REVIEW

Malar Festoons: Anatomy and Treatment Strategies

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Introduction: *To describe the anatomic basis for malar festoons and mounds and to review the available options for surgical correction.*

Materials and Methods: *A review of relevant literature was performed to identify previously documented corrective measures for malar festoons and mounds.*

Results: *A wide variety of methods exist for reducing malar festoons.*

Discussion: *Each procedure for minimizing festoons has a rationale that addresses one or more anatomic features, but none represents a method that results in universal correction. A multimodality approach may be favorable based on specific patient findings.*

Of the multiple approaches to lower eyelid blepharoplasty and midfacial rejuvenation, few specifically address the region between the lower eyelids and the upper cheeks where malar mounds and festoons may occur with age. An array of surgical procedures has been developed over the years to modify and minimize the appearance of malar mounds and festoons. Some techniques are extensions of other procedures, such as lower eyelid blepharoplasty (Figure 1) and midface lifts, and other attempts to solely address this anatomic finding. Each approach has a different degree of success and popularity.

Figure 1. *Orbicularis sling performed in conjunction with lower blepharoplasty demonstrating effacement of malar festoons with traction.*

Anatomic Considerations

A mound is an elevation, and the term "festoon" describes the hanging of tissues between two points; it was originally used to describe decorative wreaths or garlands. Although there is a distinction between these two entities, they are likely to fall within a complex continuum of anatomic findings. The anatomic basis for involutional changes at the junction between the lower eyelids and the cheeks is multifactorial. A cosmetic surgeon must appreciate a combination of variables to accomplish a successful evaluation and rejuvenation of this area.

Patients may complain of "eyelid bags," a descriptor laypeople use to describe a number of issues. Eyelid bags or palpebral festoons, which occur above the boundary of the inferior orbital rim, should be considered separately from malar festoons, mounds, and bags. Malar mounds and festoons are found inferiorly to the bony rim of the orbit. Furnas[1] has classified the spectrum of mounds and festoons based on anatomic location. He divides these among pretarsal, preseptal, orbital, orbitomalar, and malar, although combinations of multiple sites may be concurrently present, as in a double-bag deformity. Festoons are most commonly an age-related finding (Figure 2a), whereas malar mounds may be seen in any age group and may exhibit a familial inheritance pattern (Figure 2b).

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Figure 2. *Festoons in a 73-year-old man with accompanying facial aging, and malar mounds in a 36-year-old woman.*

Malar mounds and festoons are located at the transition between the lower eyelid and the cheek, sometimes extending to the cheek itself. Laxity of skin and atrophy of underlying soft tissues in this area results in the appearance of a structural descent. The configuration of this apparent downward movement is influenced by underlying retaining ligaments, including the orbitomalar ligament[2] and the zygomatic ligament with its dermal attachments.[3] The orbitomalar ligament (also known as the orbital retaining ligament) attaches from the infraorbital rim to the orbicularis muscle, sending further attachments to the dermis and functioning as a skeletal support structure of the lower eyelid. With age, this ligament tends to attenuate, allowing for orbicularis descent as orbital fat simultaneously protrudes.[4] The zycomaticus ligaments, with skeletal origins adjacent to those of the zygomatic muscles, lie inferiorly and are firmly adherent to the dermis. As the cephalad tissues descend and deflate, they may hang over the dense ligamentous zygomatic attachments, forming a mound or festoon. This anatomic boundary may be clinically apparent after surgery or trauma to the lower eyelids as ecchymosis is often distinctly limited by these ligamentous barriers.

Separation of the orbital septum from the capsulopalpebral fascia with concurrent orbicularis oculi descent and prolapse of orbital fat can result in the outward pouching of tissues above the malar region,[5] contributing to the downward forces influencing malar bags or festoons, sometimes creating a double-bag effect. At the same time, generalized atrophy of periorbital and malar fat can accentuate the loss of youthful contour where the lower eyelid blends with the upper cheek, and the associated muscle and skin may assume a deflated, sagging appearance.[6] The loss of skin elasticity seen with aging also emphasizes these changes.[7]

