

Microincision Aponeurotic Ptosis Surgery of Upper Lid

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ABSTRACT

The paper is a prospective study of 23 lids of 20 patients with upper lid aponeurotic ptosis operated using microincision technique in period 2005-2008. There were 7 males and 13 females. Age of the patients was 28–83 years (y), average 61±17 y, for female 63±13.4 y and for male 61±19 y. Inclusion criteria were: aponeurotic upper lid ptosis more than 2 mm, no other lid abnormalities, minimal dermatochalasis, no previous or concomitant lid surgery. The procedure was performed in local anesthesia through 10 mm cut. Aponeurosis was fixated to the tarsal plate with two sutures. Success was considered if operated lid height differed up to 0.5 mm of the other eye and margin-to-reflex distance was 2–4 mm in primary position. Postoperative results regarding contour, skin crease and lash position were good in all patients. Regarding height, 19/23 (83%) met criteria of 0.5 mm of the other eye and MRD 2–4 mm. In one bilateral procedure there was an asymmetry of 1 mm. Three patients with unilateral procedure had at least 1mm asymmetry comparing to the other eye. Reoperation was necessary in two bilateral cases. Lid fold was symmetrical only in 7 patients (35%). The rest had slight to gross lid fold asymmetry. Complications were scarce, in early postoperative period there was hematoma in two patients lasting up to three weeks. Late failure was noticed in two cases 6 and 8 months postoperatively. Advantages are: less anesthetic results in less decreased levator function and more accurate assessment of eyelid position intraoperatively, less distortion of the lid due to less bleeding and edema, shorter operation time, less scarring and shortened recovery time. However it can be used only in selective cases.

Key words: blepharoptosis, lid surgery, microincision

Introduction

Surgery of upper lid aponeurotic ptosis has been evolving since its introduction by Jones et al in 1975¹. Lucarelli and Lemke² decreased eyelid crease incision from standard 20–22 mm to 8 mm and used only one 5–0 nylon suture for aponeurosis fixation achieving satisfactory results. Small-incision, minimal dissection procedure (SIMD), published by Frueh et al. in 2004³, was performed through a lid crease incision of 8–10 mm, tissues are minimally dissected into layers and one permanent single-armed 6–0 suture is put at the aponeurosis as a blind pass. According to available literature, advantages of small-incision aponeurotic ptosis surgery are manyfold^{2–3}: less anesthetic with less decreased levator function, more accurate assessment of eyelid position intraoperatively, less bleeding and edema, shorter operation

time, avoiding undesirable cutaneous scarring and shortened recovery time.

In 2005 we have started prospective study of patients undergoing microincision ptosis surgery. The paper presents our experience until February 2008, although our study goes on.

Material and Methods

Microincision aponeurotic ptosis surgery was performed on 23 lids of 20 patients at our Department in period from 2005–2008. 17 patients had unilateral and three bilateral aponeurotic ptosis. Seven were males (6 unilateral/1 bilateral) and 13 females (11 unilateral/2 bilate-



Fig. 1. 72-year-old female with right upper lid aponeurotic ptosis, preoperatively.



Fig. 1a. One week postoperatively, note hypocorrection of the right upper lid.



Fig. 2. 48-year-old female with left upper lid aponeurotic ptosis after long lasting lid edema, preoperatively.



Fig. 2a. One year postoperatively.

