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Plastics

Advances in myectomy surgery give better cosmetic results

Negative side effects, healing time also reduced for patients with blepharospasm, hemifacial spasm



Plastics Pearls

By Richard L. Anderson, MD, FACS

Editor's Note: I developed myectomy surgery more than 25 years ago, and this procedure has been confirmed to be the best surgical treatment for blepharospasm. I have performed more than 1,000 myectomy procedures, and while functional results (reduction in spasm) have not changed greatly in the past few years, cosmetic results have improved greatly and negative side effects and healing time have been reduced.

—Richard L. Anderson, MD, FACS

Many important recent advances have taken place in myectomy surgery. Most of these have paralleled the advances in eyelid approaches to rejuvenation of the brows and midface. Gravity displaces the brows, eyelids, and midface inferiorly.

Applying the techniques we have developed in cosmetic surgery of the brows and midface to myectomy surgery has shortened healing time, reduced complications and negative side effects, and improved cosmesis. In addition, we now replace a portion of the tissue removed at myectomy to be used as a free graft. This helps fill volume deficits and irregularities that formerly were a negative side effect of the surgery (Figures 1 and 2).

Upper myectomy

An upper myectomy is now performed through a lid crease blepharoplasty inci-

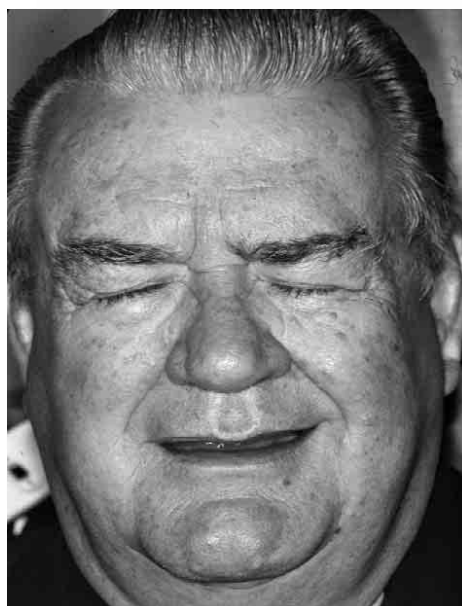


Figure 1 Patient with blepharospasm. (Photos courtesy of Richard L. Anderson, MD, FACS)

sion, similar to cosmetic surgery. The entire orbital, preseptal, and pretarsal orbicularis of the upper lid as well as the large amount of orbicularis at the lateral raphe, including the temporal lower lid orbicularis, can be removed through this incision (Figures 3 to 5).

The corrugator superciliaris, procerus, and depressor superciliaris muscles are removed through the medial portion of the eyelid incision (Figure 6). These furrowing muscles between the brows and at the base of the nose formerly required an incision above the brow or in the hairline to remove them adequately. An eyelid approach was developed to remove these muscles for pa-

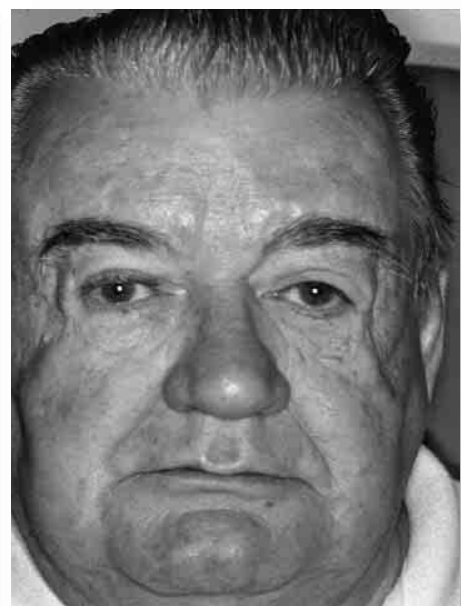


Figure 2 Same patient shown in Figure 1, 1 year after myectomy surgery, without tissue grafts. Note the hollowing, flattening, and tissue irregularities temporal to the eyelids and brow.

tients undergoing cosmetic surgery who have glabellar folds and/or migraine headaches, and we now use this technique to better serve patients undergoing myectomy. Removing the furrowing muscles helps elevate the medial brow as well as reduce spasm.

In the temporal brow, the anterior leaf of the aponeurosis of the frontalis muscle is released and the brow fat is sculpted or mobilized. This technique provides elevation to the temporal brow and is the most common cosmetic brow elevation I perform. Mobilized or sculpted brow fat is used to help fill the volume deficit created by myectomy.

