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ROYAL MAXIM PALACE KEMPINSKI, CAIRO



**Recent modified technique of levator muscle
tucking in patient with blepharoptosis**



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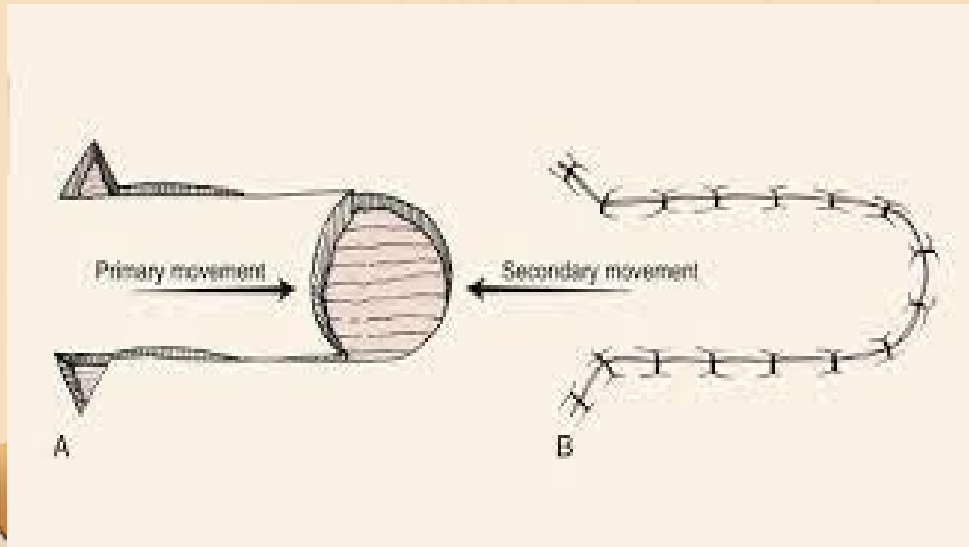
Tucking



Meaning :fold , turn typically, one of several parallel folds put in a material for shortening, tightening,

Advancement

promotion or elevation to a higher rank or position



Shorten

Shorten : means cut : trim or reduce the length of by using a sharp implement.



Levator muscle
tucking

Levator muscle
advancement

Levator muscle
shortening or
Resection

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Disadvantage

Levator muscle resection

- 1- Disturbs the normal anatomy.
- 2- The dissection between the levator–Muller's muscles complex and the conjunctiva leads to hematoma, prolonged edema, and conjunctival prolapse.
- 3- Success rate 65-99%

Levator muscle advancement

The Muller's muscle suffers denervation atrophy after being loosened and shows poor sympathetic reactivity [8].

Disadvantage

Plication of the levator muscle

The high rate of recurrence due to the weak adhesion between the contact surface of the levator muscle and the tarsus

Muller's muscle-levator aponeurosis plication and conjunctival resection (MMCR)

Increases dry eye symptoms and signs also an increase in aqueous tear-deficient (ATD) dry eye is noted due to the conjunctival gland-destruction during the procedure of ptosis surgery

Recent modified technique for levator muscle tucking in blepharoptosis surgery

Aim

to introduce a new modification on the classic technique of levator muscle tucking for correction of mild to moderate blepharoptosis and to evaluate its functional and aesthetic outcome.

Methods



Ethical Committee

The study followed the tenets of the Declaration of Helsinki on Ethical Principles for Medical Research involving Human and was approved by the Ethics Committee of Ain Shams University, Cairo, Egypt (FMASU R291/2022/2023, protocol code R291, Clinical Trials. gov, number: NCT04883853)

Inclusion criteria

The study included 180 consecutive patients with mild to moderate blepharoptosis [mild ptosis ≤ 2 mm and moderate ptosis (3mm)] with good levator function (≥ 8 mm) according to Beard and Sullivan's classification [6]

Exclusion criteria

Patients with severe congenital, recurrent, mechanical, traumatic ptosis, third nerve palsy, Marcus–Gunn jaw winking syndrome, absent Bell's phenomenon, or associated ophthalmoplegia

Surgical Technique

The level of levator tucking and the amount of spindle excision from the levator aponeurosis based on the levator function



Degree of ptosis	Level of tucking	Levator aponeurosis spindle excision dimensions (from levator insertion on the anterior tarsal surface) width x depth
Very good levator function (12–15 mm) Ptosis 2 mm 3mm 4 mm	9mm 10mm 12mm	1/2 x 1/2 mm 1/2 x 1/2 mm 1 x 1/2 mm
Good levator function (8-11 mm) 2mm 3mm	13mm 15mm	1 x 1/2 mm 2 × 1 mm