ral). Inclusion criteria for the patients were: aponeurotic upper lid ptosis more than 2 mm, no other lid abnormalities (horizontal laxity or tarsal instability in floppy eyelid syndrome), minimal dermatochalasis, no previous or concomitant surgery. Operation procedure: in supine position vertical line was drawn on the upper lid 1mm medial to the center of the pupil. The second line went perpendicular to the first one horizontally at the height of the other eye skin crease or in bilateral cases at 7–10 mm above lashes, in length of 10 mm. Local anesthesia was achieved with 0.6 ml of lidocaine 2% with 1:200,000 units of epinephrine applied subcutaneously with the tip of the needle bent to be parallel to the skin. Cut with 15 No blade was done at the drawn horizontal line in length of 10 mm, straight to the tarsal plate. The anterior surface of upper 4 mm of tarsus was cleaned followed by sharp dissection of aponeurosis from the palpebral orbicularis muscle up to the height of 15 mm with spring scissors. Septum was opened vertically and aponeurosis exposed. Absorbable 6–0 double-armed suture was placed first at tarsal plate horizontally 3 mm beneath the upper margin of tarsal plate and 1 mm medial to the center of pupil. Each needle was then passed through healthy looking aponeurosis and tied with a slip knot. The lid height and curve were checked with lights off. Necessary corrections were made only by changing the height of needles passing the aponeurosis without going out of tarsal plate⁹.

When satisfactory lid height and contour were achieved, the first knot was tied and the second, 6–0 nylon, suture was placed 1 mm lateral to the absorbable suture in the same manner. Skin crease was restored with skin-aponeurosis-skin single 6–0 absorbable suture. The eye was closed with Frost suture. Cold compresses were applied four times for 5 minutes in three postoperative days.

Success was considered if operated lid height was 0.5 mm of the other eye and margin-to-reflex (MRD) distance was 2–4 mm in primary position. Lid height, lid contour, lid fold, skin crease position and lash position were analysed. Photo was taken preoperatively and then postoperatively in 7 days, 3–6 months and then yearly, maximally up to three years.

Results

Age of the patients was 28–83 y, average 61±17 y, for female 63±13.4 y and for male 61±19 y. Postoperatively, lid height met criteria of 0.5 mm of the other eye and MRD 2–4 mm in 19/23 (83%) patients. In one bilateral procedure there was an asymmetry of 1 mm (MRD 3/4 mm). Three patients with unilateral procedure had asymmetry comparing to the other eye: 1 mm in two and 2 mm in one patients (Figure 1 and 1a). Lid contour, skin crease and lash position were good in all patients (Figure 2, 2a). Lid fold was symmetrical only in 7 patients (35%).



Fig. 3. 28-year-old female with left upper lid aponeurotic ptosis after eye irradiation due to irideal melanoma, preoperatively.



Fig. 3a. Two years postoperatively, note slight lid fold asymmetry.

The rest had slight to gross lid fold asymmetry (Figure 3, 3a). Blepharoplasty was performed in 5 patients with lid fold asymmetry who insisted on cosmetic appearance correction. Late results (after first three months) were: the reoperation was performed in two bilateral cases: one lid fell in 6 (very high s/c of 82-year-old lady) and 8 months period (54-year-old contact lens wearer).

Complications were scarce. In early postoperative period there was hematoma in two patients lasting up to three weeks (Aspirin tablets regular users). Late failure was noticed in two patients, lid fell in 6 and 8 months postoperatively, requiring reoperation.

Discussion

Minimally invasive surgery is becoming a general trend in ophthalmology: in cataract surgery¹⁰, vitreoretinal¹¹ as well as oculoplastic surgery. Less tissue damage leads to shorter recovery time. After process of learning it also ensures shorter operation time. In three years that we had started our prospective study of microincision aponeurotic ptosis surgery we have made some modifications to already described procedures²⁻⁸: vertical line is drawn 1 mm medial to the centre of the pupil, horizontal line goes perpendicularly to it in the length of 10 mm, aponeurosis is sharply dissected from orbicularis muscle with spring scissors, septum is opened vertically to expose aponeurosis, two sutures are used to fixate aponeurosis and finally skin crease is restored with single absorbable suture. Vertical line drawn 1 mm medial to the centre of the pupil ensures good lid contour postoperatively. Horizontal line perpendicular to it is put in unilateral cases at the height of the other lid skin crease