The substance of malar mounds and festoons contain several possible tissue layers. The adipose accumulations in the malar region consist of subcutaneous fat, suborbicularis oculi fat, and preperiosteal fat.[8] Hypertrophic and/or lax orbicularis oculi muscle can also contribute to a soft-tissue bulge in this area.[9] Malar mounds and festoons may present with an edematous appearance, implying a lymphatic etiology[3] (Figure 3). Excessive accumulations of malar fluid can

Figure 3. *Malar festoon in a patient with unilateral facial lymphedema.*

result in a sponge effect, exacerbated by factors that influence systemic edematous states, such as increased sodium intake. Edematous festoons have also been described as a drug-associated side effect.[10] Additionally, orbicularis oculi tonicity may facilitate lymphatic flow, and loss of muscle tone in this area can result in edematous festoons. This transient phenomenon has been seen after the injection of botulinum toxin type A into the orbicularis muscle.[11] Iatrogenic orbicularis oculi denervation can likewise occur after surgical procedures that violate the pathway of the facial nerve branches to these concentric muscles, resulting in the prolonged presence of an edematous cheek mound.

Skeletal remodeling exerts a deeper structural influence on the presence of malar mounds and festoons. The bony volume loss seen with aging leads to diminishing malar projection and loss of skeletal support for the overlying soft tissues.[12] Soft-tissue sagging and descent therefore ensue when skeletal reduction occurs.

Materials and Methods

Articles in English with anatomic descriptions of malar mounds and festoons and details of corrective procedures were identified from the OVID Medline database (1966–2009). Data were recorded by the primary author using a standardized form. The data abstraction form included fields for year of publication, method of festoon correction, sample size, and reported complications.

Results

A literature search led to the identification of 16 articles meeting designated criteria published from 1906 to 2006 (one article was a republication). All articles described a surgical correction for mounds and/or festoons. Those including case series were presented in a retrospective manner. The most common complications resulting from surgical corrections were ectropion, scar condition, and visible or palpable bulges. These data are summarized in the Table.

Surgical Approaches

Miller[13] described the direct excision of malar festoons in 1907: "To excise the fold well away from the free margin of the lid, the fold is picked up between the thumb and index finger of one hand and is trimmed away with sharp scissors. If the patient is

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Surgical Approaches to Malar Mound and Festoons

Author(s)	Year	Surgical technique	Subjects	Complications
Miller	1906	Direct excision	0	None noted
Furnas	1978	Myocutaneous flap	1	Scar, bulge
Klatsky & Manson	1981	Separate skin and muscle flaps	532	Ectropion, hematoma
Small	1981	Extended myocutaneous flap	24	Ectropion, scar, swelling
Furnas	1993	Split-level flap with myectomy	9	None noted
Rosenberg	1994	Suction lipectomy	2	Skin perforation
Labandter	1995	Myocutaneous flap	51	Bulge
Netscher & Peltier	1995	Direct excision	23	Scar
Byrd	1997	Extended browlift	42	Temporal atrophy, brow weakness
Hoenig et al.	1998	SOOF lift	0	Hematoma, ectropion
Farrior & Kassir	1998	Split-level flap	2	None noted
Roberts	1998	Blepharoplasty and periorbital resurfacing	0	Ectropion
Hamra	1998	Split-level flap	6	None noted
Seckel et al.	2000	Blepharoplasty and periorbital resurfacing	137	Hyperpigmentation, ectropion, milia, erythema
Anastassov & St. Hilaire	2006	Blepharoplasty, subperiosteal midface lift, and SOOF lift	20	Ectropion, edema
Carriquiry et al.	2006	Orbicularis transposition flap	29	Bulge

unduly fleshy, the fatty tissue is freely trimmed away. The parts are then sutured with horsehair or fine silk and a strip of cotton applied and held in place with collodion." This technique includes an external incision on the cheek; therefore, its application is limited because of aesthetic considerations, but it is considered in patients with a functional disturbance such as the inability to read due to visual obstruction. This technique was later readdressed by Netscher and Peltier in 1995.[14]