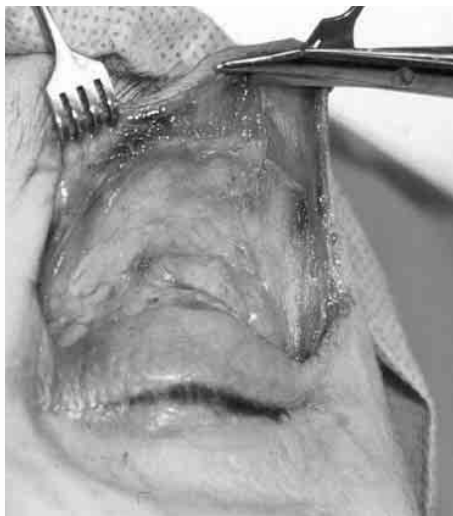


Figure 3 The entire upper eyelid orbicularis muscle is carefully dissected from the overlying skin and underlying tissues via a lid crease blepharoplasty incision.



Figure 4 The entire upper eyelid orbicularis muscle is removed via the lid crease blepharoplasty incision. Meticulous dissection is required to preserve the blood supply to the skin as well as to remove the orbicularis muscle en bloc.



Figure 5 The entire upper eyelid orbicularis muscle is removed en bloc via a lid crease blepharoplasty incision.

Plastics

After removing the temporal orbicularis muscle, direct access to the cheek is afforded. Via the temporal portion of the upper eyelid incision, the suborbicularis oculi fat (SOOF), cheek fat pads, and midface are elevated. 4-0 Vicryl sutures are used to elevate and fix the SOOF and cheek fat pads superiorly after undermining in a suprapariosteal plane. This elevation not only provides the cosmetic benefits of midface lift but also helps fill the volume deficit created temporally from muscle removal in patients undergoing myectomy.

Any remaining volume loss is replaced with a free graft of the myectomy tissue removed (Figure 7). Approximately twice the desired volume of tissue is replaced to allow for graft shrinkage in the first 2 to 4 months (Figure 8). We have carefully studied the first 100 cases of these tissue grafts and no case of muscle reinnervation or spasm has occurred in any graft.

Indications for myectomy

With the common use of botulinum toxin for blepharospasm and other dystonias, patients now present for myectomy for three reasons:

- To correct the cosmetic and functional deformities associated with blepharospasm and increase the time interval between botulinum toxin shots.

These patients may have brow ptosis, eyelid ptosis, dermatochalasis, laxity of the eyelids, and midface droop (drooping and sagging of the brows, eyelids, and midface) (Figure 9). These problems are aggravated by spasms and occur much faster and more frequently in patients with eyelid and facial spasms. These deformities may be aggravated by botulinum toxin rather than corrected. The most satisfied patients are in this group because they have the benefits of both surgery and botulinum toxin. The amount of botulinum toxin used is decreased and the time interval between shots is increased.

- To help correct apraxia of lid opening frequently associated with blepharospasm.

These patients have difficulty opening their eyelids even after the spasms of the eyelids have been reduced by botulinum toxin. They use their brows, forehead, neck, and face to try to help open the eyelids (Figures 10 and 11). After eyelid spasms, a time lag is required before the eyelids will open and the eyelids may again droop closed without obvious spasm.

Myectomy and ptosis repair are the only treatments that provide significant relief for apraxia of lid opening. Botulinum toxin cannot be safely injected in the central portion of the upper eyelid without inducing ptosis. If the orbicularis muscle (squeezing muscle of the eyelid) still has even minimal function in the central upper eyelid, then the levator muscle (elevating muscle of the eyelid) cannot contract and elevate the eyelid in apraxia of lid opening. Removing the upper eyelid orbicularis muscle (myectomy) and tightening the tendon of the levator muscle (ptosis repair) greatly helps most of these patients (Figures 12 to 14).

Frontalis suspension or frontalis sling (placing material from the eyelid to the brow muscle to help raise the eyelid with brow elevation) is a last resort and is only required in approximately 5% of patients with blepharospasm and apraxia of lid opening. See Figure 15.

- True failures of botulinum toxin type A (Botox, Allergan) and botulinum toxin type B (Myobloc, Elan Pharm). When patients fail treatment with botox they seldom respond better to Myobloc.

Other patients require stronger and stronger doses, which last shorter times. True failures of botulinum toxin type A and botulinum toxin type B to reduce squeezing are rare. Most true failures have a combination of the problems described in all three groups.

