LASIK complications and their management
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Case report 1

- 2 years s/p PK
- LASIK for –0.50 –9.00 x 170
- Epithelial buttonhole in flap
- Reposition of flap, aborted LASIK, but placed relaxing incisions in bed

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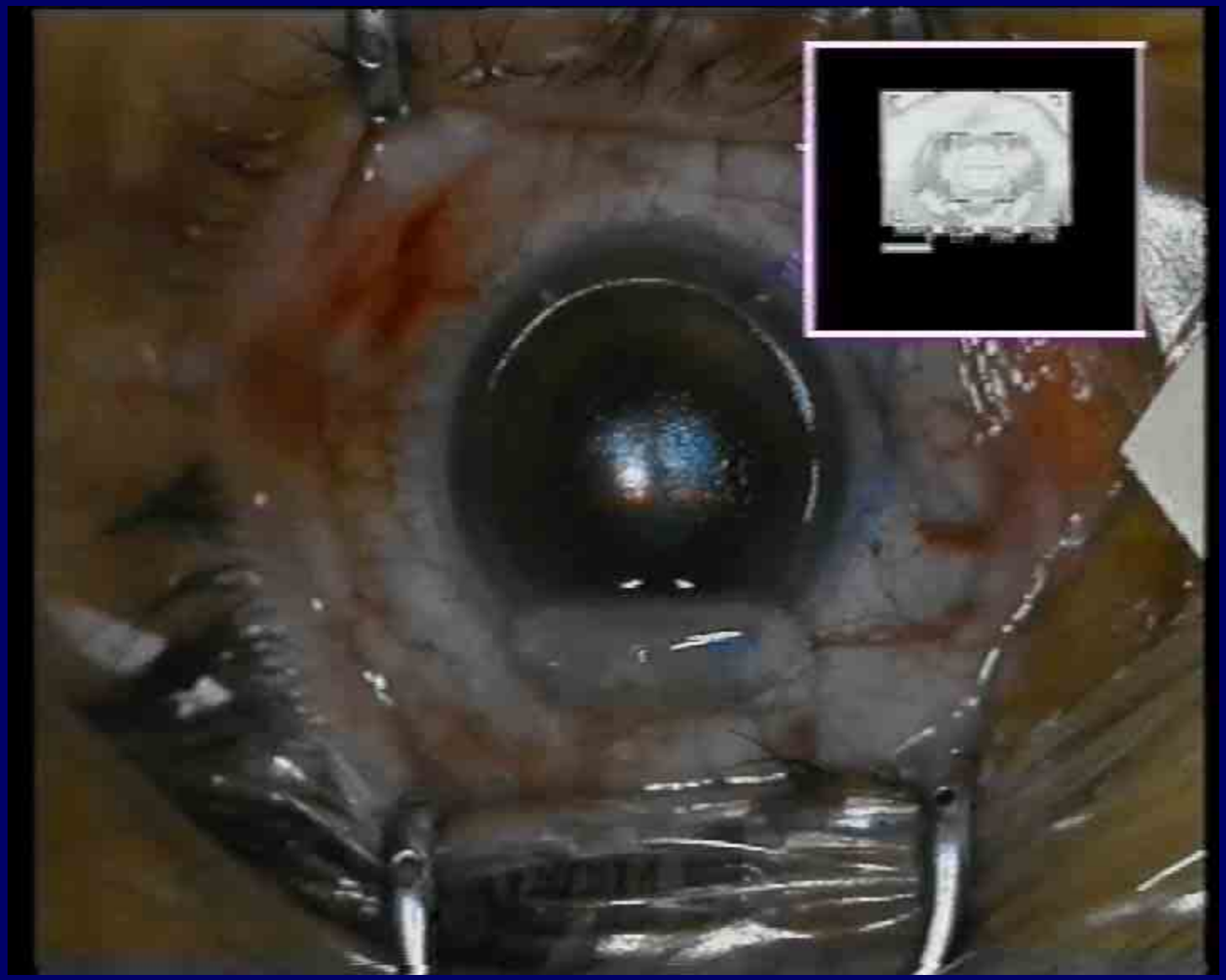
Case 2

- 56y/oF
- +3.50 OU with keratometry of 46
- Bowman buttonhole with the 130M2 in OS (2nd eye)
- ?management
- Epithelial irregularity for 11/2 m
- 4 months 20/25 and 20/25



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Flap complications

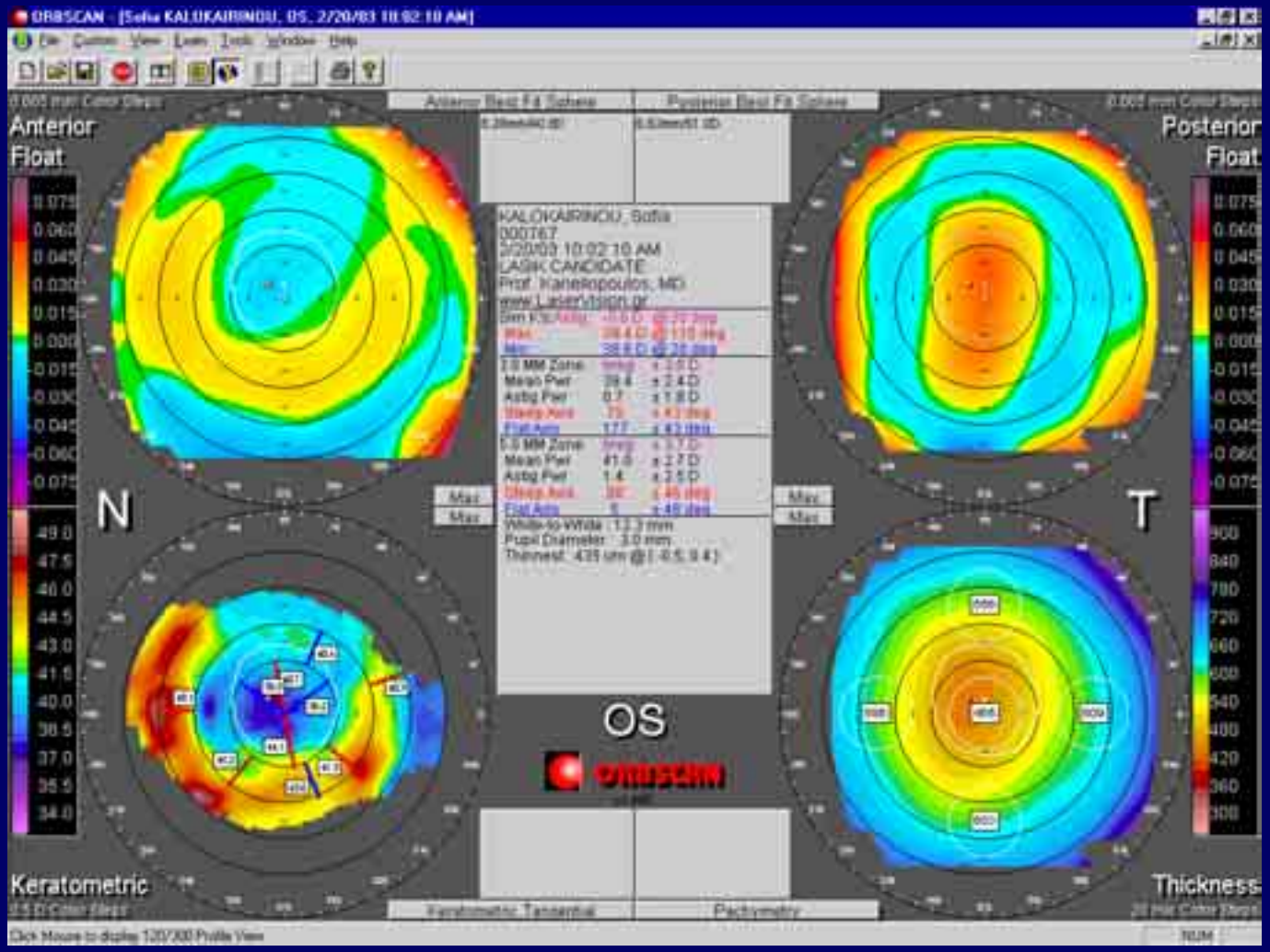
- Extreme K's : (<40, > 46), poor suction, pt squeeze, thin flap, large flap diameter
- With compromised Bowman's abort laser
- Careful reposition
- Bandage CL to avoid warpage-beware ingrowth
- May need longer steroids