Another approach used the subciliary, transcutaneous lower eyelid incision. Klatsky and Manson[15] detailed a modification of the traditional lower eyelid blepharoplasty that involved the dissection of separate skin and orbicularis muscle flaps in order to separately manage the components of what they termed "orbicularis festoons" and "secondary bags." In their description, the skin flap is undermined beyond the inferior orbital rim, and the muscle flap extends only to the rim. The orbicularis flap is tightened to create a sling, and skin is then redraped and trimmed. They recognized that lower eyelid ectropion is a risk of this procedure, particularly if there is a lack of lower eyelid support. Farrior and Kassir[16] detailed a modification of this procedure in which the muscle flap extends below the infraorbital rim to the inferior extent of the malar deformity. In addition, the subcutaneous and suborbicularis fat is partially excised, and the remaining subcutaneous tissue is suspended with multiple 5-0 polydioxanone sutures to the periosteum of the infraorbital rim. Farrior and Kassir[16] hypothesized that fat dissection in these layers results in a "favorable fibrosis" that improves the edema sometimes associated with malar mounds and festoons. Alternatively, a myocutaneous flap has been described in which muscle and skin are undermined as a single unit over the zygoma through a subciliary incision. A deep dermal anchoring suture fixes the flap to the periosium lateral to the orbital rim for support.[17] Suspension of an attenuated or elongated orbitomalar ligament has also been suggested as a means of reinforcing the lower eyelid, and this may directly address a fundamental underlying cause of involutional festoons.[18]

The importance of repositioning descended suborbicularis oculi fat (SOOF) has been stressed by Hoenig et al.[4] as a means of restoring the youthful midface convexity and managing malar festoons. This layer of fat, located posteriorly to the orbicularis oculi muscle, is suspended from the arcus marginalis with multiple 4-0 Prolene mattress sutures. Orbicularis and skin flaps are then redraped in an upward direction, with subcutaneous defatting of the skin flap and lateral canthal tightening as needed.[4]

Many address the lower eyelid and midcheek as a part of total facial rejuvenation, as has been advocated by Hamra[19] with the composite face-lift. He suggests repositioning the descended tissues in a superomedial rather than a superolateral direction, thus avoiding the "laterally swept" look. His "zygorbicular approach" also strives to maintain the continuity between the orbicularis and zygomaticus muscles, which may protect the branches of the facial nerve found on their posterior surface.[19] Using a subciliary incision, Hamra's approach releases the arcus marginalis before mobilizing a musculocutaneous flap, in a separate dissection from a deep plane face-lift.[20]

The so-called midface lift, as has been described using a multitude of techniques, is another way to restore the natural contours of the eyelid/cheek region by repositioning, elevating, or suspending the commonly descended malar fat pad. Commonly, the malar fat pad is anchored to the temporalis fascia, providing a superotemporal lift. A subperiosteal dissection may allow for more profound midface repositioning, but it can result in prolonged postoperative edema.[21]

A sagging appearance caused by infraorbital and cheek fat atrophy is often improved with filling techniques. These attempt to efface folds and depressions by restoring volume to the region. Volume restoration can be accomplished via transposition of orbital fat pedicles,[22] autologous fat pearls[23] or aspirated fat grafting,[24] and injectable[25] or solid synthetic implants[26] to name a few. In most cases, the addition of volume alone may provide support to adjacent areas and act to disguise structural descent. The gamut of fillers and implants available can augment the facial framework in any layer, including subperiosteal, supraperiosteal, intramuscular, subcutaneous, and intradermal. The evolving techniques and technologies used for filling are frequently combined with other surgical modalities.

Attempts have been made to modify the fatty component of malar bags with suction lipectomy. Rosenberg[27] described improvement of the "saddlebag deformity" with suctioning in the immediate subdermal plane in combination with blepharoplasty or as a solitary procedure. A compressive postoperative dressing is applied, and the expected soft tissue contraction is exploited to achieve a regional improvement in soft-tissue sagging. This approach does not

address muscular or ligamentous attenuation and is most likely to benefit a subset of patients with primarily a fat and/or fluid collection.

