New Techniques: An Opaque Contact Lens for Marking the Visual Axis

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ABSTRACT: An opaque contact lens with a central aperture has been developed to identify and aid in marking the visual axis during refractive surgery.

A new method of marking the visual axis has been utilized by the authors on 50 cases of radial keratotomy. It consists of using an 11 mm opaque contact lens with a central 200 micron hole. It has a base curve of 7.50 mm which fits the contour of an average cornea.

The advantage of this opaque contact lens is that it eliminates photophobia from the operating microscope light, enabling the patient to better fixate on the light source. In addition, the surgeon is assured that the patient is looking at the filament because when the hole is not aligned with the visual axis, the vision is completely obscured. Also, the reflex from the operating microscope can be seen through the aperture in the opaque lens when the patient is fixating on the microscope light, further verifying the accuracy of identifying the visual axis. A 200 micron hole is optimal since it allows a 25-gauge needle to abrade the epithelium while still visualizing the reflex light from the corneal epithelium.

When comparing the use of this contact lens in marking the visual axis versus that of merely using the corneal light reflex from the operating microscope, the results were found to be identical. The advantage of this instrument, however, is that it is a safe device for use by the novice who is inexperienced in marking the visual axis. The visual axis can be marked using this contact lens and then verified by comparing it with the commonly used method of using the microscope filament reflex. When the surgeon has gained confidence, use of the contact lens can be discontinued.

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