Flap complications

- Re-treat in 2-3 months
- May need wavefront or topo-guided treatment
- Usually try THICKER flap with extreme K's
- Try placing the hinge at the steep meridian

Total-free flap- case 3

Post-op measurement-3months



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Undercorrection Case 4

- 28y/o F, had LASIK for –3.50 OU, uneventful
- At 2 months, slightly undercorrected and night vision problems
- Underwent WG enhancement with great result

Wavefront-guided anhancements

- Now 100% of our attempted enhancements
- Since flap is created already, little new aberrations expected
- Ability to treat decentrations and night vision problems
- Unhappy eye study with Wavelight

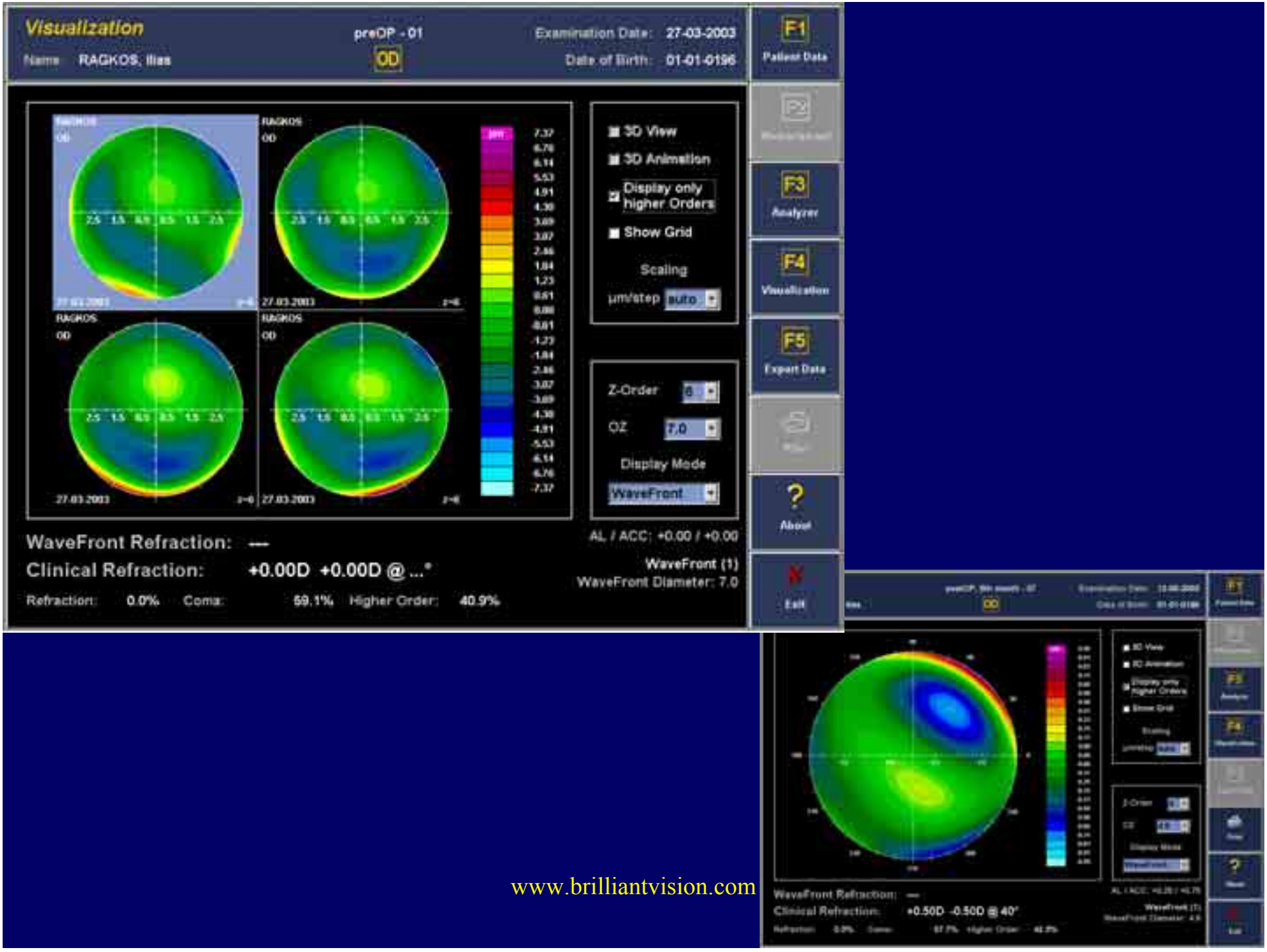
Unhappy eye study with Wavelight

Methods:26 consecutive eyes that had LASIK and were symptomatic, underwent wavefront-guided treatment, based on 4 reproducible aberration measurements. We evaluated pre-, and post-operative refraction, total and high order aberrations (RMSH), cornea and flap thickness, low contrast sensitivity (LCS) and possible complications. Follow-up was 3-7 months (4.5)

Results: 22 eyes were included. The mean values were: refractive error: sphere: –0,92D (plano to –1.50) and cylinder: -0.85D (0 to –1,75). UCVA improved from 20/25 to 20/18. There was no loss of BCVA in any case. The RMSH decreased from 0.62 to 0.25. LCS improved by 55%.

