

Hypethermic Treatment for Flap Striae following LASIK



A. John Kanellopoulos, MD

Manhattan Eye, Ear and Throat Hospital

TLC Laser Eye Centers

www.brilliantvision.com

Background

- 2 million Lasik procedures expected in the US in 2000
- Complications uncommon
- Flap striae can reduce UCVA, BCVA and increase glare/distortion

Background

- Flap striae usually form in the early postoperative period
- Traumatic (“eye rubbing”)
- Dry eye (poor post-operative lubrication can increase eyelid-flap traction)
- “Deep” ablations (in very high myopes) can predispose to flap striae

Background

- Hyperthermic stromal collagen treatment of 38- 60 degrees C, relaxes fibrils without scar formation/ or tissue constriction. This enables restoration of original stromal texture. This does not produce stromal scarring and/or stromal shrinkage
- Hypotonic Saline produces flap edema

Methods

- 15 LASIK patient/eyes with clinically significant striae (glare, UCVA < 20/20, subjective distortion, topographic irregular astigmatism) were treated
- Informed consent was given in regard to the treatment method

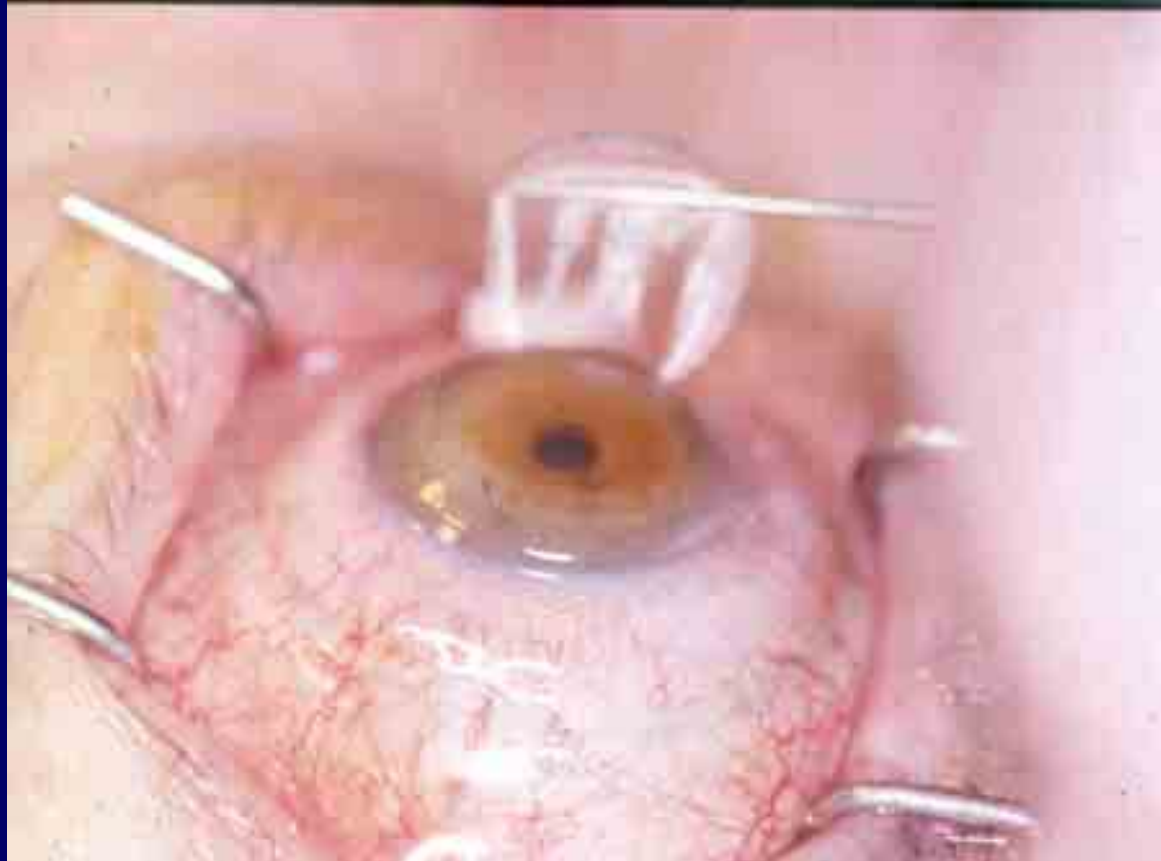
Surgical technique

- Sterile water is heated to 55° C,
- Golf-club spatula is submerged into heated water



Surgical technique

- Flap is marked and then lifted



Surgical technique

- Golf-club spatula is heated in the sterile water and used to “iron out” the folds from the back-side of the lifted flap
- Collagen and/or debris accumulation within the striae is removed both from the flap underside as well as the stromal bed

Surgical technique

- Johnston applanator heated in sterile water is used to “press-iron” the repositioned flap for 15-30 seconds.

