



The LIDS Have It

New blepharoplasty procedures described here are a major step in the right direction

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Blepharoplasty is moving away from the standard form that almost all practicing surgeons learned in the past—fortunately. The old blepharoplasty involved taking as much skin as could safely be excised from the upper and lower eyelids and removing the underlying fat to flatten any bulges. These techniques actually aggravated the problems associated with aging, leading to a hollow upper eyelid and a flat (or even excavated) lower eyelid with a greater vertical dimension.

Experience has taught that this area must be treated using a more physiological approach. This can be done by understanding the process of aging and by correcting volumetric changes of the eyelid in three dimensions.

Eyelid-Aging Mechanisms

As people age, they lose collagen in the reticular dermis and fat in the hypodermis. This reveals fat bulges that have previously been disguised. It also allows the eyebrows to sag, causing excess skin to appear on the upper eyelid.

At the same time, the effects of sleep habits ultimately become manifest. If a person lies on his or her side with the head resting on a pillow, the pillow compresses the lower side of the face, pushing the lateral eyebrow and the malar fat inferiorly and medially. Many people sleep on their sides every night for prolonged periods, so the skin and deeper tissues are repeatedly stretched. The tiny retinaculae of fibers holding the deeper fat in position either elongate or rupture; eventually, the lateral eyebrow and cheek take up permanently lower positions.

In addition, the envelope of skin that would normally resist this deformation generally becomes photodamaged, so it does not rebound to its youthful position in the morning. It is not surprising that many people wake up with crease lines on the side of the face. Those lines are a surface demonstration of what is also happening on the deep level.

Rejuvenation of the eye area should counter three important causative factors by augmenting the deficient fat in the hypodermis and deeper areas, repositioning the landmarks of the face, and restoring normal skin elasticity.

Patient Examination

The examination should concentrate first on the position of the eyebrow. The surgeon should look at the relative positions of the medial and lateral eyebrow. In addition, it is important to check the position of the eyebrow relative to the eyelid and to notice whether, when the eyebrow is in the ideal anatomical position, there is any excess skin on the upper eyelid.

The medial eyebrow may descend slightly due to continual action of the depressor and corrugator muscles acting on the brow. The lateral eyebrow may be pushed lower by a combination of loss of volume on the temporal area and pressure on the side of the face during sleep.

Next, one should look at the upper eyelid, feeling the thickness of the skin and determining whether the crease of the eyelid is still affixed to the levator muscles of the upper eyelid. Is this crease acceptably symmetrical on both sides? The surgeon should note whether there are bulges of fat and loose skin on the upper medial eyelid above the medial canthus. Creases lateral to and below the lateral canthus should be checked. It is necessary to feel the thickness of the skin and to notice how tightening of the temporal area and lateral eyebrow affects folds.

Looking at the lower eyelid is the next assessment step. Does the eyelid appear to be slightly wider than the lower tarsal plate, or does it extend downward to the inferior orbital margin? It is vital to look for bulges of fat in the lower eyelid, above the inferior orbital margin. Feeling the thickness of the skin will help the surgeon determine whether the elasticity of the skin is normal.

Checking the nasolabial area comes next; is there a tear-trough deformity separating the fat of the malar area from the fat in the nasolabial fold? Lifting the fat of the cheek into a more youthful position will show how much of the fat in the lower eyelid then becomes covered.

These changes are described in two dimensions, but one really needs to consider changes that have occurred in three dimensions. With the loss of fat in the hypodermis and deeper areas, there is an anteroposterior loss that aggravates the ptosis of tissues. This is probably the most ignored and least-understood



Figure 1: This 41-year-old female's upper and lower "blepharoplasty" was performed with fat grafting only. She is shown before and 8 months after the procedure.

aspect of treating the upper and lower eyelids (as well as the face).

New Correction Techniques

Augmentation of the deficient fat in the hypodermis and deeper areas constitutes the "space lift" described by Berman (Figure 1).¹ With loss of thickness in the tissues of the eyebrow and temple, the brow will not only fall downward and medially, but also posteriorly, onto the underlying structures. It will then seem that there is excess skin on the upper eyelid.

This commonly ignored problem should be addressed by filling the deficient area with fine fat grafting. Fat grafts should be done carefully, starting in the eyebrow area and then extending in horizontal rows across the unattached portion of the upper eyelid. Once the brow has been filled anteriorly, the excess skin on the upper eyelid will disappear.

The radical difference in this new blepharoplasty is that skin and fat are not generally excised. In unusual cases with a true excess of inelastic skin, however, no more than a few millimeters of skin should be excised.

Absolutely no fat should be removed from the upper eyelid. Excising fat would aggravate the deficiency that has been unrecognized in traditional blepharoplasty.

Quite often, the lateral part of the eyebrow will be elevated by fat grafting in the temporal area. This will also smooth crow's feet, especially if fat grafting is performed in the malar area at the same time.

The apparent development of fat bulges in the lower eyelid is a result of the deflation of tissues and the exposure of fat pads that are normally hidden. The lower eyelid is, therefore, especially suited to correction of the anterior loss of tissue projection. It makes more sense to build up the tissues with fat grafts and disguise the deficiency over the inferior orbital margin and bulging of the fat in the lower eyelid. Filling the lower eyelid causes excess skin to disappear; however, fine wrinkling is not corrected and requires further intervention using other modern blepharoplasty strategies.