Sample study cases

- 45 y/o male s/p LASIK for -5
- OD : plano, BCVA 20/25+, LCS C4
- OS: -0.50, BCVA 20/25+ LCS C5
- WG enhancement OU, 6.5mm OZ
- Post-op:
- OD UCVA 20/20, LCS C6
- OS UCVA 20/20, LCS C5


Visualization
preOP - 01
OD
Name RAGKOS, Ilias
Examination Date: 27-03-2003
Date of Birth: 01-01-0196
F1
Patient Data
F2
F3
Analyzer
F4
Visualization
F5
Export Data
F6
F7
?
About
Exit
3D View
3D Animation
Display only higher Orders
Show Grid
Scaling
µm/step
auto
Z-Order
OZ
7.0
Display Mode
WaveFront
WaveFront Refraction: ---
Clinical Refraction: +0.00D +0.00D @ ...°
Refraction: 0.0% Coma: 59.1% Higher Order: 40.9%
AL / ACC: +0.00 / +0.00
WaveFront (1)
WaveFront Diameter: 7.0
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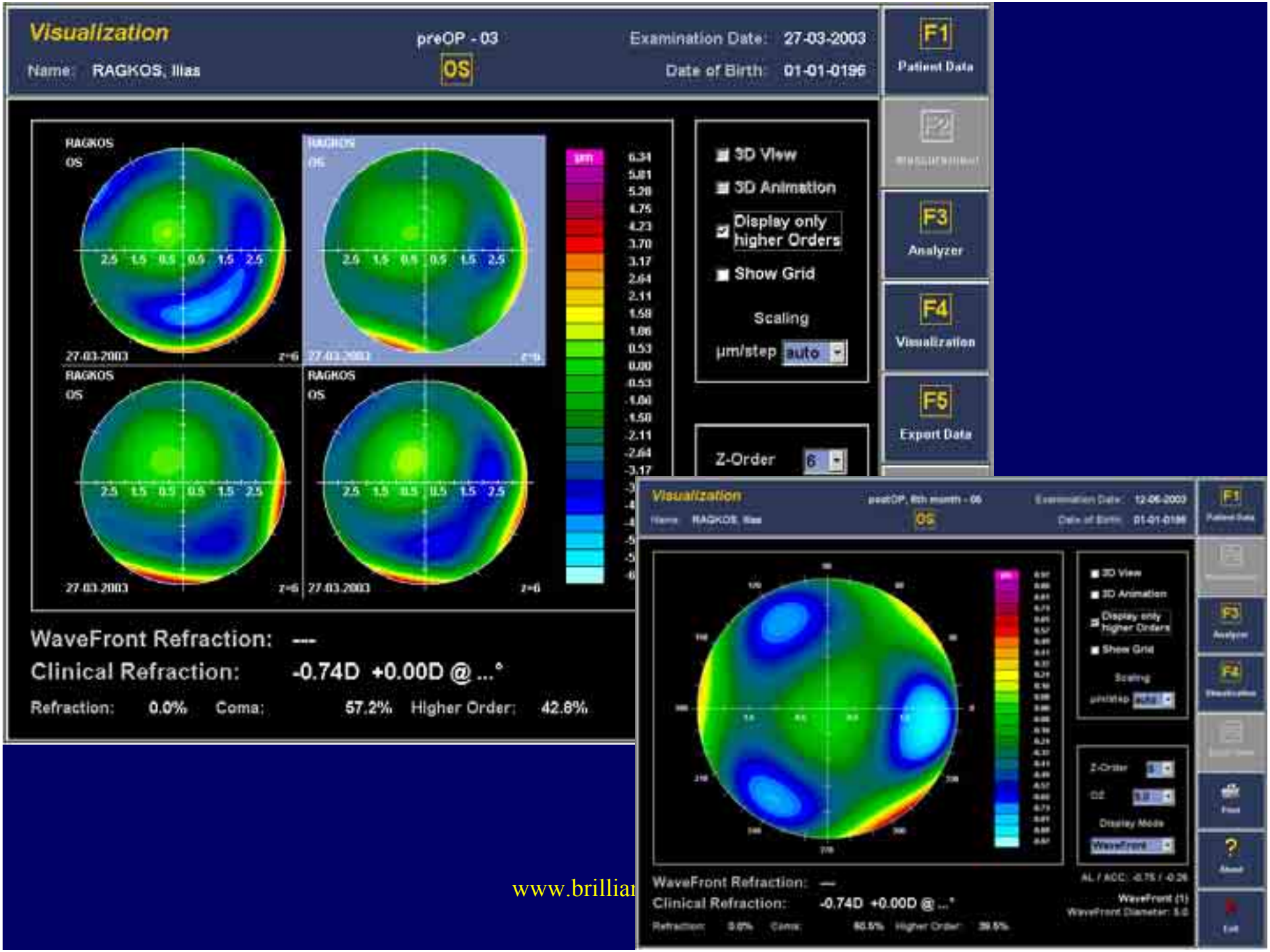
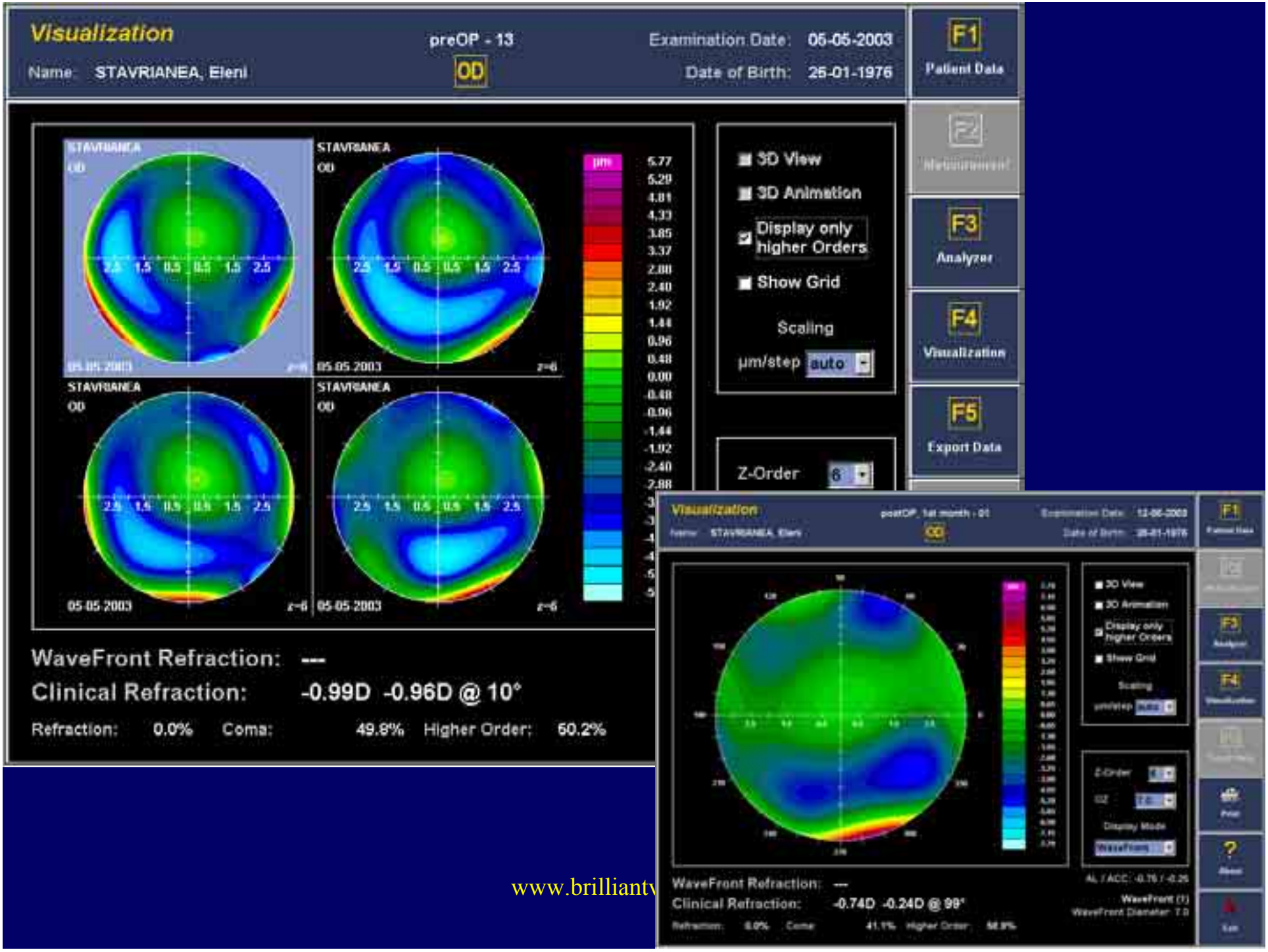
WaveFront Refraction: ---
Clinical Refraction: +0.50D -0.50D @ 40°