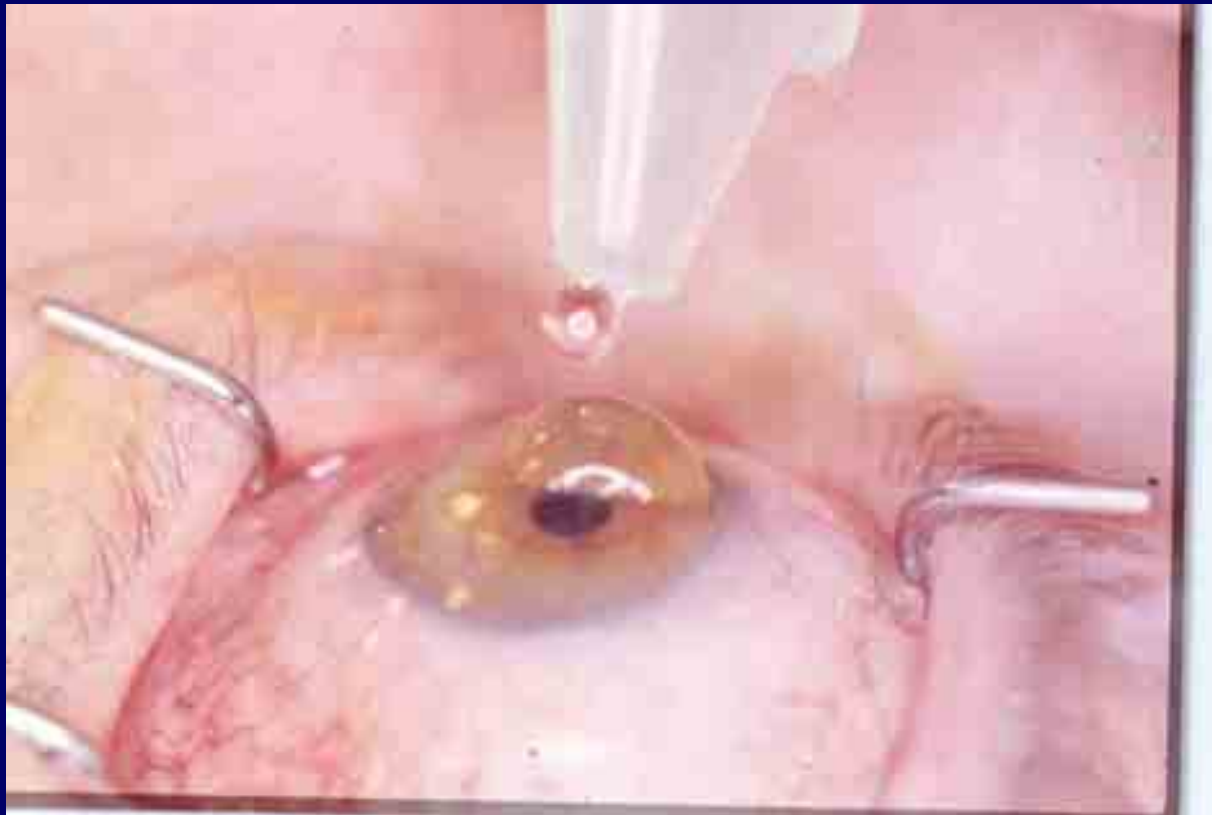


Surgical technique

- Care is taken to always slide away from the hinge
- In long term striae (over 2weeks) the epithelium is separated from the underlying flap (Long term striae produce resilient epithelial layer “memory” that can reintroduce the striae following treatment)

Postoperative

- Celluvisc drop to avoid eyelid-flap traction



Postoperative

- Bandage contact lens for 1 day, (3 days in cases with epithelial removal)
- Ocuflor/Predforte 4 times a day for 1 week
- Follow-up of Va, topography, biomicroscopic striae presence

Results

- Pre UCVA: 20/42, post: 20/24
- Pre BCVA: 20/30, post: 20/21
- Mean follow-up 5 months (4-8)
- No complications, no BCVA loss
- Dramatic topographic improvement of irregular astigmatism

Conclusions

- Hyperthermic treatment “loosens” collagen fibrils in wrinkled flap
- Hypotonic sterile water produces swelling of flap in reduction of wrinkling
- Combination appears effective in flap striae “ironing” and then “press-ironing”

Conclusions

- This technique is safe and appears to be quite effective for management of flap striae following LASIK
- Simple instrumentation required
- For old striae: loosening of epithelium and treatment of flap stroma separately is essential

Conclusions

- Immediately following treatment epithelial striae may persist, and must not be confused with true flap striae
- Epithelial striae (in recently “wrinkled” flaps) will subside in about a week