

# The Endoscopic Brow Lift



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## KEYWORDS

• Endoscopic brow lift • Brow ptosis • Forehead rejuvenation • Brow-lift fixation • Brow asymmetry correction

## KEY POINTS

- The endoscopic brow lift is most ideally suited to the patient exhibiting brow ptosis, redundant forehead/temporal skin, and a normal to short hairline.
- Specialized instruments are required to perform an endoscopic brow lift.
- Preoperative marking is designed to elevate the maximal arch of the brow superiorly and slightly medially. The temporal flap is elevated posterior superiorly along a vector from ala to lateral canthus.
- The endoscope is only used to visualize the dissection of the supraorbital and zygomaticotemporal bundles, and the periosteal release and any modifications of the muscles of facial expression.
- Most long-term complications of the endoscopic brow-lift procedure are related to inadequate periosteal release and fixation or utilization of improper vectors of pull and aggressive myotomy.

## Brow lift general considerations

Various brow-lifting techniques have been described that can be used to modify the upper facial third. The endoscopic brow-lift procedure primarily provides the ability to elevate the brows and flatten forehead/temporal skin that is ptotic and redundant. Secondarily, correction of minor asymmetries in brow height, modification of the muscles of upper facial expression, and elevation of the hairline with elongation of the upper facial third can also be accomplished to some degree if desired. Although these same modifications can be achieved with either a coronal or a trichophytic brow-lift technique, the endoscopic approach has the advantage of smaller incision and scar load and improved patient acceptance.

## Indications

Browptosis, secondary to aging, trauma, congenital deformity  
Pseudo blepharoptosis, secondary to brow ptosis  
Brow height and shape asymmetry  
Redundant forehead skin with deep rhytids and furrows in the glabella/nasal radix, and the horizontal plane of the forehead  
Short forehead/upper facial third

Disclosures: None.

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## Contraindications

Lagophthalmos: incompetent lid seal at rest.

## Relative contraindications

High forehead/elongated upper facial third  
Concurrent upper blepharoplasty  
History of symptomatic dry eyes accompanied by incompetent lid seal with simulated brow lift  
Need for bony supra orbital rim recontouring

## Evaluation and diagnosis

Evaluation of the potential endoscopic brow-lift patient should include a history and physical examination with particular emphasis on any history of dry eye symptoms or ocular disturbances such as lid ptosis, canthal laxity, and visual field defects. Patients who present with complaints of upper eyelid heaviness but also suffer from dry eye or lid seal abnormalities, and have concurrent brow ptosis, often tolerate a brow lift better to alleviate their cosmetic concerns than an upper blepharoplasty.<sup>1</sup>

## Brow ptosis

The physical diagnosis of brow ptosis is made based on the position of the inferior aspect of the brow to the supraorbital rim. Male and female normative values for brow height should be considered (Fig. 1), but often it is just as useful to have the patient look in a full face mirror and manually simulate the potential brow elevation.<sup>2,3</sup> Some patients may prefer a high arching brow, while others may not like the appearance of having their brow elevated much past the supraorbital rim.



**Fig. 1** Preoperative measurements guide treatment planning. Male brow describes an arc that typically follows at or 0 to 2 mm above the supraorbital rim with uniform upper-lid-to-brow distance; women display variable lid-to-brow distance with a lateral arch that may be 10 mm above the rim.

Brow-lifting simulation allows the surgeon to assess what the patient's internal goals for the surgery might be and if they are achievable. In addition, brow-lift simulation aids in determining if the patient is best served by a brow lift versus upper blepharoplasty, versus combined/staged brow lift and upper blepharoplasty. In patients with dry eye and lid seal abnormalities, the simulated brow lift allows the surgeon to assess if the planned brow lift will create lagophthalmos that would not be tolerated. The interbrow distance, brow shape and asymmetries, and degree of plucking should also be noted.

### Forehead/temporal redundancy

Forehead, glabellar, and temporal skin redundancy and rhytids should also be assessed. Patients with heavy redundancy often see remarkable rejuvenation of the forehead after brow lift in this regard. It is important to distinguish true upper lid dermatochalasis from pseudo dermatochalasis, or as is often seen, assess the degree of the presence of both diagnoses. Prominent pseudo dermatochalasis often is associated with a visual field defect in the upper outer quadrant. If documentation of this is required for insurance purposes, referral to an optometrist is recommended. If residual upper lid dermatochalasis is noted with a simulated brow lift, it is important to discuss this with the patient and consider a concurrent or staged upper blepharoplasty if optimal correction is desired.

### Hairline

The patient's hairline relative to their vertical facial thirds should be assessed along with any evidence of male- or female-pattern hair loss. As the endoscopic technique for brow lifting tends to visually elongate the upper facial third, any patient with a high hairline that is considering a brow lift should be offered a trichophytic hairline-lowering approach as an option.

### Cosmetic botulinum toxin therapy

The patient should also be asked if they use cosmetic botulinum toxin therapy for the upper facial third. These patients often are not able to elevate their brows and may complain of brow heaviness. Although there are endoscopic techniques for reducing muscle hyperactivity via myotomies, the author always recommends to the patient that a brow lift may reduce the need for botulinum toxin therapy, but that it is

often still helpful in the period after brow lift. For the non-botulinum-toxin-treated patient, the degree of hyperactivity of the frontalis, corrugators/procerus, and orbicularis oculi should be assessed. In patients that exhibit a strong depressor habit (scowling, frowning, and squinting), the author recommends botulinum toxin therapy to reduce muscle activity. Optimally, this is performed at least 7 days before surgery.<sup>4,5</sup>

### Skin

The surgeon should also assess for the presence of rhytids in the relaxed forehead/temple. The Glogau wrinkle score is a useful scale, but many other wrinkle scoring techniques have also been described. The patient should be aware that fine rhytids are best treated with a skin resurfacing or dermal tightening modality.

### Evaluation key points

1. The endoscopic brow lift is most ideally suited to the patient exhibiting brow ptosis, redundant forehead/temporal skin, and a normal to short hairline.
2. Brow-lift simulation allows the patient and surgeon to better communicate about desired results and the possible need for upper eyelid surgery.
3. Textural and fine rhytid changes in the forehead skin are best treated with other modalities.

### Clinical technique

#### Armamentarium

The endoscopic brow-lifting technique requires a special armamentarium that is not required for most open approaches: specifically, a 5-mm 30° rigid endoscope with retractor/cowling and a variety of curved endoscopic dissectors, scissors, and electrocautery (Fig. 2). The surgeon must also consider what fixation method should be used to produce a predictable result not prone to relapse. Multiple options exist, including suture fixation to screws, plates, and bone tunnels. Resorbable fixation devices are also available that engage both the periosteum and the underlying bone.<sup>1</sup>

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