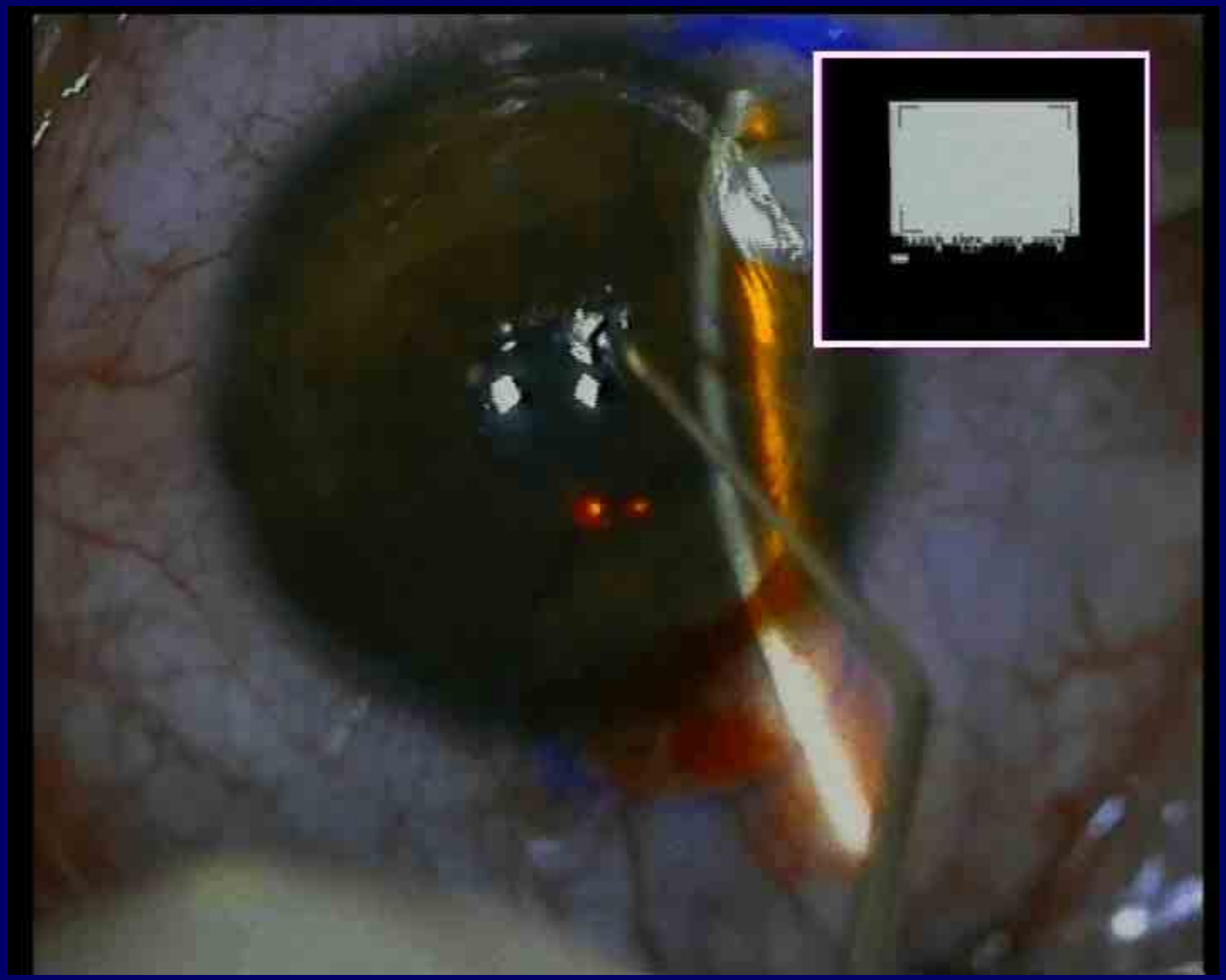
Sample case

- 28y/oF
- LASIK for -7
- OD UCVA 20/25, -0,75-1,00 15 C4
- OS UCVA 20/15 plano C6
- WG enhancement OD, 6,5mmOZ
- Post-op UCVA 20/15, C6



Case #3

- Old LASIK when 20y/o
- Did well for 2 years then developed KCN picture
- Management with INTACS-very happy but large fluctuations of sphere (-2 to –8)
- Removed intacs placed ALTK sliver 120 microns
- Enhancement at 2 ms for -2.50-3.50 X 165
- 3 months post-op: 20/20



Case # 4

- 65 y/o pseudophakic male
- Underwent LASIK for residual myopic astigmatism
- Developed pellucid-like peripheral thining post-op UCVA 1/10 BCVA 6/10
- Had Aks initially that regressed
- Underwent ALTK with 250 graft
- Now UCVA 1/20, BCVA 10/10

Post-LASIK ectasia

- Minimal stroma: 280
- Minimal total K: 420
- Beware that microkeratome may become unstable (usually they cut thinner though)
- Best treatment careful screening

Thank You

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Intrastromal Fungal keratitis following LASIK

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Background

- LASIK is becoming the most common surgical procedure Americans undergo.
- Considered relatively safe procedure in experienced hands
- Minimal epithelial defect is considered an advantage

