

Bilateral Wrinkled and Displaced Corneal Flap after Femtolasar *In Situ* Keratomileusis: Short Term Management and Long Term Transepithelial Photorefractive Keratectomy

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Received: March 07, 2019; **Published:** April 16, 2019

Abstract

Case Summary: A 37-year-old female patient underwent Femtosecond Laser Assisted Lasik, with complication on control the next day with severe wrinkled bilateral corneal flap. Twenty-four hours post-operation, she received in emergency, a second surgical treatment for repositioning of the corneal flaps. At six months after surgery, the astigmatism on the right eye was -0.75 diopters (D) with the uncorrected visual acuity (UCVA) of 20/30, and the astigmatism on the left eye was -1.75 D with an UCVA of 20/50. The epithelial topography with the corneal map were analyzed and a Transepithelial photorefractive keratectomy (Transepi-PKR) was decided on the left eye and the irregular astigmatism corrected to improve the UCVA to 20/20.

Keywords: *Laser-Assisted In Situ Keratomileusis; Bilateral Corneal Flap Displacement; Transepithelial Photorefractive Keratectomy; Wrinkled Bilateral Corneal Flap*

Abbreviations

LASIK: Laser-assisted In Situ Keratomileusis; Transepi-PKR: Transepithelial photorefractive keratectomy; SLE: Slit Lamp Examination; (UCVA): The Uncorrected Visual Acuity; OD: Oculus Dexter; OS: Oculus Sinister; D: Diopters

Introduction

The wrinkles are usually caused by a partial displacement of the flap in the minutes or hours following the surgery. This displacement is most often caused by accidental friction or rubbing of the eye by the patient or by local trauma [1].

Case Presentation

A 37 year-old female was admitted to the clinic for a Femtosecond Laser Assisted Lasik treatment. She was in good general health, no medication, none ocular past-history and no contact lenses. The UCVA on the right eye 20/25 with -4.25 -1.50 121° and on the left eye 20/25 -5.50 -1.25 48°. The Topographic maps showed classic bow tie corneal astigmatism (Figure 1). Femtosecond laser (using the IFS 150 from Abbott Medical Optics) with LASIK (Excimer laser Alcon Wavelight EX500) surgery was proposed. Checking the patient at the slit lamp 15 minutes post operatively was done and didn't reveal early slippage flaps. Twenty-four hours post-surgery, the patient presented pain in the both eyes and blurred vision. After slit lamp examination (SLE), dislocation and wrinkled corneal flap was noticed on both eyes (Figure 2). The patient denied eye trauma post-surgery. We decided an immediate surgical recovery treatment with energetic stretching under the surgical microscope.

Citation: Oscar Kallay and Marina Polyanina. "Bilateral Wrinkled and Displaced Corneal Flap after Femtolasar *In Situ* Keratomileusis: Short Term Management and Long Term Transepithelial Photorefractive Keratectomy". *EC Ophthalmology* 10.5 (2019): 364-370.

