**Post-LASIK Epithelial Ingrowth Removal**

David R. Hardten, M.D.

Minneapolis, Minnesota

Have done research, consulting, or speaking for:
- Allergan, AMO, Cornea Vision, FDA, IMA-EB, Mentorcor, Oculus, OSS, Quantel, TLC

Some of the information may represent off-label uses of approved drugs or devices

**Epithelial Ingrowth**

Complication of LASIK surgery
- Incidence 0.5 to 15%
- Usually observed in first few weeks
- May be nonprogressive or progressive
  - In most advanced stage may result in flap melt

**Signs**
- Isolated nests/sheets of cells
- Decreased UCVA and/or BCVA
- Induced astigmatism on refraction
- Irregular astigmatism on topography

**Treatment - Removal**

Removal
- Lifting and scraping epithelial cells
- Blunt spatula, Merocel sponge
- Ethanol used to supplement complete removal
- MMC – has no role in management
- PTK to remove additional cells can induce significant irregular astigmatism
- Nd:YAG Laser treatment
  - Useful for stable pockets of ingrowth where the elevation of the cornea causing changes in comfort or vision

**Treatment – Prevention of Recurrence**

Prevention of Recurrence
- Suturing flap edges
  - Induce striae, irregular astigmatism, requires suture removal, longer recovery
- Fibrin adhesive application
  - Useful for recurrent cases
  - Longer recovery

**Tisseel Fibrin Glue**

Baxter (tissueating.com)
- Mixture of:
  - Fibrinogen & Thrombin
  - Also has fibrinolysis inhibitor (bovine)
- Mixed on surface of the eye
- 30-60 seconds to manipulate it
- Thrombin can be diluted to slow the setting time
- 8-10 minutes to dry so BSCL can be placed
- Dissolves in 10-14 days
Fibrin Adhesive for Multiple Recurrences

- Soften Epithelium Around Gutter
- Remove Epithelium around Gutter
- Remove Epithelium from Stromal Bed & Gutter
- Remove Epithelium from Back of Flap
- Apply Fibrin Portion of Sealant (Blue/Thick)
- Apply Thrombin Portion of Sealant (Black/Thin)
Fibrin Adhesive for Multiple Recurrences
Allow Glue to Dry

Postoperative Day 1
Fibrin Adhesive following RK & LASIK

Results in Study of 39 Eyes

Results

Nd:YAG Laser

Epithelial Ingrowth Remover

Epithelial Ingrowth


0.6 mJ

Variable number of spots depending on amount of ingrowth

40% of cases required 2 or more sessions

Epithelial Ingrowth

Nd:YAG Laser

Before | Immediately After | 2 months after


Conclusions

Fibrin Adhesive

- Tisseel/Artiss may be a useful adjunct in epithelial ingrowth removal in complicated cases
- May reduce incidence of recurrent epi ingrowth
- Tisseel/Artiss is well tolerated and there were no complications associated with its use
- Larger randomized studies would be needed to determine safety and efficacy of this technique as compared to primary removal or sutures
- Reports of ReSure along the graft edge shows it may also be useful

- Nd:YAG may be useful for stable long-standing ingrowth destruction

- Tisseel/Artiss may be a useful adjunct in epithelial ingrowth removal in complicated cases
- May reduce incidence of recurrent epi ingrowth
- Tisseel/Artiss is well tolerated and there were no complications associated with its use
- Larger randomized studies would be needed to determine safety and efficacy of this technique as compared to primary removal or sutures
- Reports of ReSure along the graft edge shows it may also be useful

- Nd:YAG may be useful for stable long-standing ingrowth destruction