Background

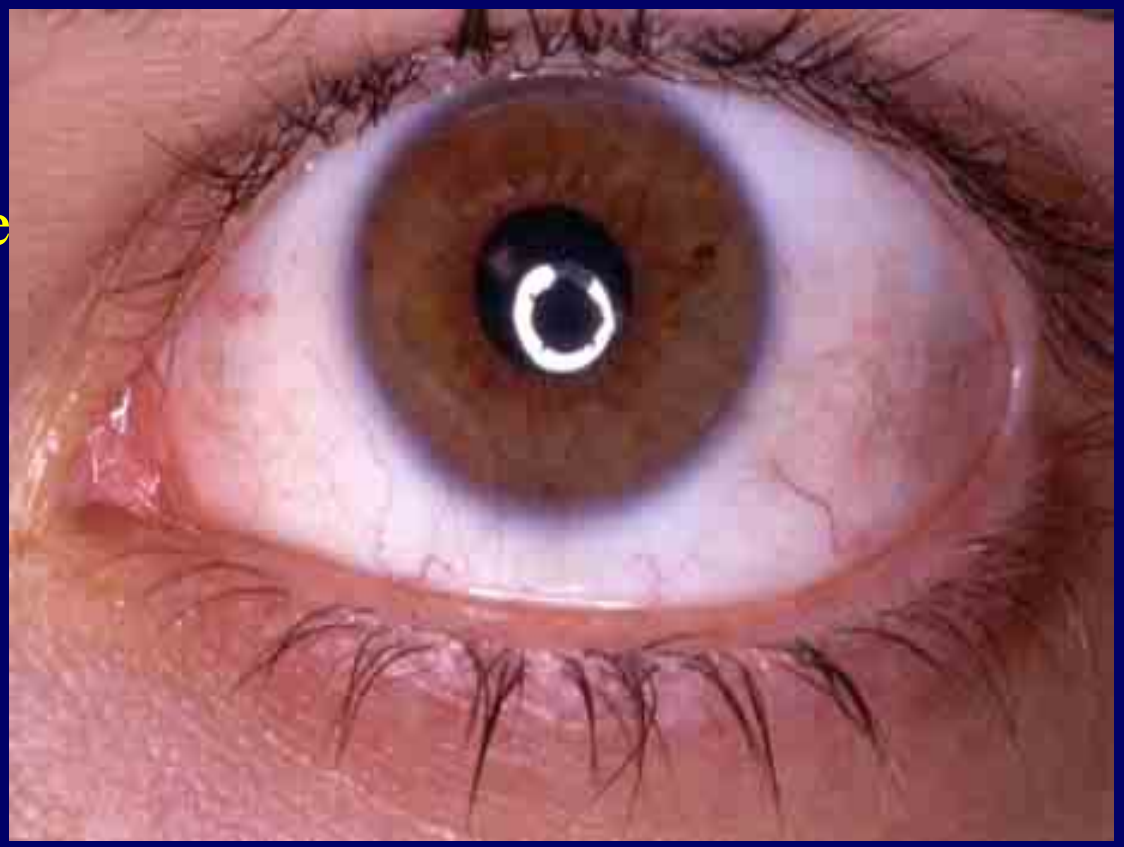
- LASIK complications may be undereported
- Incidence of infection is speculated between 1/1000 to 1/5000 procedures
- Sterility measures during LASIK greatly vary

Case 1

- 27 y/o M
- OD: -4.25 -0.25 X 35° 20/20, OS: -4.50 0.75 X 165° 20/20, underwent uneventful bilateral LASIK.
- Postoperative day 1: BCVA: 20/40 and 20/60 (OD/OS).
- There was +1 debris noted in the flap interface of the right eye, but both flaps were considered relatively clear.

PO week 1:

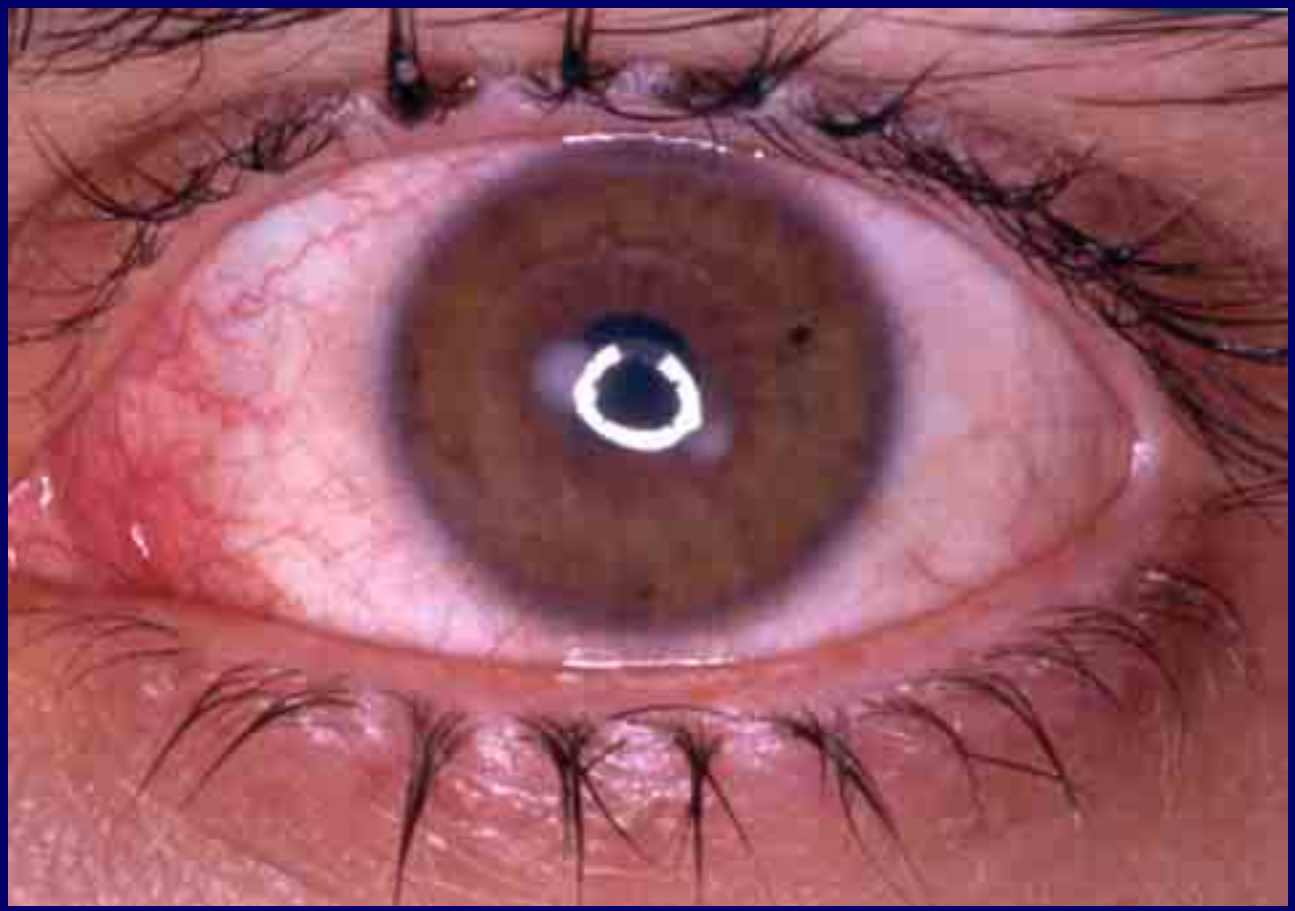
- FBS OS. Two crystalline-like particles noted in the flap interface at the 9th and 2nd hour position at about equal distance from the optical axis in about a 4-5mm diameter



