

# Flap transplants effective in treatment of superficial corneal opacities



Massimo Busin

## Roibeard O'hEineacháin in San Diego

MICROKERATOME-ASSISTED lamellar keratoplasty can result in rapid and stable visual rehabilitation with a low amount of induced astigmatism in patients with superficial corneal opacities, Massimo Busin MD told the annual meeting of the American Society of Cataract and Refractive Surgeons.

In a study that involved 20 eyes that underwent microkeratome-assisted superficial anterior lamellar keratoplasty, all achieved a

postoperative BCVA of 20/40 or better within the first two post-operative months and none of the eyes had postoperative astigmatism greater than 4.0 D, said Dr Busin, Villa Serena Hospital, Forlì, Italy.

"The corneal mechanics with this technique are essentially same as with a LASIK flap, the only difference is that the flap comes from a donor. As a result, the visual recovery is quick and stabilises well after the first few months and in some patients there is full recovery of vision after a few weeks," he told EuroTimes in an interview.

The patients in the study had a mean preoperative visual acuity of 20/100 (range: 20/40-20/400). This value improved to about 20/30 at one month's follow-up and appeared to remain stable thereafter for up to two years.

After one month, best corrected visual acuity was 20/40 in six eyes (30%), 20/30 in seven eyes (35%), 20/25 in five eyes (25%) and 20/20 in two eyes (10%).

Similarly, in 13 eyes that had 12 months of follow-up, BCVA was 20/40 in three eyes (23%), 20/30 in five eyes (38%), 20/25 in four eyes (30%) and 20/20 in one eye (8.0%). Furthermore, in six eyes

with two years of follow-up, three eyes were 20/30, two were 20/25, and one was 20/20.

The patients in the study included 12 with corneal dystrophy and degeneration, six with subepithelial scarring following PRK, and two with superficial stroma opacities following keratitis.

Dr Busin's surgical technique consists of using the Moria ALTK microkeratome system to first remove a lamella 130 microns - 160 microns in thickness and 9.0-9.5 mm in diameter from the recipient cornea and then preparation of a similar donor lamella from the donor cornea using the same microkeratome head and an artificial anterior chamber. He then uses overlying sutures, rather than radial 10/0 nylon sutures to hold the implant in place on the recipient's stroma, and then removes the sutures two days later.

Because the overlying sutures do not actually penetrate the donor lamella they do not induce astigmatism. Furthermore, sutures are not always necessary as the donor "flap" adheres quite firmly to the recipient stroma, he noted, adding:

"Since we remove and exchange such a thin layer, the

new layer that comes on top of the cornea seals on top of the recipient's stroma in a way that is similar to a LASIK flap. That means you don't need radial sutures with the graft, you can just put over-lying stitches that may be removed two days after surgery and the healing is very fast, so it provides very quick visual rehabilitation and minimal change in refraction."

Dr Busin acknowledged that the respective lamellae of the donor and recipient may not be completely identical because - just as with the creation of LASIK flaps - there is usually some variation between the depth of microkeratome cuts even when using the same microkeratome head.

However, he maintained that the difference is well-tolerated by the cornea and he pointed out that many of his patients were strongly handicapped before the procedure but had near normal vision from the early postoperative period onward.

Complications included five cases where the donor flap and the recipient stroma were of unequal diameter. When the donor lamella was smaller than the recipient bed (3 eyes), the surface epithelium simply grew over the thin annular area of bare stroma around the graft, with no further consequences. In the two grafts with a diameter larger than the recipient bed, the tissue in excess, hanging over outside the microkeratome cut, necrotised causing irregularity of the peripheral edge, but, again, no significant side effect.

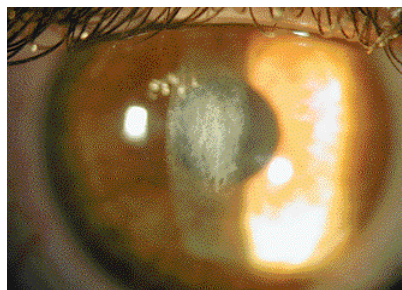
Epithelial interface ingrowth was seen in four eyes. As the epithelial cysts lay outside of the visual axis, they were left untreated. In general, treatment is needed only in those cases with the interface epithelium communicating with the surface through a "feeding" channel, which keeps on

maintaining the ingrowth. In the other cases the epithelium dies off with time and simple observation is sufficient.

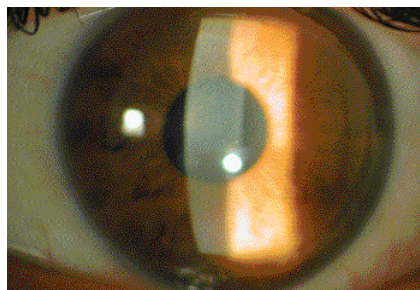
Dr Busin said the advantages of microkeratome-assisted superficial lamellar keratoplasty compared to phototherapeutic keratectomy were similar to those of LASIK compared to PRK. Namely, with the microkeratome-assisted technique there is no scar formation, patients have an intact Bowman's layer, there is negligible hyperopiation, and subsequent LASIK surgery is possible by simply partially lifting the donor lamella.

"With this technique you have the quality of the microkeratome dissection, the speedy rehabilitation with longterm stability, and repeatability. If you're not happy with the result you've got, you can always take it off and put a new one on. It's a little like a living contact lens."

[mbsuin@yahoo.com](mailto:mbsuin@yahoo.com)



Post-PRK scar



Post PRK scar treated with superficial lamellar keratoplasty