Surgical Technique



A



B



C



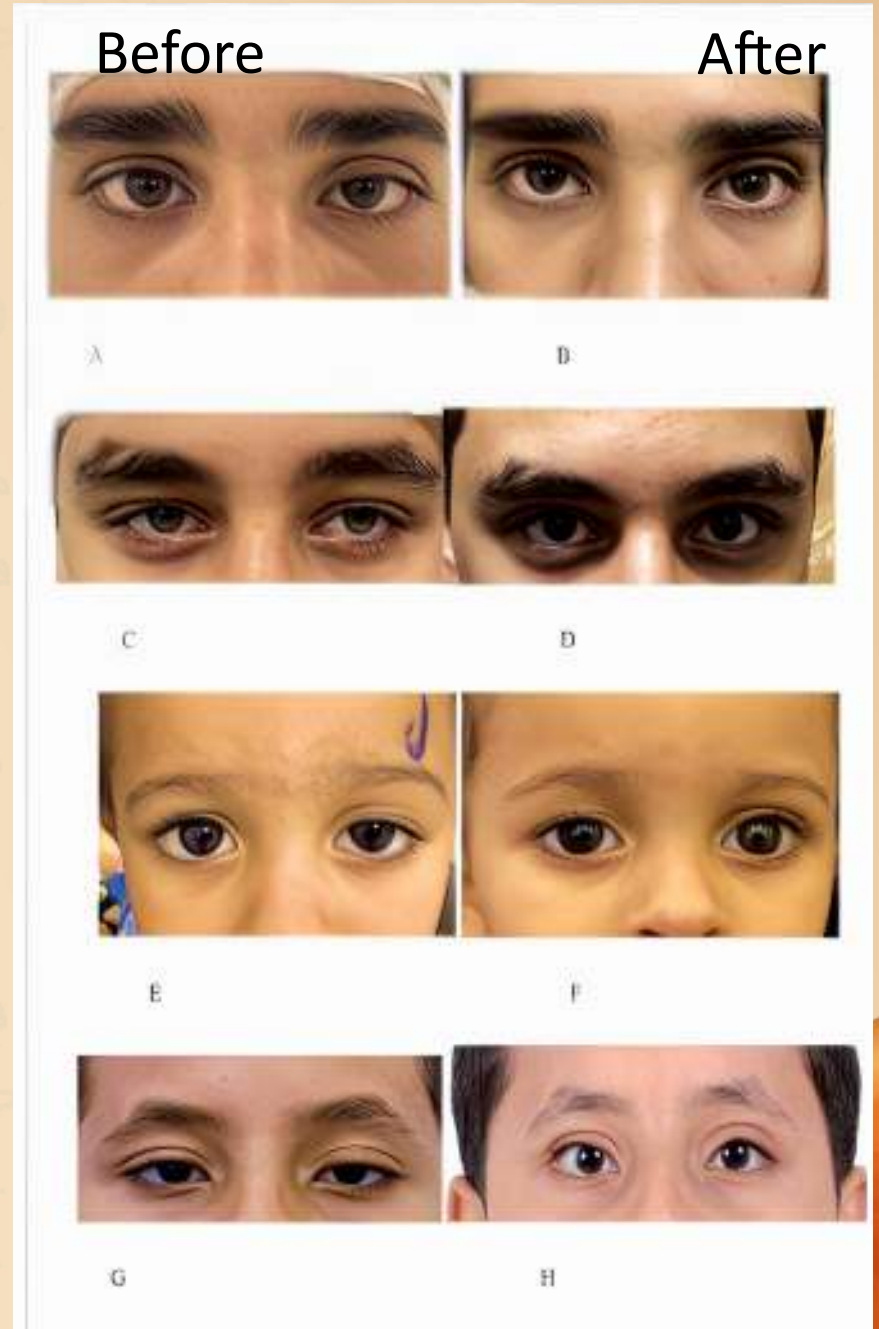
D

A: suture on anterior surface of tarsus ; B. black arrow. The level of tucking by double arm non absorbable suture according on table 1; C. black arrow. The wide of spindle excision from levator aponeurosis ; D. white circle .show the raw surface area after spindle excision to induce more fibrosis

Results

The preoperative MRD1 was 3.28 ± 0.44 mm and improved **postoperatively** to 4.44 ± 0.57 mm, with a statistically significant difference ($P < 0.0001$).

The functional outcome demonstrated a significant improvement; very good (2mm) in 77%, good (2–4 mm) in 14.4%, and poor (5 mm) in 3.3% of the patients which was statistically significant ($P < 0.0001$) compared with the preoperative eyelid position ($P < 0.0001$).