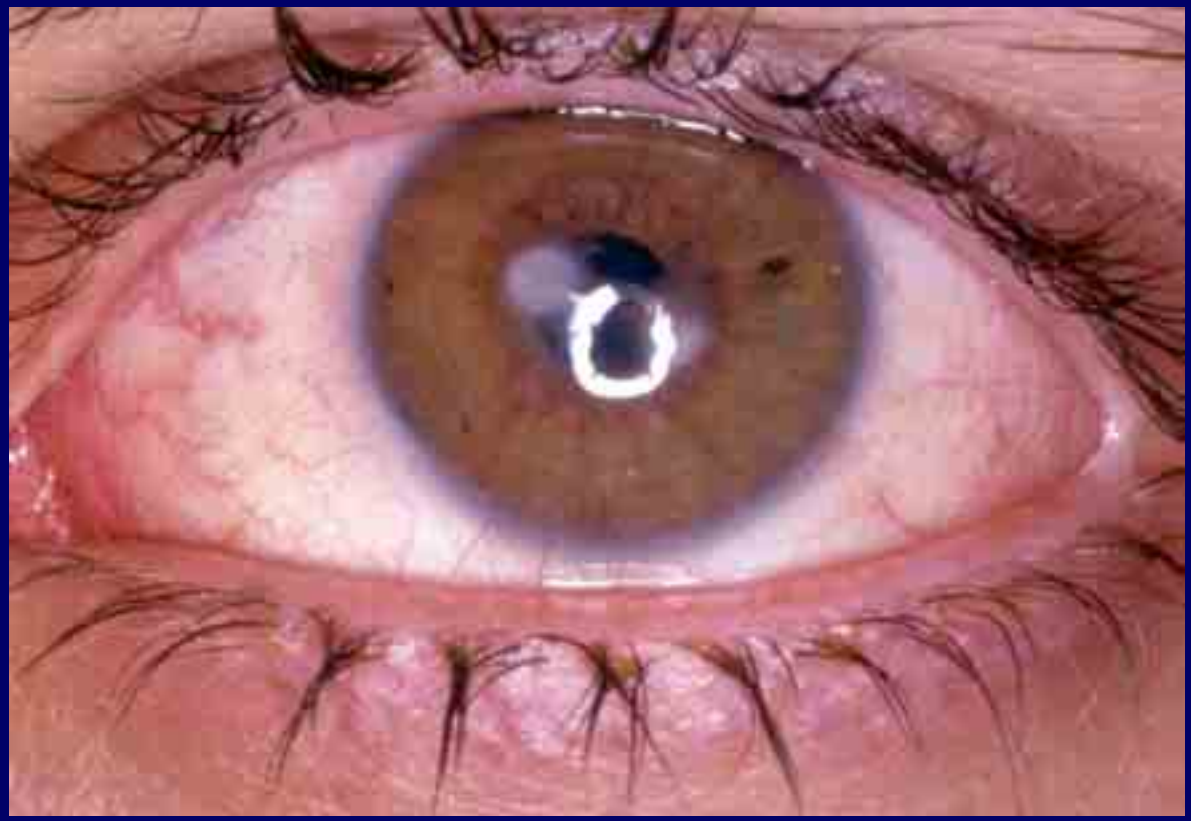
Postoperative day 10:

- UCVA 20/25 OD ,20/100 OS PH 20/30. Increased interface debris.
- Flap culture/ irrigation
- Vancomycin, Sulfanicole and Ofloxacin
- topical Ofloxacin, Sulfanicole 8 times a day and PF QID.
  POD 11: The infiltrates were noted to be reduced in size and thickness

