

Traumatic flap dislocation by paper air plane 10 years after LASIK

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1. Case report

A 49-year-old teacher was referred after his right eye was hit from the side by a paper air plane in class 1 day prior. The airplane was made of one sheet of paper (29,7 cm x 21,0 cm) weighing 5 g and thrown from a distance of approximately 4 m. He had immediately experienced pain and complained about an ongoing loss of vision in this eye. Uncorrected visual acuity was reduced to 0.32 (decimal scale). Slit lamp examination revealed traumatic macrofolds in the temporal half of an otherwise unremarkable flap 10 years after microkeratome-assisted LASIK (Fig. 1 A). The flap had no signs of an (healed) abrasion.

On the next day, the flap was lifted and the epithelium partially abraded. Then the flap was hydrated with distilled water and carefully ironed to remove the folds. Perfect alignment of the flap margin could be achieved. A therapeutic soft contact lens was placed for one week.

Slitlamp examination showed no folds 4 days after revision (Fig. 1 B). Uncorrected visual acuity returned to 1.0 after 3 months.

2. Discussion

Flap dislocation after LASIK typically occurs in the early postoperative period and mostly due to eye-rubbing.¹ Flap dislocations more than 1 year after LASIK are exceptional.² Our case represents one of the longest reported intervals between LASIK and traumatic flap displacement and also one of the smallest trauma. Thus, it illustrates that even 10 years after LASIK the flap may be dislocated due to very mild trauma. The trajectory of the airplane leading to tangential forces at the flap margin may have been critical to the resulting partial dislocation. However, without knowing the velocity and the precise angle of impact it is impossible to calculate the precise forces acting on the cornea. Several mechanisms like capillarity, fiber interlacing, intracorneal suction, endothelial pumping, and ionic bonding are assumed to play a role in flap

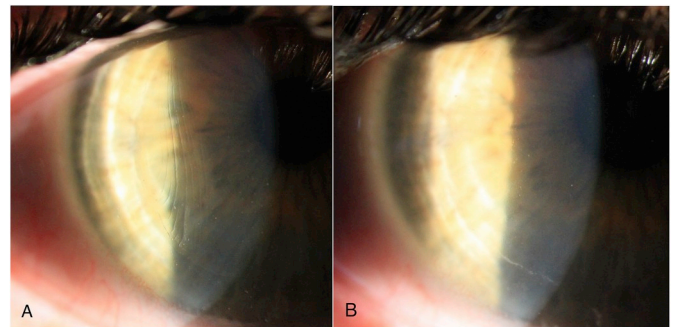


Fig. 1. (A) Traumatic macrofolds in the temporal half of an otherwise unremarkable flap 10 years after microkeratome-assisted LASIK (B) No folds visible 4 days after flap revision.

adherence in the early postoperative period.³ However, the exact mechanism of long term adhesion and the final mechanical strength of the wound healing response remain elusive to date.

In the present case, rapid and decisive surgical intervention fully corrected this extremely rare injury. Delayed treatment may be more difficult and facilitate diffuse lamellar inflammation.

Flapless corneal laser procedures like excimer laser ablation of the stromal surface or small incision lenticule extraction avoid this emergency completely.

3. Patient consent

The patient provided informed consent and gave written consent to anonymous collection of data for scientific analysis, as required by the local ethics committee.

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Conflict of interest

Drs. Taneri and Dick are consultants to Carl Zeiss Meditec (Jena, Germany) and Bausch & Lomb Technolas (Munich, Germany).

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Authorship

All authors attest that they meet the current ICMJE criteria for

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