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Is LASEK really possible in the rabbit eye?

In their article,¹ Laube et al. state the purpose of their study was “to compare corneal wound healing after [laser-assisted subepithelial keratectomy] LASEK and conventional [photo-refractive keratectomy] PRK in an experimental animal model.” However, we think there are some contradictory points in the study that may mean the results do not fully reflect the purpose. To overcome the strong, firm adhesion between the epithelium and stroma in the rabbit cornea, the authors increased the concentration of ethanol to 30% and prolonged the exposure time to 3.5 minutes. However, the concentration and especially the exposure time are far above the values commonly used in LASEK.

A crucial step in LASEK is the preservation of the vitality of the epithelial flap. Studies demonstrate that prolonged duration of exposure and increased concentration adversely affect the vitality and integrity of the epithelial flap and therefore probably alter the function and healing of the epithelial flap.^{2,3} We have observed that a 30-second application of ethanol 20% frequently results in an edematous epithelial flap and a different experience for the patient on the first postoperative day than a 20-second application (unpublished data).

As a consequence of extensive epithelial injury with a high concentration and long exposure time, the potential functions of the epithelium will probably deteriorate. The extensive damage to the corneal epithelium can lead to excessive keratocyte apoptosis and wound healing. In addition, a high concentration of alcohol and long exposure time can have direct adverse effects on keratocytes.⁴

For these reasons, we think the results of this experimental study may not accurately reflect wound healing after LASEK.

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Retinal breaks and detachment after neodymium:YAG laser posterior capsulotomy

In their article about retinal breaks and detachments after neodymium:YAG (Nd:YAG) laser posterior capsulotomy,¹ Ranta and coauthors address the issue of prophylactic treatment of asymptomatic retinal tears prior to Nd:YAG capsulotomy in pseudophakic eyes. The authors state that retinal detachments (RDs) occurred in 1.2% (2 of 211 eyes) of prophylactically treated eyes and in 5.8% (6 of 171 eyes) of untreated eyes and conclude that prophylactic photocoagulation of preexisting retinal breaks is worth considering, especially in high-risk eyes.

However, the prospective study they report was not randomized and 75% of the untreated eyes had other risk factors for RD (long axial length, history of retinal detachment, posterior capsule rupture and loss of vitreous at the time of surgery). Furthermore, the 2 retinal breaks that occurred in the prophylactically treated eyes occurred in sites that were not related to the previously noted and treated asymptomatic breaks. The authors further state that 62.5% (5 of 8) of the RDs in the study resulted from new retinal breaks and not from preexisting lesions.

If retinal breaks were occurring after Nd:YAG capsulotomy from sites that were deemed normal before capsulotomy, how can prophylactic laser treatment to asymptomatic retinal breaks be beneficial? The American Academy of Ophthalmology Preferred Practice Pattern² states that demonstrating that vitreoretinal lesions increase the risk for RDs does not justify their prophylactic treatment in the absence of scientific evidence that therapy lowers the rate of subsequent RD. There is also evidence that retinal tears develop in areas adjacent to previous prophylactic treatment.³ We therefore think the evidence for the prophylactic treatment of preexisting retinal breaks before Nd:YAG capsulotomy presented by Ranta and coauthors is unconvincing and potentially misleading.

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Hyaluronidase allergy after peribulbar anesthesia with orbital inflammation

Quihill and coauthors¹ report a case in which they treated a patient with high dose oral steroids when the clinical features remained unchanged 24 hours after intravenous administration of antibiotic

agents. We present a similar case, but our patient showed significant clinical improvement with systemic antihistamine agents.

A 72-year-old woman had phacoemulsification cataract surgery and intraocular lens implantation in the right eye under sub-Tenon's local anesthesia (5 mL of lignocaine 2% with 750 IU of hyaluronidase). She returned the next evening with right eye proptosis, severe swollen eyelids, extensive chemosis, and restricted eye movements. She was afebrile and systemically well; the anterior and posterior segments were unremarkable; the uncorrected visual acuity was 6/9. Because of weekend unavailability, a computed tomography scan of the orbits could not be done.

The patient was admitted to the ward for intravenous administration of antibiotic agents (ciprofloxacin and metronidazole). There was no clinical improvement after 24 hours so the antibiotic agents were stopped and a stat intramuscular dose of 20 mg chlorpheniramine maleate was administered, followed by 4 mg orally every 8 hours. The patient showed significant clinical improvement and was discharged the next day.

The patient had had similar (although less severe) symptoms after phacoemulsification in the left eye a few months previously. At the time, she was thought to be allergic to the postoperative medications (tobramycin and dexamethasone [TobraDex] eye-drops/chloramphenicol eyedrops), and the symptoms improved

after these drops were replaced. For that reason, the postoperative drops in the second eye were prednisolone and ofloxacin instead of the standard TobraDex eyedrop regimen.

In retrospect, the patient was allergic to 1 or more of the intraoperative medications (possibly including hyaluronidase). She improved clinically with systemic antihistamine agents, thus avoiding high dose oral steroids. This postoperative picture is sometimes confusing. If the clinical picture suggests possible allergy and the patient shows no clinical improvement with intravenous antibiotic agents, systemic antihistamine agents can be tried.

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