



Andrew I Caster

Lifting flap three years after LASIK increases risk of epithelial ingrowth

Devon Schuyler
in Atlanta

ENHANCEMENT LASIK using flap-lift techniques is more likely than initial LASIK to cause epithelial ingrowth, a study reveals, especially if the enhancement occurred three or more years after the original procedure.

“A critical change in the healing of LASIK flaps occurs approximately three years after flap creation that dramatically increases the risk of clinically significant epithelial ingrowth,” said study investigator Andrew I Caster MD, speaking at the annual AAO meeting. Dr Caster is medical director of the Caster Eye Center Medical Group in Beverly Hills, California.

Dr Caster’s study was a retrospective review of all the primary and enhancement LASIK procedures he had performed between January 2004 and June 2007. The original flaps were made using one of several mechanical keratomes or the IntraLase. Enhancements were performed up to 10 years after the original procedure, and all involved lifting the original flap rather than cutting a new one.

He then identified cases of clinically significant epithelial ingrowth, defined as ingrowth that negatively affected uncorrected or best-corrected visual acuity, and that required treatment.

Dr Caster found that epithelial ingrowth was significantly more common after enhancement than after primary LASIK. There were no cases of clinically significant epithelial ingrowth among the 3,866 primary LASIK procedures, compared with 15 cases among the 646 enhancement LASIK procedures – a rate of 2.3 per cent.

When Dr Caster further analysed the enhancement cases, he found that the rate of epithelial ingrowth was significantly higher when the enhancement was performed three to 10 years after the original procedure (7.7 per cent) than when it was performed less than three years later (1.0 per cent).

Interestingly, the rate of epithelial ingrowth did not increase steadily. The rate was one per cent at zero to one year, two per cent from one to two years, zero per cent from two to three years, 10 per cent from three to four years, and seven per cent after four years.

“If you look at each individual year, there seems to be a big dividing line at three years. At the three- to four-year mark, the rate suddenly jumps up,” he said.

He added that the seven per cent rate at more than four years remained “pretty much a constant” between year four and year 10.

The rate of ingrowth was the same in men as in women (2.1 per cent vs. 2.5 per cent) and did not differ based on the patient’s age. There was a trend toward

lower epithelial ingrowth rates among patients who had a routine bandage contact lens placed for the first night post-op versus those who did not (2.3 per cent vs. 4.0 per cent), but this did not reach statistical significance.

When clinically significant epithelial ingrowth did occur, it was diagnosed between eight and 483 days after LASIK. The median amount of time was 110 days.

Fairly good treatment

The good news about epithelial ingrowth is that “the treatment is fairly good,” said Dr Caster. None of his patients lost best-corrected visual acuity after treatment, which involved lifting the flap and removing the epithelium manually. One person experienced repeat clinically significant epithelial ingrowth, which was diagnosed 166 days later and in a different location from the original ingrowth.

During the panel discussion of Dr Caster’s paper, the panellists discussed how concern over epithelial ingrowth has affected the technique they use to perform enhancements.

John F Doane MD of Kansas City, who said that he’s “certainly seen the same situation – the further they go out, the greater the risk for epithelial ingrowth,” said that he uses surface enhancement rather than lifting the flap on patients who exceed the one-year mark.

“I think that the treatment is very effective, and I find that patients like the flap lift much better than the PRK procedure”

Andrew I Caster MD

Karl G Stonecipher MD of Greensboro, North Carolina, also said that he uses a one- to two-year cut-off for patients with myopia or astigmatism based on the residual refractive error.

“If it’s mixed astigmatism or a hyperope, I’ll extend it out to two years,” he said. “After two years, I have found that a transepithelial PRK is as effective in terms of visual outcomes and less risky in terms of potential complications such as epithelial ingrowth in those patients requiring an enhancement procedure.

In an interview with *EuroTimes*, Dr Caster said he was surprised to hear how many people were performing PRK as an enhancement for LASIK due to the risk of epithelial ingrowth. He noted that surgeons were forced to use an “arbitrary” one-year

cut-off in the “absence of cold, hard facts.”

He said that the results of his study support two possible courses of action. The first would be to enact a three-year cut-off for switching from flap lift to PRK, and the second would be to simply proceed with flap lift despite the increased risk of epithelial ingrowth.

Moderator Parag A Majmudar MD,

associate professor of ophthalmology at Rush University Medical Center in Chicago, said that he had been using three years as his cut-off based on anecdotal evidence, and was glad to have Dr Caster’s study to back this up.

“I think it makes sense [to lift the flap] within one year or two, because you get good results with lifting and it’s much easier than PRK,” he said.

Dr Caster said he’s been following the second approach.

“I’m still enhancing most of my patients with flap lifts because although I did have a seven per cent ingrowth rate in cases of three or more years after the original LASIK, it didn’t result in any loss of best-corrected visual acuity and only one case had recurrence. I think that the treatment is very effective,

and I find that patients like the flap lift much better than the PRK procedure.”

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