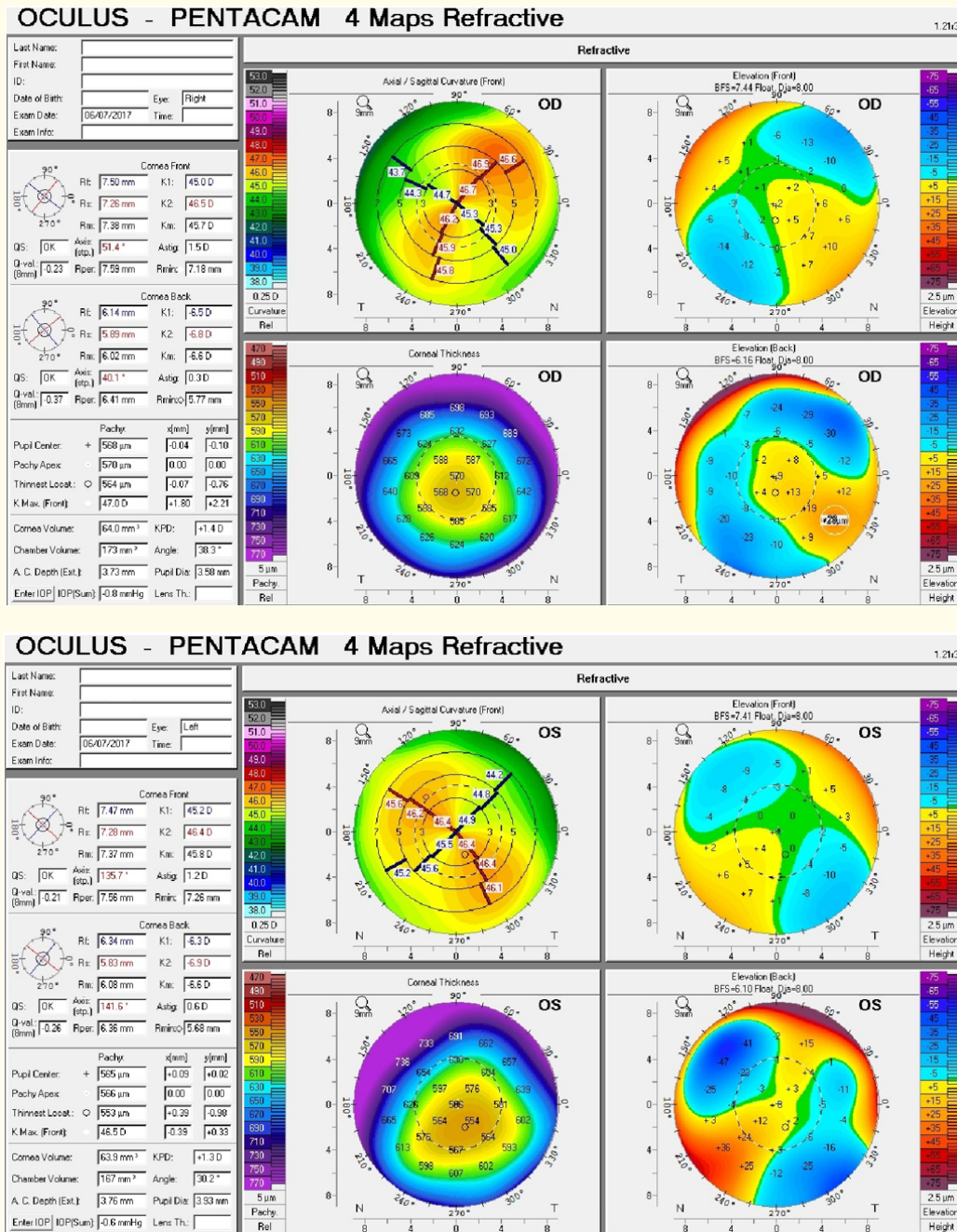


Figure 1: Topography measured of the both eyes before femtosecond laser and laser-assisted in situ keratomileusis (LASIK). Pentacam OD: Oculus Dexter; OS: Oculus Sinister; Sim K: Simulated Keratometry; Astig: Astigmatism; T: Temporal; N: Nasal.

