Indications for LASIK
With the Microkeratome

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At the time of writing, the most advanced technique of LASIK uses a femtosecond laser for the creation of the flap. This instrument has reduced the complications associated with the creation of the corneal flap to a minimum, with a reduction in the cut depth and a consequent increase in the thickness of the residual stromal bed. The femtosecond laser can therefore be considered to be a major evolutionary step forward, particularly where previously unoperated eyes are concerned.

However, in some cases, the microkeratome is still essential. In order to perform a uniform cut, the femtosecond laser requires perfectly transparent corneal tissue. Patients with scars from previous corneal wounds will have a variable corneal transparency (particularly at the edges along the incision lines). In these cases, the femtosecond laser will lose its full efficacy when it cuts the more opaque zones containing the corneal scars, with consequent irregular cuts and difficulties with raising the flap. Furthermore, during the photodestructive process, bubbles of plasma are created, which separate the adjacent tissues as they expand. If this process occurs in corneal tissue, the flap will still be acceptable. However, if there are areas of less resistance (eg, following radial keratotomy), when the bubbles of plasma expand, they may penetrate different layers and reopen old corneal wounds.

These complex cases can be approached using a mechanical microkeratome; however, the risk of complication with this instrument is greater when compared to the operation performed on a previously unoperated eye. There are no formal guidelines on how to deal with these patients. Finally, patients must be fully informed on the potential danger they are facing, given the risks associated with the procedure.

LASIK DOWN-UP WITH THE HANSATOME MICROKERATOME

Introduction

The most popular elective treatment for myopia, astigmatism, and hyperopia is LASIK.

Two decades have passed since 1989 when I performed the first cases of intrastromal ablation on the disk with the excimer laser and the first in situ procedure on an ametropic patient, for the first time worldwide. Since then, the procedure has developed considerably.

In the period between 1991 and 1996, the procedure was well-defined: a superficial lamella of cornea (diameter 7.5 to 8.5 mm and thickness 130 to 180 μm) was cut with a microkeratome with an automatic advance mechanism. The cut commenced from the temporal side and stopped nasally prior to its completion (with the creation of a nasal hinge measuring approximately 1.0 mm). The flap was then raised, and a multizone in situ ablation was performed with the excimer laser centered on the pre-pupillary area. The flap was then repositioned without suturing. The entire procedure was performed under topical anesthesia in the out-patient department.

At that time, the most popular instrument was the ACS (Automated Corneal Shaper by Chiron), and the