The past decade has seen a paradigm shift in the management of corneal disorders—from penetrating keratoplasty (PK) to endothelial keratoplasty (EK)—and in the management of secondary intraocular lens (IOL) implantation—from conventional sutured scleral fixation and iris retro-claw fixation to sutureless glued intrascleral IOL implantation. These advancements offer many benefits to a select group of patients.

Posttraumatic cases with corneal opacities and lenticular disruption/dislocation are ideal scenarios in which to perform glued IOL with corneal surgical intervention. Complicated cataract surgeries associated with posterior capsule rupture often lead to corneal decompensation. Corneal edema and decompensation result from failure of the corneal endothelium to maintain deturgescence. The visual function of the 5-layered cornea is dependent on its shape and clarity, and each layer plays a vital role.

Corneal decompensation beginning many years after IOL implantation may be due to excessive loss of endothelium at the time of surgery, followed by ongoing normal or accelerated attrition of the remaining endothelium. With the recent surge in keratoplasty techniques for the treatment of corneal diseases, determining when to perform corrective surgery for IOL implantation in the setting of corneal disease is crucial for appropriate surgical planning. Glued IOL has been used in multiple situations, including surgical aphakia, traumatic phacocele, and dislocated in-the-bag IOL, as well as in combination with femtosecond laser-assisted keratoplasty. This chapter discusses considerations for deciding to perform glued IOL implantation and the appropriate corneal procedure to perform for corneal diseases.

The past decade has seen a revolutionary shift in the treatment of corneal endothelial disease. Fifteen years ago, the only surgical treatment for pseudophakic bullous keratopathy and Fuchs’ dystrophy was PK. Although used successfully for more than a century, PK requires many months of refractive adjustments before the eye achieves visual stability. Starting with posterior lamellar keratoplasty in the late 1990s, a number of procedures have been developed, refined, and widely adopted, which have given patients faster recoveries and improved globe stability compared with traditional corneal transplantation. Preliminary results of the most recent form of EK—Descemet’s membrane EK (DMEK)—suggest that pure endothelial cell transplantation is on the horizon.1