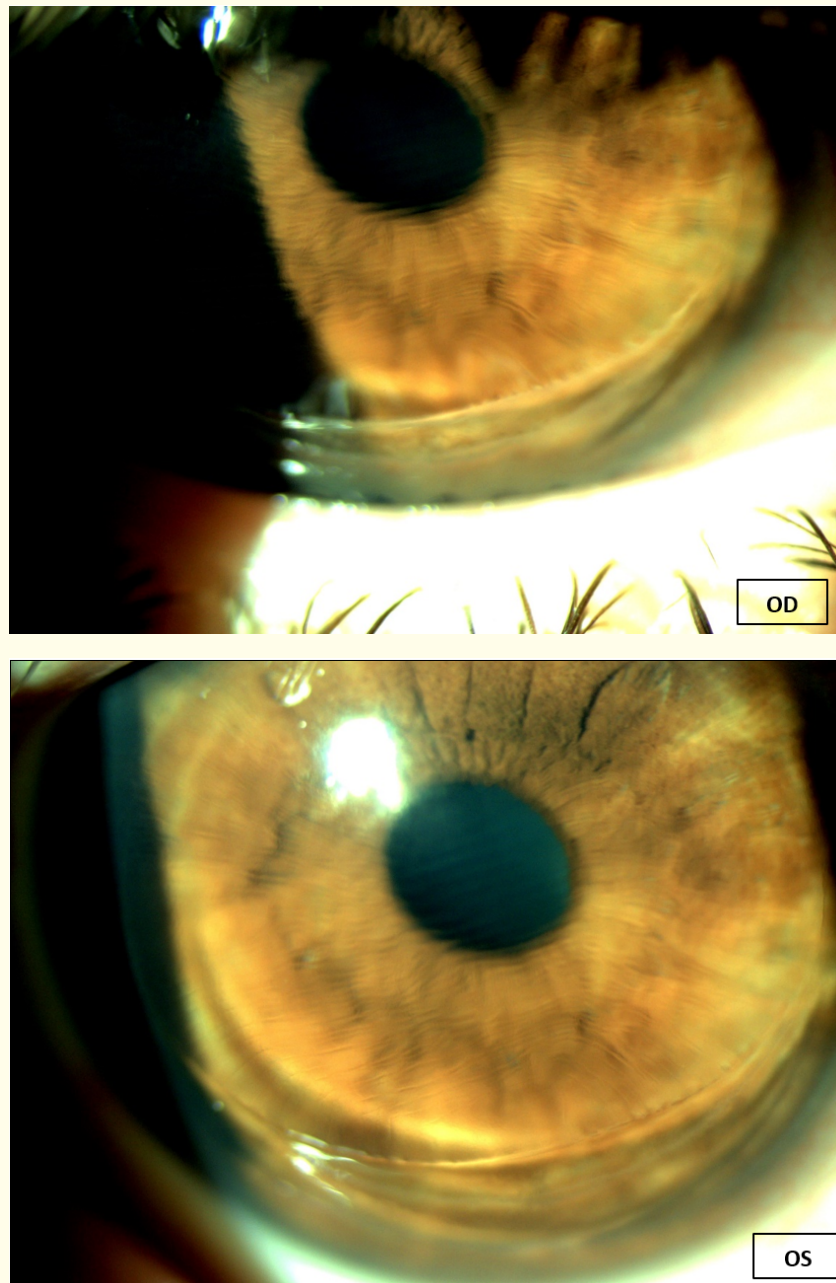


Figure 2: Photography of wrinkled and dislocated left and right corneal flap 24 hours post Femto-LASIK treatment.

Second day after recovery the UCVA measured on the right eye (OD) 20/30 and of the left eye (OS) 20/30. On slit lamp examination the corneal flaps were clear, flat and well positioned.

On the third day the UCVA improved to OD to 20/25. The biomicroscopy examination showed clear corneas and epithelial irregularities. No folds and no diffuse lamellar keratitis were found. We decided to observe and follow up the patient.

At six months follow-up the UCVA of the left eye has declined to 20/50 with refraction of +1.50 -1.75 84°. On SLE we identify irregularities on both flaps with epithelial finger dot dystrophy pattern of the left eye. Topolyzer measures showed residual astigmatism mainly on the left eye (Figure 3). Transepi-PRK treatment (using the SCHWIND CAM module ORK-CAM) on the left eye was planned.

