

INCIDENCE, RISK FACTOR, AND OUTCOMES OF LASIK FLAP STRIAE REQUIRING FLAP RE-LIFT AND IRRIGATION

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PURPOSE

To determine incidence, risk factors, and outcomes of post-LASIK flap striae requiring flap re-lifting and irrigation.

METHODS

Retrospective review of 61,561 consecutive LASIK procedures. Eyes that required striae removal with flap relift and irrigation were included. The main outcome measures were incidence, time to diagnosis, change in corrected distance visual acuity (CDVA) and uncorrected distance visual acuity (UDVA). Pre- and intra-operative variables were collected to determine risk factors. Repeated measures ANOVA were used and all data are reported as means \pm standard deviation.

RESULTS

335 eyes with post-LASIK striae underwent flap relift, incidence of 0.54%. 42% OD, 39% OS, and 19% OU. 6.3% of eyes required a repeat visit for additional relift and irrigation. Mean time to flap re-lift was 2.7 ± 9.9 days post-LASIK, 95% within one week. 246 eyes had a follow-up time of at least 3 months. Risk Factors: 80% had flap diameters of 9.5mm, 20% with 8.5mm. 65% of flaps were created with a Z16 microkeratome head, 35% with Z18. 52% of eyes had a 9.5mm flap diameter and Z16 microkeratome head. Surgeons with less experience (<1000 LASIK surgeries) had a higher relift incidence (1.75%) than surgeons with intermediate (1000-5000 surgeries, 0.91%) and high experience (>5000 surgeries, 0.47%). Accuracy: Mean spherical equivalent (SE) pre-relift was $0.21 \pm 0.52D$, improving post-relift to $-0.05 \pm 0.40D$ ($p < 0.001$). 98% were within ± 1.0 and 87% within

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$\pm 0.5D$ of intended correction post re-lift compared to pre-lift of 96 and 81%. Efficacy: 98, 96, 88, and 65% were 20/40, 20/30, 20/25, and 20/20 or better UDVA post-relift, respectively compared to 82, 70, 55, and 25% pre-relift, respectively. UDVA prior to flap relift (0.2 ± 0.3 logMAR) was significantly impaired compared to post-flap relift (0.1 ± 0.1 logMAR, $p < 0.001$). Safety: Prior to flap relift, 8.5% lost 3 or more lines, 10.4% lost 2, and 31.6% lost 1 Snellen line of CDVA. After flap re-lift no eyes lost more than 2 lines, 0.4% (1 eye) lost 2 lines (20/20 to 20/30), and 5% lost 1 line (all 20/20 to 20/25).

CONCLUSIONS

LASIK flap striae requiring surgeon intervention are relatively uncommon, occurring more often for inexperienced surgeons and with creation of larger and thinner flaps. Early treatment by lifting and irrigation will result in improved outcomes, but lower efficacy than non-striae eyes.