Post op w 2

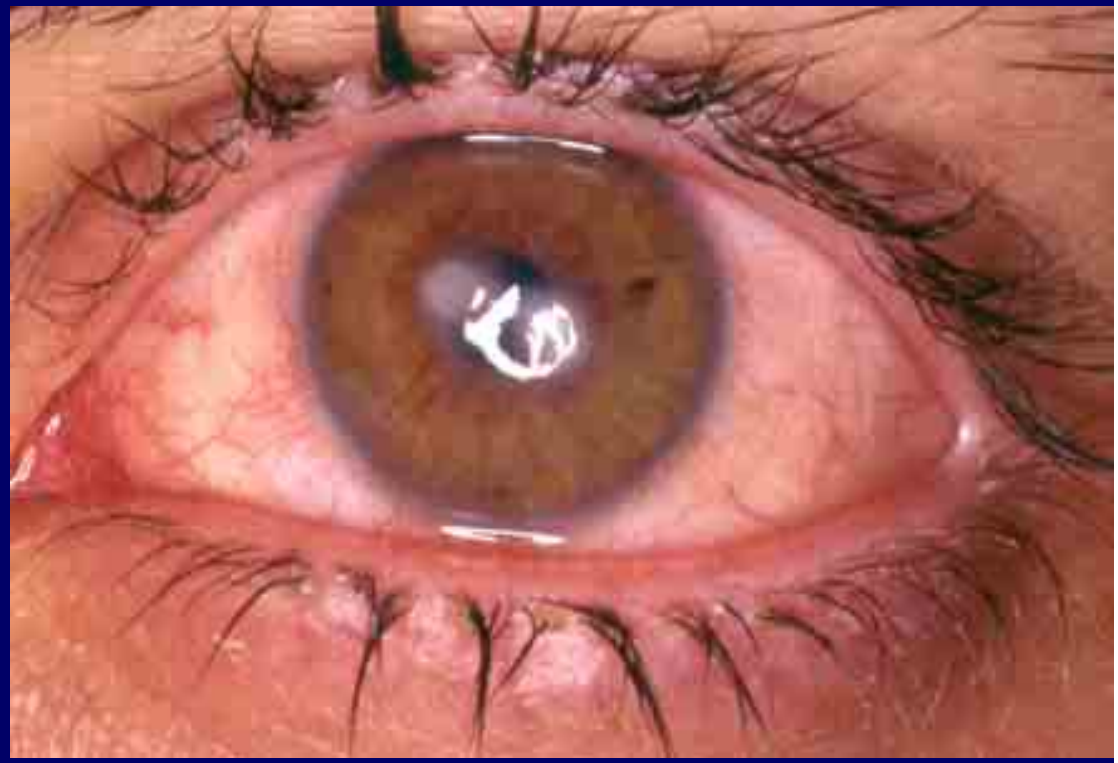


Post op w 3



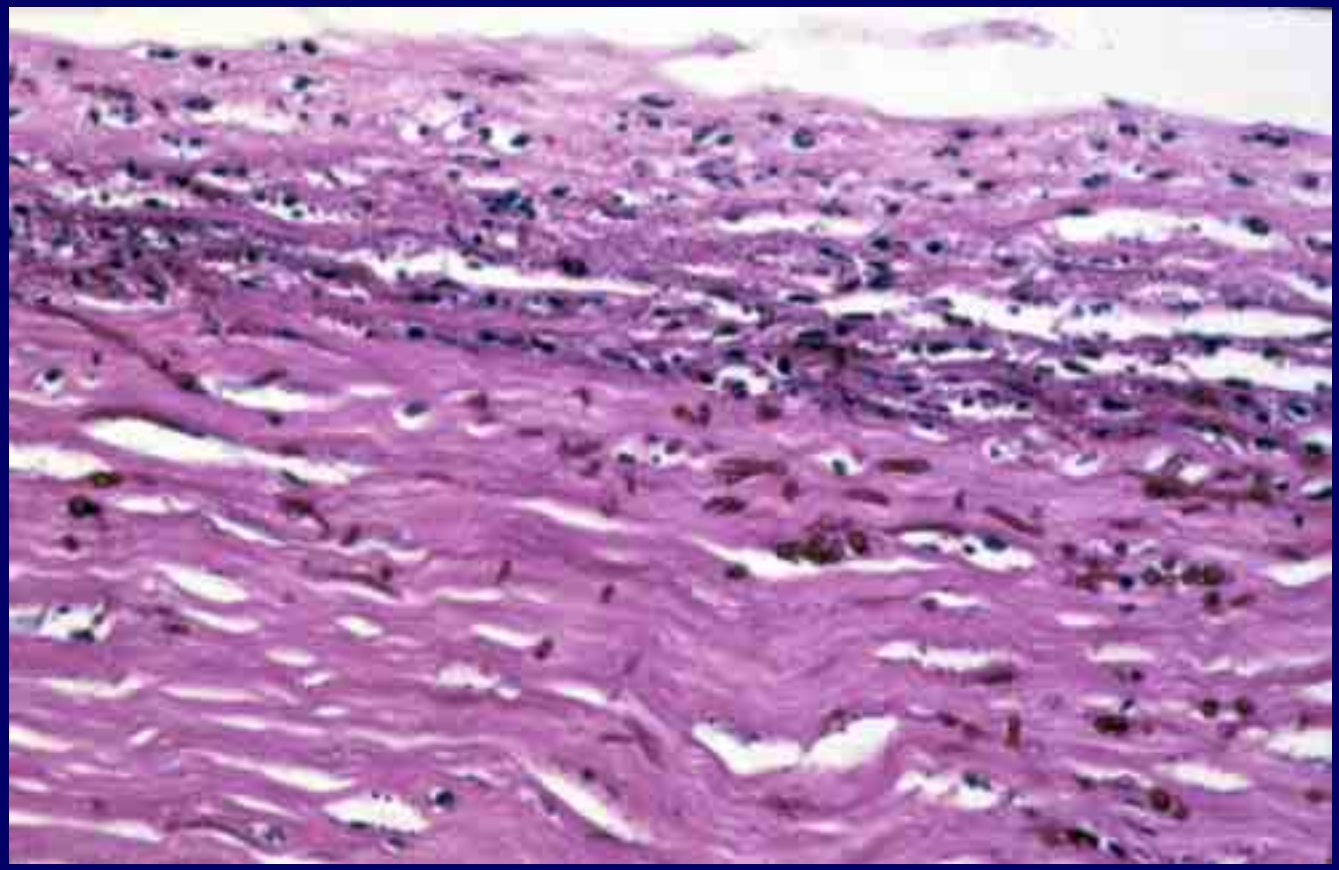
Follow-up PO Month 1

- Over the next 25 days 2 more washouts/cultures. *Acrimonium* grew from the first culture and Aphotericin A was included in the regimen