Improvement in the appearance of malar bags has been described with nonincisional approaches such as periorbital resurfacing.[28,29] The tightening effect of the carbon dioxide laser, for example, can act to efface a malar skinfold or to reduce malar prominence. Important variables to consider include the depth and precision of the resurfacing modality and its compatibility with the skin type, texture, and pigmentation of the patient. A potential for scarring, ectropion, and pigmentary aberrations exist with these treatments. Methods of fractional resurfacing have emerged that may reduce the occurrence of complications associated with nonfractional devices. Nonablative radiofrequency has also been used in this area with modest success and fewer of the risks associated with ablative therapy.[29] However, these techniques do not reposition descended structures but act to stimulate contraction and collagen formation. It is unclear how they modify local edema and adipose accumulations.

Discussion

Malar mounds and festoons are often an elusive target of facial rejuvenation plans. Over the years, many approaches have been suggested. Nine approaches are listed here. Combinations of these nine approaches are customized to the specific anatomic findings of each patient, and therein lies the success of the surgical procedure.

1. Direct excision
2. Skin-muscle flap
3. Extended skin-muscle flap
4. Orbital fat reduction or repositioning
5. SOOF lift
6. Midface lift
7. Volume replacement
8. Suction lipectomy
9. Skin resurfacing

For an anatomic finding, some combination of treatment approaches may be indicated such as the following (the approaches combined are listed parenthetically):

- Orbicularis laxity (treatment approaches 1, 2, 3, and 5)
- Prolapsed orbital fat (treatment approaches 2, 3, 4, 5, and 7)
- Malar fat atrophy or descent (treatment approaches 3, 6, 7, and 8)
- Skin laxity (treatment approaches 1, 2, 3, 7, and 9)
- SOOF atrophy/descent (treatment approaches 3, 4, 5, and 7)
- Dependent edema (treatment approaches 3 and 7)
- Bony loss (treatment approach 7)

Clearly, there is no single procedure that remedies all varieties of mounds and festoons. Recurrence may be seen even after the most diligent surgical correction, which can be frustrating for surgeons and patients. In our experience, patients with a flat malar eminence or lack of youthful malar convexity are anatomically predisposed to prolonged postoperative edema and recurrence.

A thorough examination with attention to periocular and midface findings is essential. The clinician must document visual acuity and the presence or absence of dry eyes, Bell's phenomenon, normal blink mechanism, and eyelid malposition. The degree of lower eyelid laxity and presence of canthal dystopia should also be noted when considering if canthal tightening or repositioning is required. Each of the following should then be considered separately: skin tone and quality, dermatochalasis, steatoblepharon, orbicularis laxity and/or hypertrophy, descent of the malar fat pad, regional soft-tissue atrophy, skeletal architecture, degree of globe prominence, and localized aggregations of fat and/or fluid. The exact locations of each abnormality should be recorded with the patient in the seated position. Intimate knowledge of these elements is crucial when planning and discussing treatment options.

There is no singular treatment for malar mounds and festoons. An understanding of the various anatomic elements coupled with technical proficiency are beneficial in achieving satisfactory results. Ultimately, a multifaceted approach may be the best one, that is, concurrent extended lower blepharoplasty with lateral canthoplasty and fractional skin resurfacing. We will surely find that there are more corrective options for malar mounds and festoons as we gain technological strides and further our understanding of this complex facial subunit.

References

1. Furnas DW. Festoons, mounds, and bags of the eyelids and cheek. *Clin Plast Surg*. 1993;20:367–385.

2. Kikkawa DO, Lemke BN, Dortzbach RK. Relations of the superficial musculoaponeurotic system

to the orbit and characterization of the orbitomalar ligament. *Ophthal Plast Reconstr Surg*. 1996;12: 77–88.

3. Mendelson BC, Muzaffar AR, Adams WP. Surgical anatomy of the midcheek and malar mounds. *Plast Reconstr Surg*. 2002;110:885–896.

4. Hoenig JA, Shorr N, Goldberg RA. The versatile SOOF lift in oculoplastic surgery. *Facial Plast Surg Clin North Am*. 1998;6:205–219.

5. Putterman, AM. Baggy eyelids have a single anatomical basis. *Plast Reconstr Surg*. 2006;117: 2504.

6. Butterwick KJ, Lack EA. Facial volume restoration with the fat autograft muscle injection technique. *Dermatol Surg*. 2003;29:1019–1026.