Before



After



After

Before

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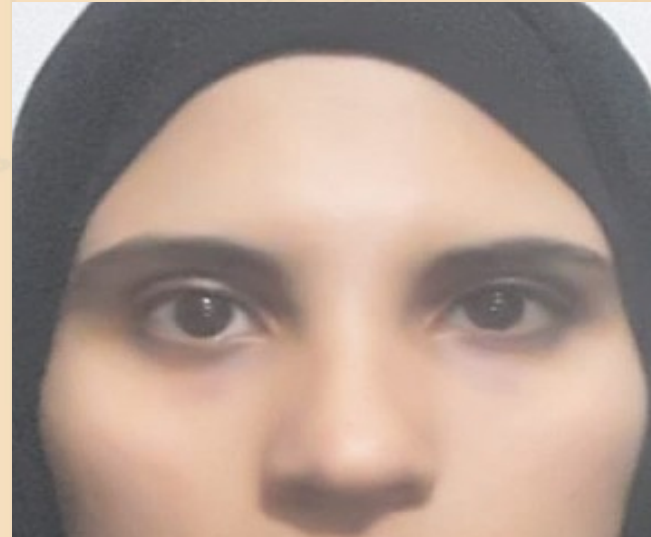
Before



After



Before



After

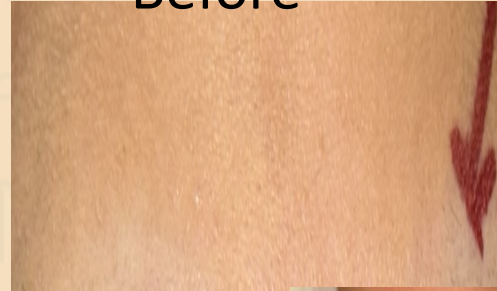
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Results

Symmetrical palpebral fissure height in both eyes was achieved in 86.1% of unilateral cases and in 84% of bilateral cases. **The eyelid contour and preserved lid crease** were obtained in 91.6 and 88.8% of the eyes, respectively .

Postoperatively, most of the patients were satisfied by the cosmetic outcome compared with the preoperative photo (complete satisfaction in 83%, partial satisfaction owing to asymmetry in 5.6%, and unsatisfied owing to under-correction in 6.1%)

Before



After



Before



After



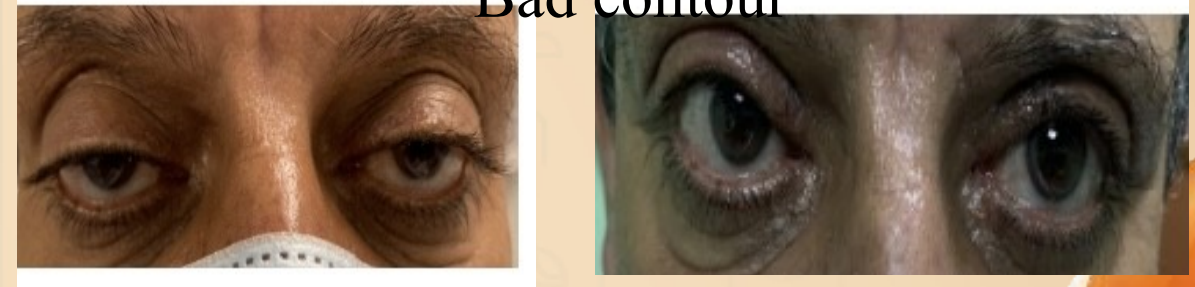
Complication

- 1-Lid edema was mild, diffuse, and resolved after one week.
- 2- Lagophthalmos with no keratopathy. In 5 patients,
- 3- bad wound healing. In 2 patients,
- 3- exposure of the nonabsorbable suture on skin surface occurred in one patients
- 4- Recurrence was reported in 8 (4.4%) patients,
- 5- poor functional outcome in 6 (3.3%) patients and were corrected by frontalis brow suspension operation.

Lagophthalmos



Bad contour



Discussion

Levator resection



disturb levator–
Muller's complex



hematoma,
prolonged edema,
and conjunctival
prolapse

levator aponeurosis
advancement,



the Muller's muscle
suffers denervation
atrophy after being
loosened and shows
poor sympathetic
reactivity

Müller's muscle – conjunctival resection



increases dry eye symptoms and signs



It increased evaporation through the exposed ocular surface after ptosis correction; so, it is an evaporative dry eye (EDE). Also an increase in aqueous tear- deficient (ATD) dry eye is noted due to the conjunctival gland-destruction during the procedure of ptosis surgery

Discussion

**Modified levator
muscle tucking**

Don't

disturb levator–
Müller's complex

denervation
atrophy

dry eye symptoms
and signs

Success rate

Modified levator muscle
tucking

High [92.1% 165/180]

The power of adhesions and fibrosis between the tucked levator aponeurosis and the tarsus was helped by the excised small sheet from the levator aponeurosis

The nonabsorbable 5/0 sutures enable the surface contact with the bare surface, as the levator complex posterior part was fixed to the tarsus after being advanced and folded with fibrosis helping to lessen the recurrence rate.

Compar to old tucking technique

Old technique
has a temporary result due to
1- the lack of a raw surface
2- with frequently encountered
postoperative lid drooping as the
suture was placed in a rarefied
aponeurosis.

The recently modified levator
tucking approach for correction of
mild and moderate blepharoptosis is
highly recommended because it is a
rapid and simple procedure with fewer
complications and good functional and
aesthetic outcomes.

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