

Glaucoma post PK

- Secondary glaucoma is a common complication of PK
- occurs with increased frequency in aphakic and pseudophakic patients, and in those who have repeat grafts.

MECHANISMS OF SECONDARY GLAUCOMA
Wound distortion of trabecular meshwork
Fibrous ingrowth
Postoperative inflammation
Chronic angle closure
Viscoelastic
Corticosteroid induced
Pre-existing conditions

- Pre-existing conditions, wound distortion of the trabecular meshwork, and chronic angle closure are the most common causes of long-standing glaucoma in these patients.
- PK 1-year survival rate is 80-90%
- Postkeratoplasty glaucoma occurs more frequently in patients affected by pre-existing glaucoma.
- Aphakic and pseudophakic bullous keratopathy are the most common indications for penetrating keratoplasty, at rates of 20-70% and 18-53
- One study indicated no early or late glaucoma in patients who had PK for keratoconus, and <2% incidence in patients who had Fuchs' corneal endothelial dystrophy treated using PK
- The leading cause of enucleation in PK patients is secondary glaucoma, at 46%
- The most common mechanisms for glaucoma after PK are distortion of the trabecular meshwork secondary to graft-wound closure and angle closure.
- Incidences of clinical glaucoma after keratoplasty for pseudophakic and aphakic bullous keratopathy are 18-53% and 20-70%, respectively.
- graft clarity is reduced significantly when postkeratoplasty glaucoma is present
- postkeratoplasty glaucoma not only affects visual function, but also graft integrity.
- In early postkeratoplasty glaucoma, epithelial edema is found along with stromal thinning and compression.
- Such findings are noted before endothelial damage occurs
- Progressive angle closure from peripheral synechial formation is a warning sign for potential glaucoma in postkeratoplasty patients.
- Some studies demonstrated that peripheral anterior synechiae are present in all eyes that showed elevated IOP after keratoplasty
- One major study in which routine gonioscopy was conducted, however, found progressive synechial closure was a plausible explanation for only 14% of eyes that had elevated IOP
- The role of corticosteroids and their influence on postoperative glaucoma must be addressed.

- The use of potent corticosteroids at frequent intervals was reported to reduce the rates of early IOP elevations
- In contrast, certain IOP elevations may be related to corticosteroid responders.
- Secondary to corticosteroid use, reported IOP rates are 5-60
- This shows the two-edged sword of corticosteroids. First, the need to use them to minimize postkeratoplasty inflammation and, second, their possible influence on postkeratoplasty glaucoma.
- medical control, trabeculectomy, seton procedures, and cyclodestructive procedures.
- The initial treatment of choice is medical therapy. However, in the presence of significant synechial closure, drugs that influence outflow facility (i.e. miotics) may have limited action.
- Similarly, the future role of latanoprost in this type of glaucoma and its influence on graft survival and graft clarity is uncertain.
- **Dorzolamide has been shown to decrease corneal endothelial function and increase corneal thickness, and reported causes of graft failure have been attributed to its use.**
- The setons (i.e. Ahmed, Krupin, Molteno, Baerveldt, Schocket) have been found useful in the control of IOP of patients who have had difficult previous surgeries
- 29% of patients progressed to failure after Molteno implantation, and 20% after insertion of Schocket's tube
- The reason for these failure rates is unknown, but some investigators speculate that the cause may be chronic inflammation or a breakdown in the blood-ocular barrier.
- The valved implants cause less inflammation and may be better tolerated.
- Filtration surgery shows success rates of 27-80%
- Aphakic eyes have a lower success rate than pseudophakic or phakic eyes.
- Graft failure at 3 years after trabeculectomy is in the range 11-20%
- Cyclodestructive procedures have proved to lower IOP effectively after penetrating keratoplasty.
- The use of cyclocryotherapy shows a success rate in the range 38-100%
- Numerous side effects occur with cyclocryotherapy and present a risk to both graft survival and the eye itself.
- Laser cycloablation shows less danger to the eye and visual acuity, with the benefits of a lower IOP, and success rates in the range 50-100% have been reported.
- Graft failure has been reported with laser cyclophotoablation