When younger patients present with a tired appearance, along with an early tear-trough deformity, they can be treated by simply performing fat grafting in the malar area and extending it medially to fill the tear-trough deformity.

Fat should be implanted in very tiny beads, in the method described by Coleman,²⁻⁴ to build up a youthful contour. Very small cannulae with 18-gauge to 20-gauge needles should be used to position the fat grafts. Overfilling is not recommended, and the patient should be aware that repeated grafts may be necessary to

achieve optimal rejuvenation. One must be particularly cautious about overfilling in the medial lower eyelid.

By enhancing the projection of the brow in an anterior direction and raising the lateral eyebrow, the surgeon automatically restores the patient's original, youthful contour of the upper eyelid.

By correcting this third, forgotten dimension, the surgeon can achieve true contour restoration specific to the patient's own youthful features. For this

reason, photographs of the patient when young are very useful for planning and for guidance during the procedure.

Reposition Landmarks

Scarless repositioning of the landmarks of the face is a second technique for modern blepharoplasty. A virtually scarless technique⁵ for suture suspension (Figure 2) uses sutures to hold tissues in their more youthful positions.

Generally speaking, a long spinal needle is used to position a suture in the ptotic eyebrow or fat of the cheek; the suture is anchored in the galea or temporalis fascia, respectively. The lift must be slightly, but not excessively, exaggerated, since the tissues always drop a small amount. Prior to placing the sutures, the surgeon should undermine the skin with a simple flat cannula so that the sutures will hold the tissues in their new position after healing.

For the eyebrow, sutures can be used to shape, as well as lift, the brow. If the patient has glabellar frown lines, the same technique can be employed as a surgical alternative to the injection of *Clostridium botulinum* toxin. Sutures are placed 20°



Figure 2: This 41-year-old female is shown before and 1 year after a scarless eyebrow lift to introduce a curved shape to the eyebrows.

30° above horizontal and exert lateral traction on the medial brow, at the same time elevating it to a small degree. Sequential sutures in the same plane add lateral traction to the whole eyebrow, preventing frowning while elevating the eyebrow.

This can also be achieved by using barbed sutures oriented to pull the brow laterally while elevating it. The sutures must extend to the midline to get good traction on the whole eyebrow for complete eradication of glabellar frown lines.

Isolated lateral ptosis of the eyebrow can be corrected with the same scarless technique by elevating only the lateral eyebrow. Lateral sutures are better placed obliquely from the lateral eyebrow to the galea and temporal junctional area. Further tightening of the temple skin can be achieved by using sutures to elevate the temporal hairline.



Figure 3: This 61-year-old patient is shown before and 7 years after lower-eyelid treatment with topical vitamins A and C. Notice the increased elasticity and tightening of the lower-eyelid skin.



Figure 4: This 49-year-old female is shown before and 5 months after her lower eyelids were treated by percutaneous collagen induction.

If marked nasolabial folds have developed in conjunction with tear-trough deformity, they can be corrected through elevation of the malar and cheek fat in conjunction with fat grafting. The cheek fat can be elevated and anchored to the lateral temporal fascia in the same way. It is essential to roughen the tissues on the malar, as well as to dissect the skin bluntly away from the fat to be repositioned. This ensures that the fat will adhere and remain in the new position.

Restore Elasticity

Restoration of normal skin elasticity using skin care and percutaneous collagen induction (PCI) is the third modern blepharoplasty strategy. If the periorbital skin is wrinkled, thin, and photodamaged, it should be prepared prior to surgery using topical applications of

vitamin A, vitamin C, and antioxidants. The most bioavailable forms of these vitamins are the lipid-soluble storage forms, such as retinyl palmitate (for vitamin A) and ascorbyl tetraisoalmitate (for vitamin C). Both are converted to the active acid forms (retinoic acid and ascorbic acid, respectively) in the cytoplasm. Using the lipid-soluble storage forms ensures skin penetration and prevents the side effects from putting harsh acids on the skin, without compromising the clinical result (Figure 3, page 58).⁶

Although skin care is essential for everyone, many patients will gain further benefit from PCI, a new technique that has been described as building up the collagen and elastin in the periorbital skin.⁷ PCI involves repeated, dense pricking of the skin under local anesthesia (Figure 4). The minute trauma sets up an automatic release of growth factors that stimulate the formation of normal, woven collagen (not scar collagen), which thickens the reticular dermis and reduces wrinkles.⁸

It is important to bear in mind that topical nourishment of the skin with vitamins A and C is essential to achieving a good result and maintaining the upregulated collagenesis. PCI is a simple process that can easily be done in a minor-procedure room, and it can be repeated without significant expense. The technique is suitable for all skin types, as it never strips the stratum corneum and simply makes clefts in the skin. It causes no pigmentation problems or demarcation boundaries, allowing one to treat any area without restriction.

With this added treatment, skin should never have to be excised from the lower eyelid, except in those rare cases where the patient has severe laxity and photodamage, with a true excess of a significant amount of skin.

Traditional blepharoplasty fails to address the volumetric losses and spatial deformities of the aged eye area. On the other hand, by replacing volume, restoring the spatial orientation of tissues, and rejuvenating the skin, the surgeon has the best chance of creating a convincingly youthful appearance. There is clearly a trend toward performing less-invasive surgery, and less surgery around the eyes translates into better results. **PSP**

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