



# ***Pediatric Keratoplasty Challenges***

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***No Financial Interest***

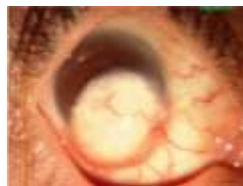
## Introduction

- Keratoplasty <18 yrs
- It is convenient, to divide into more narrowly defined age groups:
  - A. 0 - 2 (infant)
  - B. 3 - 6
  - C. 7 - 12
  - D. 13 - 18
- Neonatal corneal diameter 10 mm & adult diameter 12 mm is reached by 2 yrs.



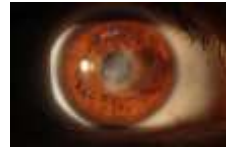
## Indications

- CCO 60% (Peter's, sclerocornea, dermoid, CHED, PDED)



## Indications

- Cong glaucoma 15%
- Metabolic (MPS)
- Traumatic (laceration, scarring, blood staining)
- Infection (HSV, bacterial, fungal)
- Others: interstitial keratitis, keratoconus, etc



## Timing

- Not before 3rd m.
- Glaucoma control.
- Unilateral opacity:
  - Not to operate because of low success.
  - Still worth risks for binocular vision & provide "spare eye".
- Bilateral opacities
  - Less severe eye done 1st.
  - 2nd eye 3-4 ms later.



## Preoperative



### EUA

- SL, IOP, corneal diameter
- UBM, B scan
- ERG, VEP



## Anaesthesia

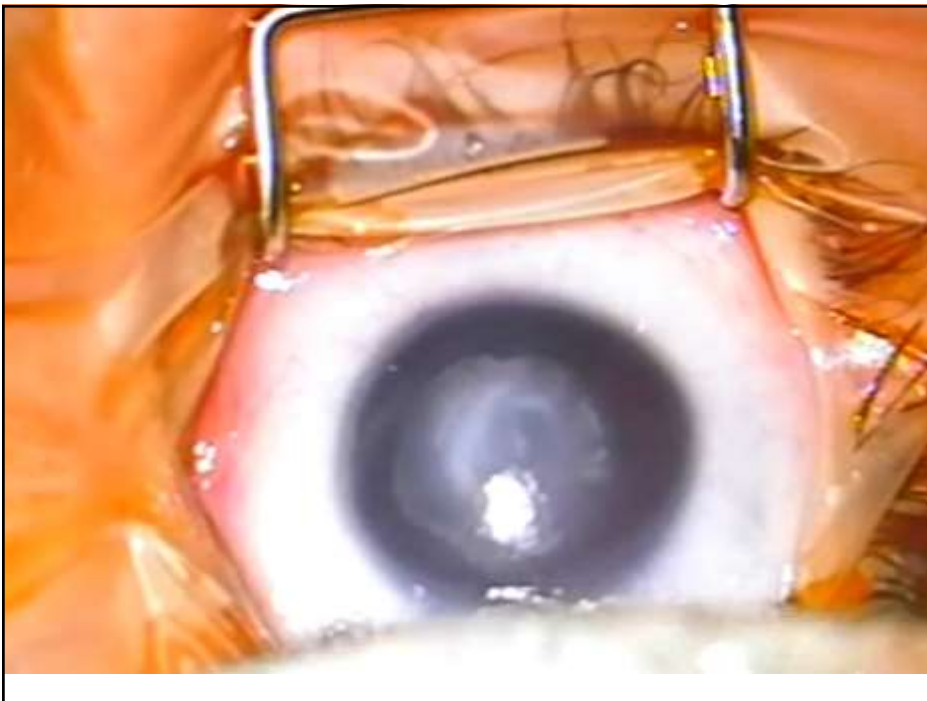
- GA hyperventilation
- Retrobulbar block avoided
- Ocular massage or Honan balloon
- Mannitol
- Head higher than rest of body



## Technique

### Anatomy presents unique challenges:

- Low scleral rigidity can cause collapse of globe — Flieringa.
- High +ve pressure — lens extrusion, suprachoroidal hge.
- Small trephination (5.5 - 7mm diameter) & shallow AC — Graft difference 0.5 -1.0 mm.
- Donor 4 -18 yrs — difficult to handle — Interrupted sutures.





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Price graft-over-host technique to manage positive pressure during penetrating keratoplasty  
James C. Laster MD, Frances W. Price, Jr MD, FRCO

**Acta Ophthalmologica**  
Journal of the International Society for Clinical Ophthalmology

**Positive pressure during penetrating keratoplasty can be solved with a modified graft-over-host technique**

Iva Dekkers, Nikša Gabrić, Maja Pažik, Nataša Dražić

first published: 1 February 2013 [full publication online](#)

## Postoperative

- Strong inflammatory responses — plastic membranes & irido-corneal adhesions.
- Quick healing — loosening of sutures — suture abscesses & graft vascularization.
- Risk of infection due to loose sutures, epithelial defects, steroids



## Postoperative care

- Frequent visits 3-4 days.
- Medications:
  - Topical prednisolone hourly
  - Topical quinolone
  - Cycloplegics
  - Systemic Steroids
- EUA for ROS as early as 4 wks.

## Postoperative care

- Fever & vaccinations.
- Amblyopia treatment (occlusion).
- Glasses every 4-6 wks.
- CL.

## Outcome



- 50 - 60 % success in 5 yrs.
- VA < 0.05 in 68%
- Postoperative complications:
  - Rejection →
  - Graft failure (24%)
  - Infection (27%)
  - Trauma (19%)
  - Glaucoma

1. Younger age
2. Congenital corneal opacities (cf. acquired causes)
3. Disease severity
4. Associated anterior segment anomalies (e.g., anterior synechiae)
5. Cornea vascularization
6. Concurrent surgical procedures (including tenotomy and anterior vitrectomy)
7. Re-grafting
8. Donor corneal size
9. Postoperative complications
  - Persistent epithelial defects
  - Allograft rejection
  - Infectious keratitis
  - Retinal detachment
  - Glaucoma



## Challenges

- FS keratoplasty.
- DALK.
- DSAEK, DMEK.
- Glaucoma drainage devices.

## Conclusion

- KP in children aims to allow visual development.
- Acquired conditions have better outcomes than congenital.
- KP in infants more difficult & modifications to surgical technique required.
- Frequent postoperative examinations & sutures removed earlier.
- Early optical correction & aggressive amblyopia therapy necessary.

Thank you