7. Goldberg RA, McCann JD, Fiaschetti D, Ben Simon GJ. What causes eyelid bags? Analysis of 114 consecutive patients. *Plast Reconstr Surg*. 2005;115: 1395–1402.

8. Zide BM. *Surgical Anatomy Around the Orbit: The System of Zones*. Philadelphia, Pa: Lippincott Williams and Wilkins; 2005.

9. Webster PJ, Wulc AE, Moody BR, Dryden RM, Foster JA. Electrosurgical modification of orbicularis oculi hypertrophy. *Ophthal Plast Reconstr Surg*. 2000; 16:407–416.

10. Esmaeli B, Prieto VG, Butler CE, et al. Severe periorbital edema secondary to STI571 (Gleevec). *Cancer*. 2002;95:881–887.

11. Goldman MP. Festoon formation after infraorbital botulinum A toxin: a case report. *Dermatol Surg*. 2003;29:560–561.

12. Shaw RB, Kahn DM. Aging of the midface bony elements: a three-dimensional computed tomographic study. *Plast Reconstr Surg*. 2007;119:675–681.

13. Miller CC. The excision of bag-like folds of skin from the region about the eyes. *Med Brief*. 1906; 34:648.

14. Netscher DT, Peltier M. Ancillary direct excisions in the periorbital and nasolabial regions for facial rejuvenation revisited. *Aesthetic Plast Surg*. 1995;19: 193–196.

15. Klatsky SA, Manson PN. Separate skin and muscle flaps in lower-lid blepharoplasty. *Plast Reconstr Surg*. 1981;67:151–156.

16. Farrior RT, Kassir RR. Management of malar folds in blepharoplasty. *Laryngoscope*. 1998;108: 1659–1663.

17. Small RG. Extended lower eyelid blepharoplasty. *Arch Ophthalmol*. 1981;99:1402–1405.

18. Kahana A, Lucarelli MJ. Adjunctive transcanthotomy lateral suborbicularis fat lift and orbitomalar ligament resuspension in lower eyelid ectropion repair. *Ophthal Plast Reconstr Surg*. 2009;25:1–6.

19. Hamra ST. The zygorbicular dissection in composite rhytidectomy: an ideal midface plane. *Plast Reconstr Surg*. 1998;102:1646–1657.

20. Hamra ST. Composite rhytidectomy. *Plast Reconstr Surg*. 1992;90:1–13.

21. Anastassov GE, St Hillaire H. Periorbital and midfacial rejuvenation via blepharoplasty and subperiosteal midface rhytidectomy. *Int J Oral Maxillofac Surg*. 2006;35:301–311.

22. Goldberg RA, Edelstein C. Shorr N. Fat repositioning in lower blepharoplasty to maintain infraorbital rim contour. *Facial Plast Surg*. 1999;15:225–229.

23. Seiff SR. The fat pearl in ophthalmic plastic surgery: everyone wants to be a donor! *Orbit*. 2002;21: 105–109.

24. Kranendonk S, Obagi S. Autologous fat transfer for periorbital rejuvenation: indications, technique, and complications. *Dermatol Surg*. 2007;33:572–578.

25. Carruthers JD, Carruthers A. Facial sculpting and tissue augmentation. *Dermatol Surg*. 2005;31(11 Pt 2):1604–1612.

26. Flowers RS. Tear trough implants for correction of tear trough deformity. *Clin Plast Surg*. 1993;20: 403–415.

27. Rosenberg GJ. Correction of saddlebag deformity of the lower eyelids by superficial suction lipectomy. *Plast Reconstr Surg*. 1995;96:1061–1065.

28. Roberts TL. Laser blepharoplasty and laser resurfacing of the periorbital area. *Clin Plast Surg*. 1998;25:95–108.

29. Glavas IP, Purewal BK. Noninvasive techniques in periorbital rejuvenation. *Facial Plast Surg*. 2007; 23:162–167.

30. Ruiz-Esparza J. Noninvasive lower eyelid blepharoplasty: a new technique using nonablative radiofrequency on periorbital skin. *Dermatol Surg*. 2004;30:125–129.

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