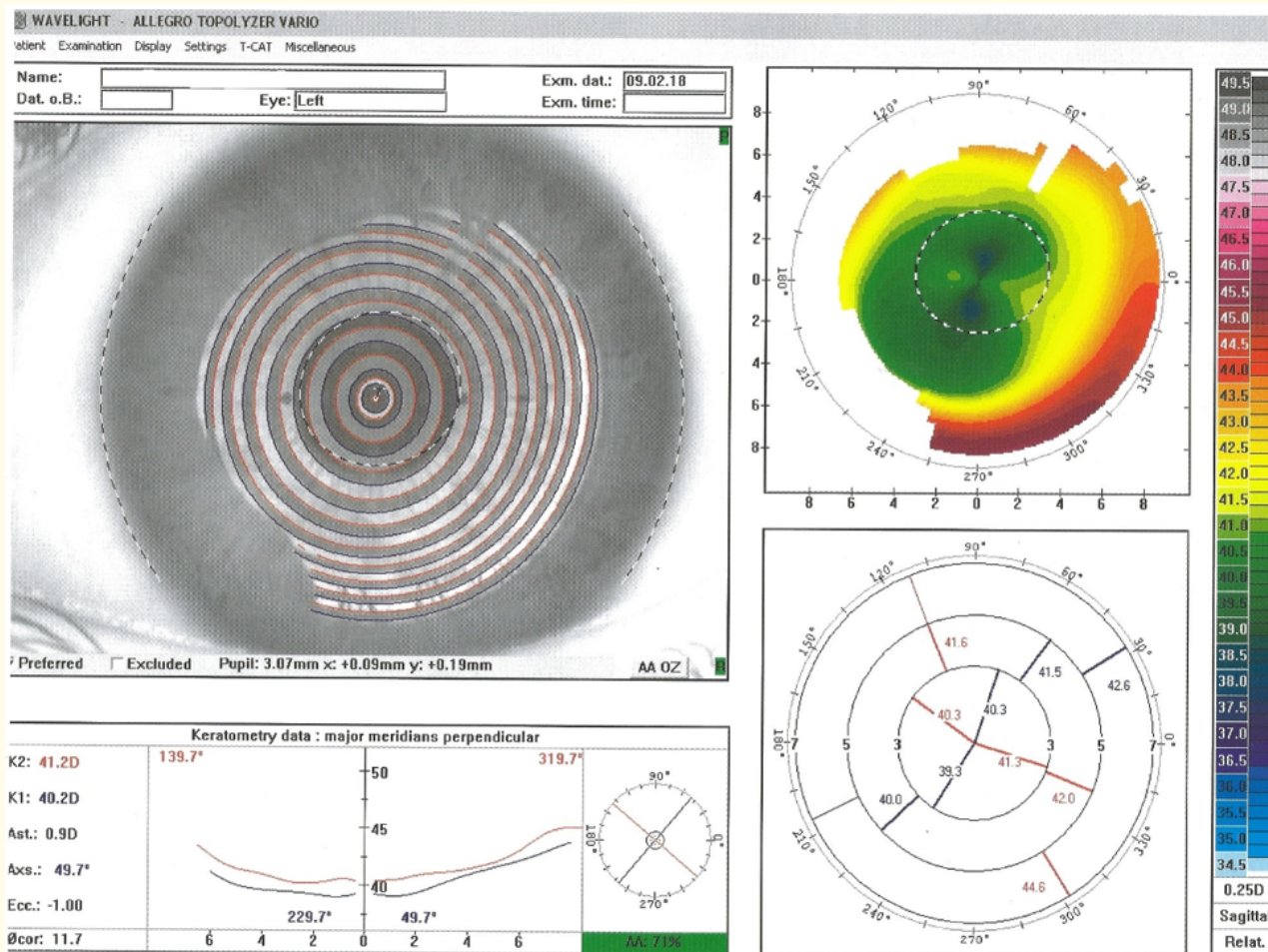


Figure 3: Topolyzer measure on the left eye before Transepi-PRK treatment. Sim K: Simulated Keratometry; Astig: Astigmatism; T: Temporal; N: Nasal.

Three days after Transepi-PRK the cornea of the left eye looked clear and no haze was present. The visual acuity was 20/50 and refraction was -0.25 -2.25 177°.

Two months post Transepi-PRK demonstrate a successful treatment. We noticed a real improvement of UCVA OS to 20/20 -0.00 -0.25 168° and reduced astigmatism. The biomicroscopy examination revealed clear corneas and smooth flaps. Epithelium map with OCT optovue of the retreated left eye was regular (Figure 4).