or in bilateral cases 7–10 mm above lashes (average 8 mm) depending on the lid appearance in photos of the patients taken prior to the lid ptosis. Skin crease is always restored by a single absorbable suture at the end of the procedure⁹. Sharp dissection of the aponeurosis is mandatory since blunt force may enhance aponeurosis stretching and/or dehiscence¹². Septum is always opened vertically not horizontally, that is of importance especially in cases of poor visibility or in beginner's hands to ensure that even if aponeurosis is cut instead of septum no permanent harm will be done. After disclosure of aponeurosis first placed is double-armed 6-0 absorbable suture. Two arms of the suture enable us that in the process of correcting the lid height and contour there is no need to go out of the tarsal plate just out of the aponeurosis itself. The second suture is permanent to prevent the late failure¹³. The advantages of microincision aponeurotic ptosis surgery are: less anesthetic results in less decreased levator function and more accurate assessment of eyelid position intraoperatively, less distortion of the lid due to less bleeding and edema, shorter operation time (in average 15–20 minutes vs. 60 minutes in classic surgery), less scarring and shortened recovery time. The main disadvantage is that it can be used only in selective cases. Namely, there should be no other lid abnormalities, previous or concomitant surgery, only minimal dermatochalasis can be present and there is no possibility of concomitant intraoperative blepharoplasty. In majority of our patients there was some degree of lid fold asymmetry that in certain patients required additional blepharoplasty. And finally, there is less possibility of teaching lid anatomy and general principles of aponeurosis ptosis surgery.

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MIKROINCIZIJSKA OPERACIJA APONEUROTSKE PTOZE GORNJE VJEDE

SAŽETAK

Rad je prospektivna studija 20 pacijenata (23 vjeđe) s aponeurotskom ptozom gornje vjeđe koji su operirani mikroincizijskom tehnikom u periodu od 2005. do 2008. godine. Bilo je 7 muškaraca i 13 žena. Raspon dobi pacijenata je bio od 28–83 godina (g), prosjek 61 ± 17 g, za žene $63 \pm 13,4$ g i muškarce 61 ± 19 g. Kriteriji za uključivanje su: aponeurotska ptoza gornje vjeđe više od 2 mm, vjeđe bez drugih anomalija, prethodnih ili dodatnih operacija, te minimalna dermatohalaza. Zahvat je učinjen u lokalnoj anesteziji kroz rez od 10 mm. Aponeuroza je fiksirana za tarsus s dva šava. Uspjehom je smatrana visina vjeđe u odnosu na drugo oko do 0,5 mm razlike i udaljenost od ruba vjeđe do rožničnog refleksa 2–4 mm u primarnoj poziciji. Postoperativno su kontura vjeđe, kožna brazda i položaj trepavica bili uredni u svih pacijenata. Visina vjeđe je kod 19/23 (83%) pacijenata bila unutar gore navedenih kriterija. Kod jednog pacijenta s bilateralnom ptozom, te kod tri s unilateranom ptozom zabilježena je asimetrija od najmanje 1 mm. Reoperacija je bila potrebna kod dvoje pacijenata s bilateralnom ptozom. Vjedni kožni nabor je simetričan samo u sedmero pacijenata (35%), dok je kod ostalih bila blaga do izrazita asimetrija. Komplikacije su rijetke: u ranom poslijeoperacijskom periodu dvoje pacijenata je imalo hematom vjeđe koji je trajao tri tjedna. Kasni pad vjeđe je zabilježen u dvoje pacijenata, 6 i 8 mjeseci poslijeoperacijski. Prednosti mikroincizijske operacije ptoze su: manje anesthetika rezultira bolje održanom funkcijom mišića podizača vjeđe i boljom intraoperativnom procjenom položaja vjeđe, manje promijenjeni odnosi unutar vjeđe zbog manje edema i krvarenja, skraćeno vrijeme operacije, manji ožiljak vjeđe i kraće vrijeme poslijeoperacijskog oporavka. Međutim, može se koristiti samo u određenim slučajevima.