

Direct K-Wire Fixation Technique During Endoscopic Brow Lift

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Abstract. Endoscopic brow lift has now become a well-established procedure for restoring a youthful brow. Multiple techniques have been described for fixation of the scalp; however, these methods do not allow for direct positioning of the brow. A simple method is described that establishes precise and direct brow fixation using K-wires. Twelve female patients underwent direct fixation of the brow with one or more K-wires to the supraorbital rim. No complications occurred as a result of this technique. Direct brow fixation with K-wires appears to be a simple effective technique for precise restoration of brow position.

Key words: Endoscopic brow lift—K-Wire

Twelve female patients underwent endoscopic brow lifting using the direct K-wire fixation method for correction of brow ptosis. A subperiosteal approach was employed for the anterior dissection using the standard endoscopic techniques. The scalp and forehead were extensively mobilized, with complete release of the arcus marginalis. The temporal dissection was then completed, with elevation of the line of fusion down to the lateral canthus. A 2-0 Prolene was used to suture the temporo-parietal fascia of the anterior flap to the deep temporal fascia superiorly and laterally. Following this, the brow

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Fig. 1. Postoperative day 3. Note the position of the K-wires.

Fig. 2. Postoperative day 3. Note the position of the K-wires.

Fig. 3. A 0.035 K-wire with a 16-gauge needle as a tissue protector.



Fig. 4. A Preoperative. B Three months postoperative after endoscopic brow lift.



Fig. 5. A Preoperative. B Three months postoperative after endoscopic brow lift, upper blepharoplasty, and CO₂ laser of lower lids.

was pulled superiorly and laterally in the most aesthetic position, then overcorrected by 3–4 mm. One or more 0.035 standard metal K-wires were used to fix the brow percutaneously to the supraorbital rim at an average of 28–29 mm from midpupil to superior brow (Figs. 1 and 2). A 16-gauge needle was used as a tissue protector (Fig. 3). The depth of penetration of the K-wire was limited to a 4-mm purchase. The K-wire was placed at the superior aspect of the apex of the brow. Another K-wire was used in selected cases to adjust the medial aspect of the brow. Following this, another K-wire was placed in the temporal area to relieve tension from the brow K-wire.

Results

The follow-up was for between 6 and 14 months; however, all patients expressed great satisfaction with the

repositioned brow (Figs. 4A, B and 5A, B). Transient swelling, orbital ecchymosis, and forehead hypoesthesia were seen in most patients. These conditions were all minimal and resolved within 2 weeks of the procedure. No complications were recorded that were directly related to the K-wire placements, i.e., brow alopecia or visible scars, etc. At a minimum of 6 months of follow-up, the average brow position was 24 mm above midpupil. The position and shape of the eyebrows were aesthetically superior to those with previously attempted techniques.

Discussion

Endoscopic brow lifting has become an acceptable and reliable alternative to the conventional technique or

transcoronal browpexy. The most effective method for fixation during endoscopic brow lifting still remains in question. Multiple fixation methods for brow elevation have been described [1–13]. These options include autogenous techniques with lateral scalp suspension sutures, scalp excision, galea plication, bolster scalp suture, and cortical tunnel fixation [1,2,9,13]. Exogenous fixation methods have also been described including internal or external screws, as well as plate and Mytek anchor fixation [12]. The use of standard or PDS K-wires has been reported previously in which K-wires are placed 1.0–2.0 cm posterior to each paramedian scalp access incision [17,18]. Only a single article has been published describing direct fixation of the brow. This was performed by Pakkenen et al., using biodegradable poly-L-lactic acid tachs [19]. An excellent review of fixation methods was recently published by Rohrich et al. [20]. Although ingenious, those methods do not allow a precise elevation of the brow in a lateral vector and can often be quite cumbersome.

Our method using K-wire fixation to reposition the brow directly is a simple effective technique that can be used in conjunction with the deep temporal suture technique. This allows the eyebrow to be precisely positioned in a more lateral position. There is no limitation to the degree or direction of pull on the brow, however, we have found an overcorrection at the time of surgery of 3–4 mm to be optimal. This method completes the endoscopic brow lift as a procedure without its previous limitations. The K-wires are relatively inexpensive, costing approximately \$2.50 a piece.

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