauer and colleagues⁴ describe subperios-661 662 teal dissection to the inferior extent of the festoon, 663 followed by periosteotomy of the elevated flap 664 from the deep dissection to the subcutaneous 665 plane. Once the festoon is dissected, they perform 666 a standard tarsal strip procedure, attaching a 667 myocutaneous flap to the lateral orbital wall peri-668 osteum and excise excess muscle, thereby repair-669 ing the festoon.

These procedures are then completed by limitedskin excision as with conventional lower lid bleph-aroplasty, followed by closure.

673 Another variation on the redraping technique 674 uses an extended subperiosteal vertical midface 675 lift to resolve the festoons by freeing cheek tissue 676 from the bone and repositioning the malar 677 septum.¹⁵ In this procedure, extensive subperios-678 teal dissection is performed over the frontal pro-679 cess of the maxilla, along the inferior and lateral 680 orbital rim up to the level of the lateral canthus 681 and over two-thirds of the zygomatic arch through 682 both a subciliary and buccal incision. 683

Elevation of the midface begins by taking a deep bite of soft tissue through the buccal incision at a predetermined fixation point defined by the intersection of a vertical line extending down from the lateral canthus and a transverse line from the lowest aspect of the alar groove at its intersection with the lip.

• Sutures are then advanced up to a short scalp incision by the temporal fossa and fixed into the deep temporal fascia at the desired position.

- A laterally based transposition orbicularis
 A laterally based transposition orbicularis
 muscle flap is then developed and advanced,
 allowing transmission of traction to the lower
 lid without the need for a canthoplasty or
 canthopexy.
 - Redundant lower lid skin is resected and the buccal sulcus closed with interrupted sutures.

703 704 KNOWLEDGE OF COMPLEX ANATOMY

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The surgical correction of lower eyelid festoons
has evolved from simple excision of the offending
structures, skin and orbicularis muscle, to extensive dissection of the soft tissues of the face with
redraping and more limited excisions. Regardless
of the chosen technique, a surgeon must have a

thorough understanding of the complex regional anatomy as well as pathologic features of this hard-to-treat condition prior to undertaking any of the procedures described in this article.

AFTER CARE

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Care after surgical correction of festoons is consistent regardless of technique used. As with most eye surgery, the authors recommend antibiotics ointment twice daily, topical steroid drops for swelling, and cool compresses to minimize swelling. Additionally it is recommended with many of the redraping and canthal tightening procedures to place a frost suture at the time of surgery as another technique to minimize swelling. A 4-0 silk is placed through the lower eyelid margin on in a double-armed fashion and the 2 ends either placed through the brow or simply taped to it for 2 to 4 days. Skin sutures are typically removed after 7 days to minimize scarring.

COMPLICATIONS

Surgical treatment of festoons is associated with few additional complications beyond those typically seen with lower eyelid blepharoplasty. The most common problem associated with surgery is persistent or recurrent festoons.³ Causes include inadequate resection or undermining of skin, failure to release the orbicularis attachments, hyperextensibility of skin and muscle, or inadequate elevation or lift in cases of muscle or skin redraping. Another possible complication is damage to the zygomaticofacial nerve during dissection, which can lead to decreased or absent sensation in the area over the malar prominence. Ultimately, correctly diagnosis is key not only in determining the optimal treatment approach but also in preparing patient expectations.

SUMMARY

The management of patients with festoons is a highly challenging undertaking with potential to drastically alter the appearance of those afflicted. Traditional teaching has focused on excision and tightening of the pathologic muscle with subsequent removal of excess skin. Recognition of the interactions between all subunits of the face has resulted in a recent shift in focus, with the new trend being techniques aimed at redraping the soft tissues with the intent of reproducing a more natural rejuvenation of the lower lid–cheek interface. Where direct excision techniques simply remove the deformed tissue, redraping techniques actually elevate the midface soft tissues and tighten the pathologically lax orbicularis muscle,

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thereby counteracting the downward descent associated with the aging process. The optimal treatment is as yet unclear but seems to be a combination of elevation of soft tissue, tightening of orbicularis muscle, and removal of excess skin and or muscle to properly address all the manifestations of this interesting process.

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