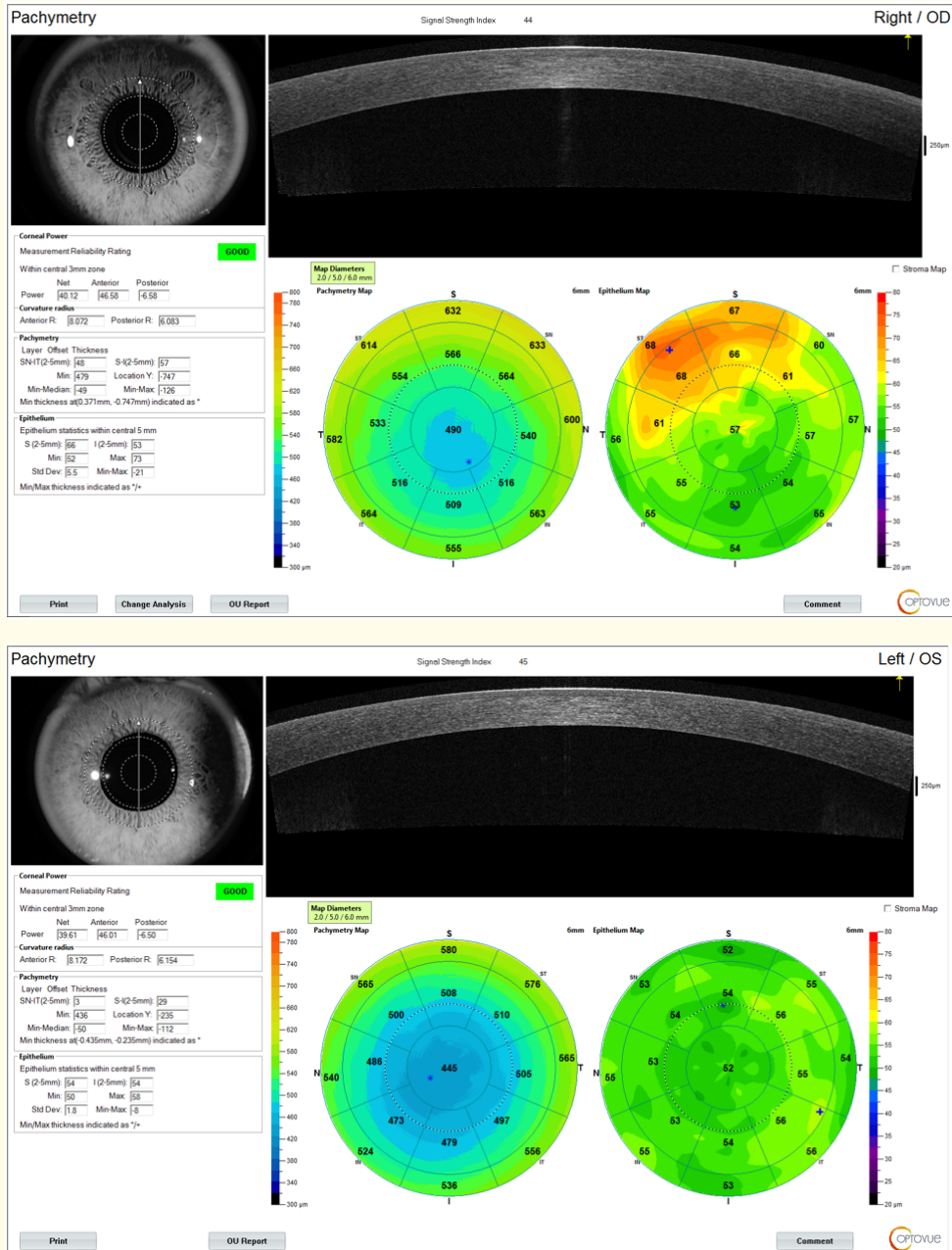


Figure 4: At 7 months post Transepi-PRK Epithelium map with OCT optovue of right and left eye.

Discussion

The wrinkles are usually caused by a partial displacement of the flap in the minutes or hours following the surgery. This displacement is most often caused by accidental friction or rubbing of the eye by the patient or by local trauma [1].

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It was decided, after 24 hours, that the risk of superficial friction was much lower.

The causal factor of the folds is therefore mechanical. Blinking eyelids are less likely to move a LASIK flap initially well-made and repositioned [2].

Complains of wavy and displaced flap

Overall, patients may present with blurred vision, diplopia, foreign body sensation in the eye and eye irritation [3]. In our case, the patient had ocular pain, blurred vision and UCVA decreased.

Objective sign

The striae can be observed in the slit lamp particular by retro-illumination.

Topography measure with Pentacam and Topolyzer confirm the corneal abnormality.

Treatment of dislocated flap

A successful reposition of the flap is highly expected if discovered in a very early stage of the mechanical trauma.

Many different technics exist to perform a surgical treatment for the stripping of the flap [4]. From of raising the flap and handle it carefully, to remove the folds and streak with energetic stretching as it was done in this case.

Another technic shows analogical result which to reflate and hydrate the flap under the operating microscope with sterile deionized water for 2 minutes without stretching of the flap. A bandage contact lens will be applied for 24 hours and sterile deionized water will be used topically every 2 hours for 1 day [5].

Transepithelial photorefractive keratectomy treatment

Transepi-PKR has showed good predictability in results. It is a flapless technique that is safe and efficient [6].

Conclusion

In order to avoid corneal slicks, it is crucial to follow each of these steps: good Femtosecond Laser assisted Lasik procedure, careful rest of the flap at the end of LASIK intervention, checking 15 - 30 minutes post-operatively and protective shell.

It is also very important to educate the patient post operatively: don't rub the eyes after surgery with the fingers, be careful when you put the drops on the eye.

Conflict of Interest

None.

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Volume 10 Issue 5 May 2019

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