

Title: Mini-invasive correction of eyelid ptosis

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1. Introduction:

The main aim of this study is to evaluate the results of a mini-invasive surgical technique for correcting eyelid ptosis. This technique was described by Shimizu (2010) and has been used in other centers since 2012.

2. Preoperative evaluation:

2.1. Degree of eyelid ptosis

The upper eyelid position is assessed by measuring the distance between the lower part of the eyelid and the lower part of the pupil in millimeters. Normal distance is approximately 10-15 mm.

2.2. Levator muscle function

The levator function is an assessment of the efficacy of the levator muscle as an eyelid retractor. The levator function is measured in millimeters, as the excursion of the upper eyelid from downward gaze to upward gaze with the frontalis muscle immobilized. The normal function is approximately 15 mm.

3. Anesthesia

This mini-invasive surgical procedure may be performed with minimal patient discomfort under local anesthesia consisting of 1% trimecaine with 1:100000 U of epinephrine and conjunctival anesthesia consisting of three drops of Benoxi solution.

4. Surgical technique To achieve good to excellent results with this mini-invasive technique, it is vital to conduct a preoperative evaluation and recruit only appropriate patients. Patients with mild (2 mm) ptosis and moderate (4 mm) ptosis with good levator function (10 mm) are suitable.

Step 1:

A sterile marking pen is used to mark the skin incision, which also indicates the location of the suspension sutures. A small amount (0.2 ml) of local anesthetic is injected below the skin. A surgical blade is used to make a minor skin incision (less than 1 mm) along the surgical markings.

Step 2:

The upper eyelid is turned inside out and 5/0 nylon suture is placed at the upper margin of the central part of the tarsus. This suture provides exposure to the fornix of the superior conjunctiva. A 6/0 nylon suture is introduced into the upper eyelid through the conjunctiva; the levator palpebrae superioris muscle is plicated and shortened; and a nylon suture is placed through the tarsus into the skin incisions. The knot of the suture is buried inside a minor slit in the upper eyelid.

Step 3:

At least two sutures are placed in the eyelid and antiphlogistic ointment is placed in the eye.

Evaluation: The surgery was performed in 30 patients with unilateral or bilateral acquired blepharoptosis. All patients were examined preoperatively by the same physician who performed the surgery. We reviewed medical records and collected examination findings

including degree of ptosis, function of levator muscle, operation time, need for revision surgery, patient satisfaction with results, and pain during surgery.

Results: The study included 45 eyelids of 30 patients with mild or moderate degrees of ptosis from November 1, 2012, through September 30, 2014. The mean patient age was 48 years (range 20-71 years); there were 18 women and 12 men. Fifteen patients underwent bilateral ptosis repair and 15 patients had unilateral ptosis repair. The mean operation time was 25 minutes for unilateral operations and 45 minutes for bilateral operations. We achieved 40% excellent results, 50% good results, and 10% poor results. Three patients underwent revision surgery, of which two patients underwent this technique again and one patient had another type of operation.

Conclusion: The main advantages of the minimally invasive technique over traditional ptosis repair include a shorter recovery period and reduced hematoma and tissue edema. The technique spares tissue and preserves anatomic structures, and is very well tolerated by patients. The main advantages for the surgeon are the short operation time and easy technique. We are very satisfied with this new type of operation, which is effective and safe and enables excellent results.

References:

1. Shimizu Y: A new non-incisional correction method for blepharoptosis
2. Lucarelli MJ: Small-incision external levator repair, technique and early results
3. Anderson RL: Aponeurotic ptosis surgery