

# Cataract and Corneal Pathology

In situations in which the eye has corneal pathology perhaps requiring keratoplasty, the surgeon should always examine the lens. It is also essential to examine the cornea, in case a cataract operation becomes necessary. It should be remembered that cataract formation is more common in patients with Fuchs' dystrophy and signs of inflammation or trauma. The formation of cataracts is less frequent in younger patients undergoing keratoplasty and those with keratoconus. Thus, when the surgeon examines patients with significant corneal disease, associated with a potentially significant cataract, he or she must determine the relative contribution of each of the conditions<sup>1</sup> and decide whether to just remove the cataract, to remove it during or following keratoplasty, or to perform only the keratoplasty procedure.

## PREOPERATIVE EVALUATION

Preoperative examination of patients having corneal pathology and cataracts must be precise in selecting ideal candidates for surgery.<sup>1-8</sup>

In terms of the cataract, a totally or slightly abnormal cornea may prevent good visualization of the cataract. Mild to moderate epithelial and stromal edema can be temporarily improved during the diagnostic testing with repeated instillation of 10% glycerine. Its application must follow instillation of a topical anesthesia to reduce patient discomfort.

Some of the traditional methods used to determine the significance of a cataract are of little benefit and may be totally useless. For example, direct ophthalmoscopy or determination of the transparency of the lens based on red reflex cannot isolate the lens from the corneal effect on vision.

The condition of the lens in the fellow eye, if visible, can provide useful information as long as the patient does not have pathologies that can accelerate the development of a unilateral cataract (eg, inflammation or trauma).

The pupil must be dilated to visualize the entire lens.

The corneal opacity can be determined based on how cloudy the iris and lens are. Surface irregularities also often interfere with evaluation of concomitant opacities. Biomicroscopy frequently does not reveal surface distortions that are optically significant.

Corneal topography using a Placido disc, with photokeratoscopy or, better yet, computerized tomography, will reveal irregularities; however, this does not determine the relative contribution to visual limitation. Contact lens over-refraction is the best way to quantify surface irregularity and determine its contribution to the overall decrease in vision.

Evaluation of the endothelial cell reserve in patients with guttata is traditionally not precise.

In the patient's clinical history, the surgeon should pay attention to symptoms such as glare, fluctuating drop in contrast sensitivity, and particularly blurred vision in the morning. Edema developing at night, when the eyes are closed, is frequently a first sign of decompensation. Under slit-lamp examination, observation of endothelial striae or microcystic edema indicates incipient decompensation.

Minimal microcystic edema may be very difficult to visualize in the presence of dense guttata; fluorescein may prove useful in this examination.

Two tests can also be used: specular microscopy or confocal microscopy. Specular microscopy is used for functional evaluation of the endothelium, but can produce mixed results, particularly because the corneal endothelial decompensation is in proximity to a variety of cell densities and also because endothelial pump function depends not only on the cell count but also on the integrity of intercellular links, and neither of these is evaluated by specular microscopy. Second, with guttata, the interpretation of specular microscopy is clouded by the dark guttata shadowing of endothelial cells, preventing visualization of the endothelium.