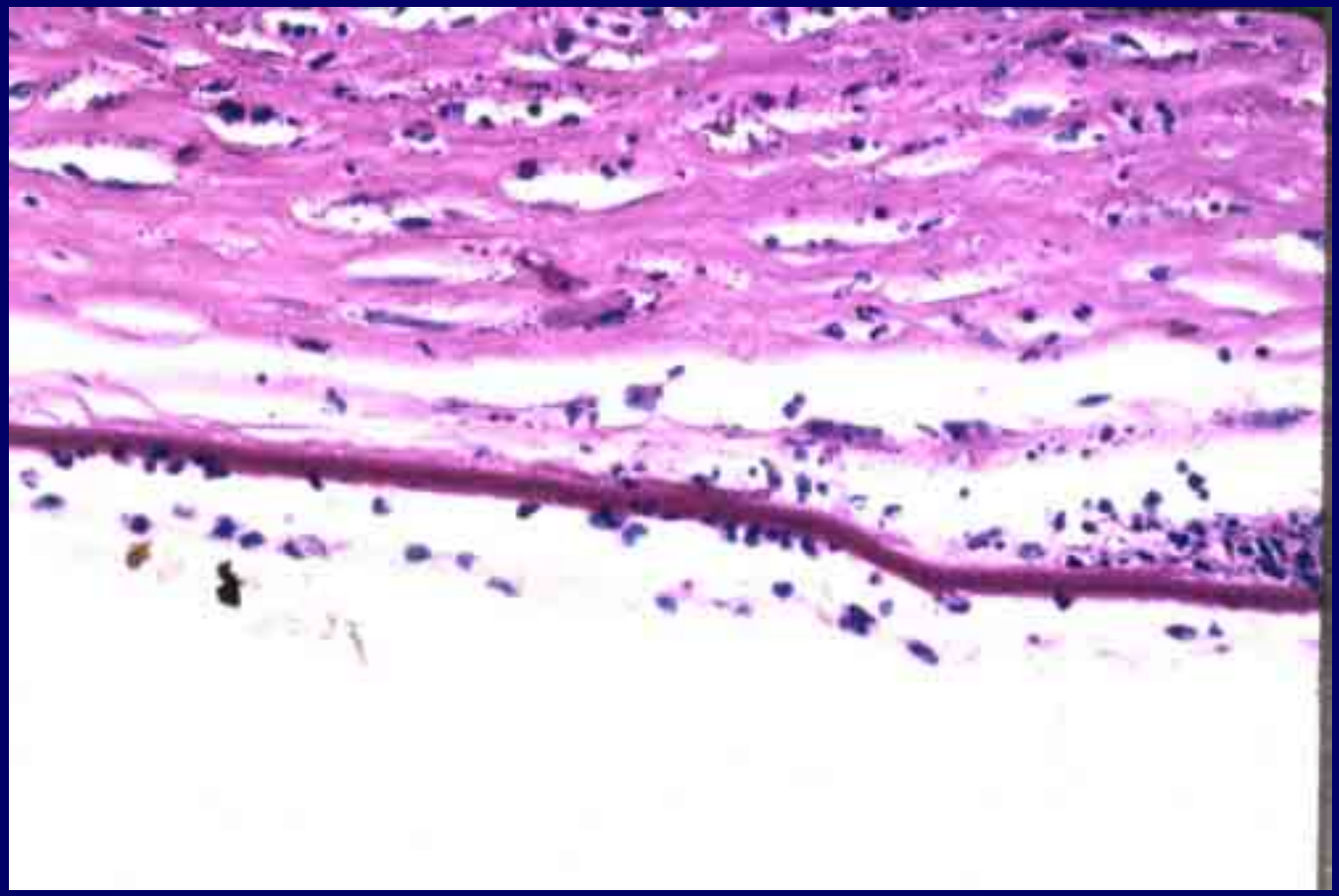


Therapeutic keratoplasty

Histo



Histo



Case 2

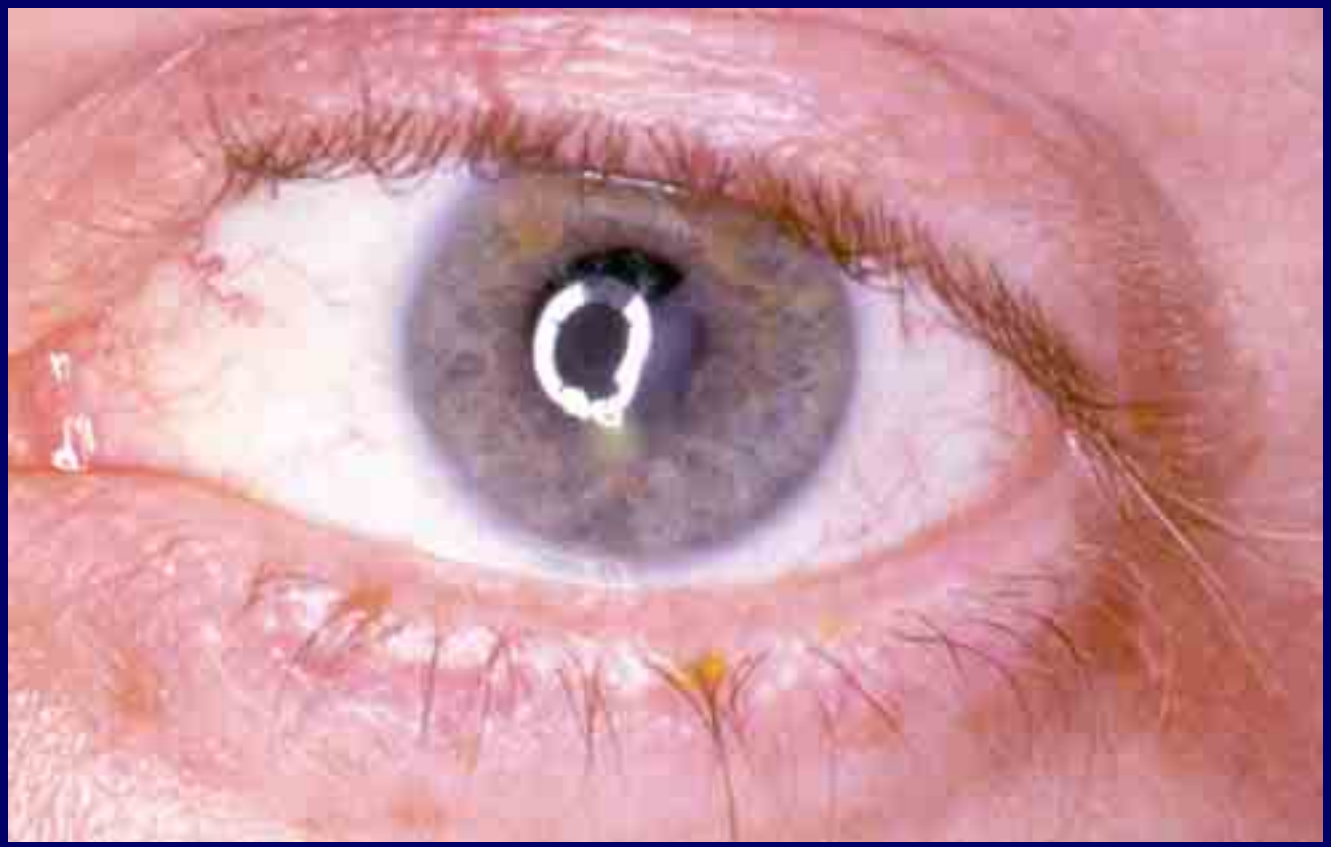
43y/o M O.D. -6.50 -1.00 X 175: 20/30,

O.S. -4.25 -1.00 X 5 : 20/30.

Re-treatment OS after 6 months utilizing the same flap developed Candida infection

Therapeutic PK , UCVA 20/80 BCVA 20/40

Case 2



Case 3

28 y/o F OD:-7.75 -1.50 at 167

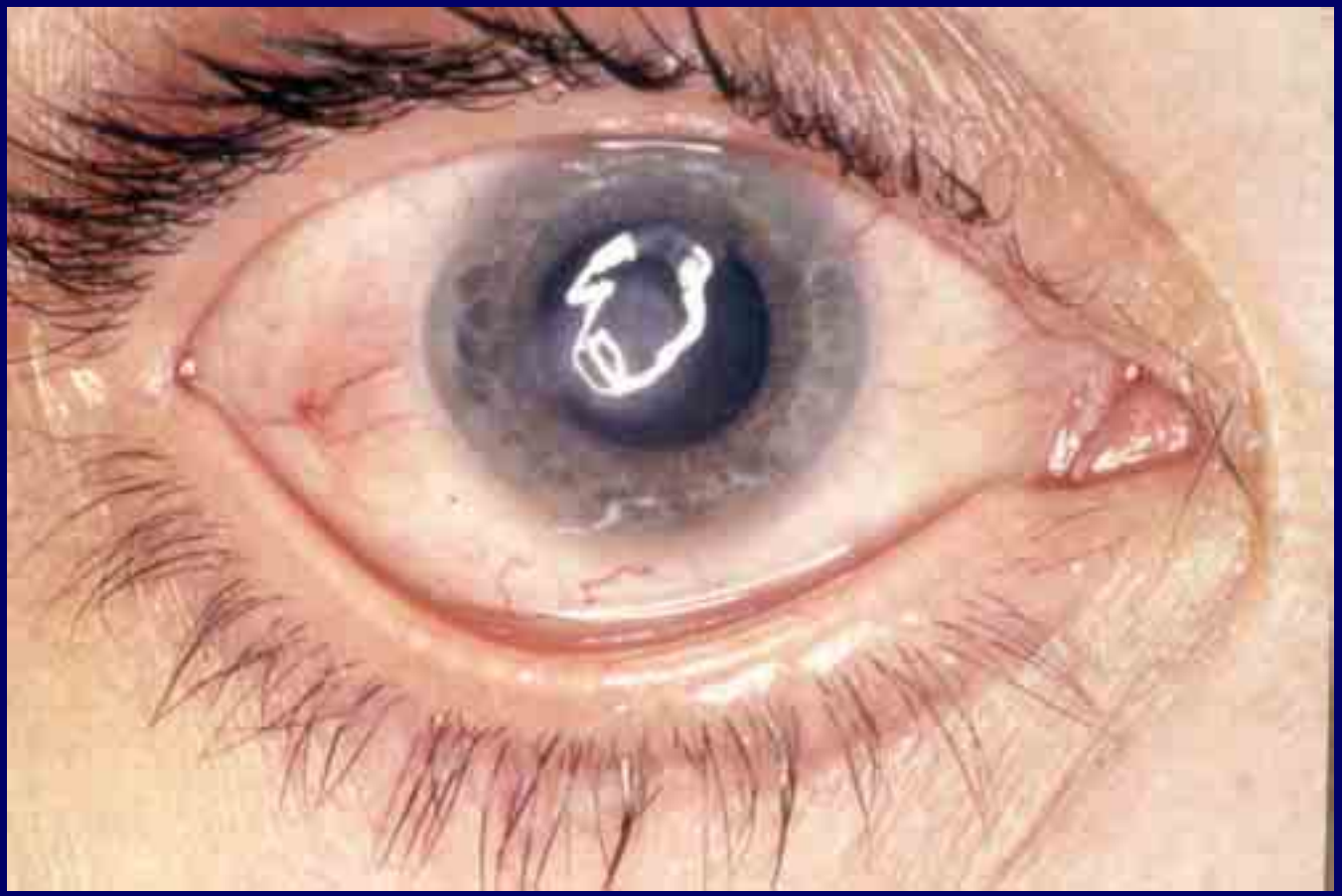
OS: -7.50 -1.00 at 180

PO Day 7 : Infiltrate OD at 12 o'clock gutter

Culture: Candida Rxed with Amphotericin a 1%

4 months later PK, currently UCVA: 20/40

Case 3



Case 4

29y/o M OD: -12.75 -1.50 X 142 :20/25, and OS:-12.00 -1.00 at 60 degrees :20/25.

POW 1: Debris OD in the flap centrally and superiorly.

Flap was re-floated and irrigated X2

Therapeutic PK after 3 weeks: Fusarium

Conclusions

- Interface fungal keratitis following LASIK is difficult to diagnose and treat
- Intrastromal contamination intraoperatively
- Sterility measures imperative

Conclusions

- LASIK complications may be under-reported
- Prophylaxis is essential (Gram + eyelid flora), early infection suspicion
- Differential diagnosis for DLK, interface debris, ABT deposits