EPITHELIAL INGROWTH
Flap removal effective as last resort in difficult epithelial ingrowth cases

by Dermot McGrath in Paris

With the thin flap technique with microkeratome or femtolaser, amputation of the LASIK flap (90 to 110 microns) is a radical yet effective means of tackling problems of recalcitrant epithelial ingrowth that have failed to respond to conventional treatment methods, according to Charles Ghenassia MD.

"Ablation of the flap is never an easy decision to take, but sometimes we are left with no other option when repeated cleaning of the flap and interface fail to prevent recurrence of the ingrowth. While this really is the last resort when all other methods have failed, our own experience, as well as the rare cases found in the scientific literature, point to reasonably satisfactory outcomes after the flap has been removed," he said.

Addressing delegates attending the French Implant and Refractive Surgery Association (SAFIR) annual meeting, Dr Ghenassia, in private practice in Nice, France, said that flap-related complications in LASIK procedures have been well chronicled over the years.

"There are the intraoperative complications related to flap creation such as incomplete flap, buttonholes, torn flaps, small diameter flaps and so forth. Flap striae, large folds and flap irregularities can also cause problems. Other postoperative complications to be wary of include recurrent epithelial ingrowth, multilayered squamous epithelium, corneal decompensation and opacities of the central cornea," he said.

While epithelial ingrowth into the corneal stromal interface is usually asymptomatic, Dr Ghenassia noted that in rare cases the proliferation of cells may lead to decreased vision due to irregular corneal astigmatism, direct intrusion of cells into the visual axis and potential melting of the overlying flap.

Treatment is generally indicated in instances where there is decreased vision or threat for a flap melt. The general treatment for removing epithelial ingrowth is to lift the flap and scrape the epithelial cells from the stromal bed and under-surface of the flap, followed by application of 30 per cent alcohol on the stroma for around 20 seconds, said Dr Ghenassia.

This is then typically followed by placement of a therapeutic contact lens. Excimer laser phototherapeutical keratectomy (PTK) may also be used in combination with manual scraping to remove epithelial cells and prevent further recurrence of the ingrowth. The use of an Nd:YAG laser may also be indicated when epithelial cells are encroaching the visual axis.

For refractory epithelial ingrowth, amputation of the flap may ultimately be indicated in order to preserve visual acuity and minimise damage to the stroma.

Before removing the flap in such recalcitrant cases, Dr Ghenassia advised evaluating the ingrowth using OCT imaging to determine its depth and to obtain a full topographic analysis of the lesion. The corneal topography may also be useful in showing irregular astigmatism due to the epithelial cells affecting the corneal contour of the overlying corneal flap.

If PTK or cleaning does not work, the last resort is flap removal, said Dr Ghenassia. This can be carried out under topical anaesthesia. The edge of the flap can be scored and lifted using an instrument such as a Seibel hook to separate the epithelium. This is followed by careful debriodment of the epithelial cells from the stromal bed and application of 30 per cent alcohol solution for 15 to 20 seconds on the stroma. The final steps include PTK of 5.0 microns on the anterior stroma followed by ablation of the flap at the hinge with the use of a Vannas scissors and the placement of a therapeutic contact lens for 48 hours.

The disadvantages of flap amputation include postoperative pain, transitory haze and myopic shift that can be treated by PRK if the corneal thickness allowed it, said Dr Ghenassia.

In the 10 cases of flap amputation reported by Dr Ghenassia, the removal of the flap resulted in an improvement of mean refractive cylinder from 2.47 D preoperatively to 1.10 D postoperatively. Visual acuity was also considerably improved after treatment, with six patients recording between 8/10 and 10/10 best corrected visual acuity with or without PRK enhancements, he said.

Interestingly, Dr Ghenassia remarked that the flap ablation also appeared to increase the prolate shape of the cornea and modify the quantity of spherical aberration, resulting in an improved depth of focus and better near vision for these patients.

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Charles Ghenassia MD