1. What are the principal indications for contact lens fitting after corneal transplantation?

The principal indications are high, regular, or irregular astigmatism, anisometropia, poor vision with glasses, poor surface healing requiring bandage lens therapy, or residual refractive error with the patient’s preference for contact lens use. Considering that there is a greater risk of complications with contact lenses than with glasses, the vision with contact lenses must be superior to spectacle-corrected vision. Spectacles are often of limited value postoperatively, especially in the presence of preoperative corneal pathology. The limitations are based on the optical shortfalls of spectacles, including (1) the inability to correct significant irregular astigmatism; (2) aniseikonia induced by spectacle-corrected anisometropia; (3) barrel and pin cushion distortions in highly myopic and hyperopic prescriptions, respectively; (4) visual distortion in high astigmatic corrections; (5) induced prism in peripheral gaze; and (6) image minification in high minus prescriptions. Contact lenses not only minimize the limitations induced by spectacles but also can stabilize fluctuating visual acuity. They have been known to augment or intentionally mold the cornea for an intensified surgical effect, and they are useful in decreasing relative spectacle magnification that may be induced in refractive anisometropia.

2. When should contact lenses be fitted after a corneal transplant?

Some eye care practitioners feel that, in general, contact lens fitting should not be performed until 6 months or more after the removal of sutures. Others will fit contact lenses as early as 3 months after surgery with the sutures in place.¹ Many surgeons believe that sutures are not
a contraindication to contact lens fitting unless suture removal is going to be performed soon. Contact lenses can be safely fitted over sutures as long as the sutures are completely covered by epithelium and all knots are buried. The fitter should be aware, however, that the presence of sutures increases the possibility of epithelial erosion and, therefore, infection. To diminish the risk of complications and to increase the success of fitting, it is best to fit the contact lens when the donor tissue is completely healed and when the keratometric measurements and refraction results are stable. Contact lens fitting can and should be performed earlier in children in whom amblyopia may develop without adequate optical correction.

3. What types of contact lenses can be used?

All contact lens types have been fitted postoperatively including soft, rigid gas permeable (RGP), piggyback, or hybrid lens designs. Hydrophilic lenses are indicated in cases in which the cornea is relatively regular only when there is absolute intolerance of rigid contact lenses. Because they may cause corneal edema and neovascularization, hydrophilic lenses are less desirable than RGP lenses for daily wear and should be avoided in patients with sutures in place. Hydrophilic contact lenses worn for extended wear have been directly implicated in the neovascularization and possible rejection of the donor tissue.\(^2\)–\(^4\) However, others have documented safe contact lens wear postoperatively with soft contact lenses.\(^5\) The transplanted eye is an avascular, immunologically privileged area, which limits the immune host mechanisms from entering the tissue. If neovascularization develops secondary to contact lens wear, the cornea’s immuno-privileged status is removed.

Considering that contact lenses are primarily indicated when spectacle-corrected acuity is poor because of astigmatism or an irregular corneal surface, RGP lenses are most appropriate. They provide better optics and oxygenation for the cornea, and there is less risk of corneal edema and vascularization. In cases where the cornea is highly irregular, a larger diameter can be used with highly oxygen permeable materials, which facilitates positioning over the cornea.

Another indication for posttransplant contact lens use is wound dehiscence that does not lend itself well to a surgical repair. The placement of a medium water content, relatively stiff hydrogel contact lens worn on an extended wear basis for weeks to months can facilitate healing of the wound without the need for resuturing.\(^6\)

4. What are the criteria for choosing the initial rigid gas permeable trial lens?

There is no strict rule, and it is always recommended that one begin with the simplest option; for example, first trying a standard spherical lens with a base curve equal to or slightly steeper than the flatter meridian of the cornea. Another option is to begin with a lens design