If neurotoxins provide absolutely no muscle weakening, then these patients require a full myectomy. This is the removal of all squeezing muscles around the eyelids and brow. A full myectomy is a two-

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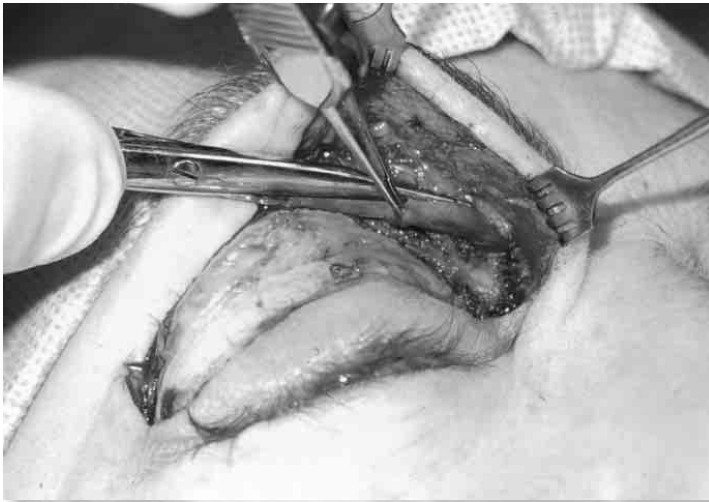


Figure 6 The corrugator superciliaris, depressor superciliaris, and procerus muscles are removed between the brows and the base of the nose via the upper eyelid incision.



Figure 7 Patient shown 2 weeks following myectomy with free grafts to prevent temporal volume loss. Note some fullness lateral to eyelids where grafts were placed.



Figure 8 A patient 1 year following upper and lower myectomy with tissue grafts. Note natural appearance without hollowing or contour defects in upper and lower eyelids and temporal to eyelids.



Figure 10 Patient with blepharospasm and apraxia of lid opening demonstrating eyelid spasms.



Figure 11 Patient shown in Figure 10 after the obvious spasms have stopped. The patient is still unable to open the eyelids. The patient is elevating the brows, posturing the head, and opening the mouth in an attempt to open the eyes.



Figure 12 Meticulous removal of the pretarsal orbicularis muscle in a patient with blepharospasm and apraxia of lid opening. Every fiber of the orbicularis muscle is being removed down the the lid margin. Note the tarsal plate, pretarsal skin, and the base of the lash follicles at the lid margin. The levator aponeurosis under the orbital fat superiorly will be advanced and sutured to the tarsus to elevate the eyelid and correct the ptosis.



Figure 13 Patient with blepharospasm and apraxia of lid opening immediately before myectomy surgery.



Figure 14 Patient shown in Figure 13, 3 months after myectomy, ptosis repair, and tissue grafts.



Figure 9 Patient with longstanding blepharospasm. Note brow ptosis, eyelid ptosis, dermatochalasis, laxity of eyelids and midface, and rhytids and wrinkles. The aging changes of the eyelids and face are aggravated by spasms.

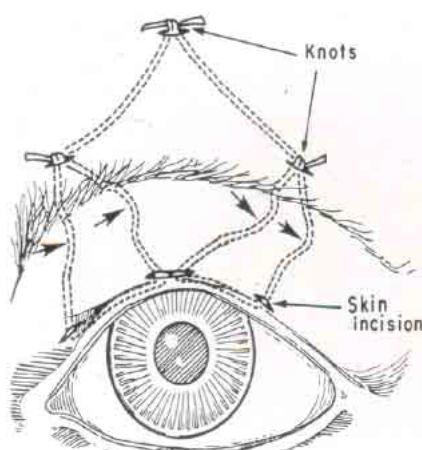


Figure 15 Frontalis suspension or frontalis sling.



Figure 16 Lower myectomy performed via lower lid blepharoplasty incision. The orbicularis muscle removed at lower myectomy has been sutured in place as a graft to help prevent retraction, hollowing, and cosmetic irregularities in the lower eyelids.



Figure 17 Midface lift is performed after muscle is excised at lower myectomy. Cheek fat pad and suborbicularis oculi fat are undermined, elevated, and sutured to periosteum superiorly with a 4-0 Vicryl suture.

staged procedure with the upper-eyelid surgery as previously described. A lower-eyelid myectomy is performed approximately 6 months later after healing of the upper eyelids. We now replace the tissues removed at lower myectomy as a graft to help prevent hollowness, retraction, and irregularities in the lower eyelids (Figure 16). Midface lift and lateral canthopexy is also combined with lower myectomy to help prevent lower-lid retraction and midface sag and help fill the volume deficit (Figure 17).

The same myectomy operation described for blepharospasm is also useful for hemifacial spasm (spasms of only one side of the face). A blepharoplasty to remove the excess tissues on the normal side is suggested for symmetry.

Recent advances in myectomy surgery have greatly improved the cosmesis and reduced the negative side effects and heal-

ing time. Today's patients desire, deserve, and demand good functional and cosmetic results. Our recent advances in myectomy surgery have made this operation not only acceptable but desirable for patients and physicians. **OT**

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