Clinical Analysis of Pediatric Keratoplasty

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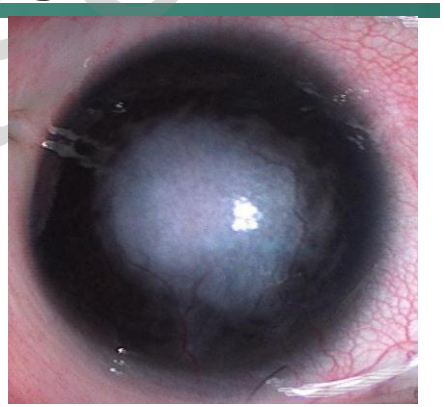
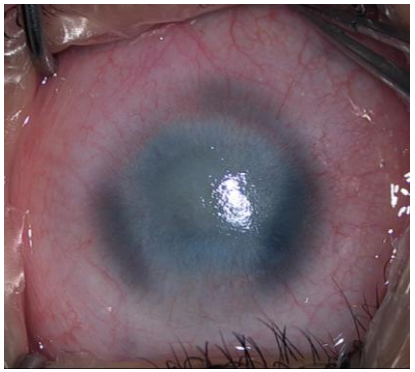
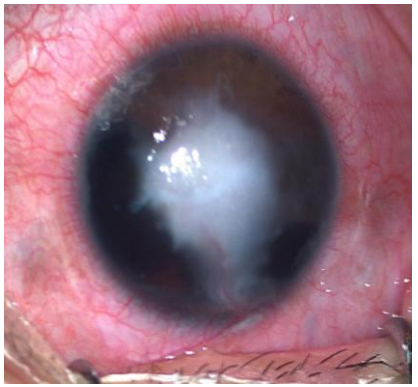
- Cornea diseases comprises about 10.26% of the pediatric blindness
- Pediatric keratoplast is effective operation to treat the blind caused by cornea disease
- Corneal transplantation in the early years of life is technically challenging
- High-risk factor of corneal graft rejective reaction
- Amblyopia must be treated soon

Pediatric Keratoplasty

- Smaller eye narrower palpebral fissure
- Low scleral rigidity
- Cornea is thinner and more pliable
- These features increase the possibility of
  - intraoperative scleral collapse
  - lenticular extrusion
  - suprachoroidal hemorrhage
- Postoperative management is challenging
- Exuberant inflammatory response to surgery







Methods

- Retrospective case series
- Beijing Tongren Eye Center
- clinic during a 5-year period (2008-2013)
- 81 eyes of 81 children , age<12 years old
- Groups
  - infant (0~3y, 49 eyes)
  - child (4~12y, 32 eyes)
- Follow-up 6 months to 5 years

Treatment

Surgical type	infant	child	total	ratio%
PKP	44	24	68	80.25
PKP+ECCE	1	3	4	6.17
PKP+ECCE+IOL	2	2	4	3.70
PKP+IOL+AV	0	2	2	2.47
PKP+iridectomy	1	1	2	1.23
Total	49	32	81	100%

Postoperative Care

- Topical steroids every 2 hours for the first week, then four times every day and tapered slowly
- Antibiotic/steroid ointment at night
- Cycloplegic drop
- Fluoroquinolone drops until all the sutures have been removed
- Immunosuppressants：CsA or FK506, Qid and tapered slowly, which stoped until two years later
- Follow up：weekly examinations
- Sutures removed

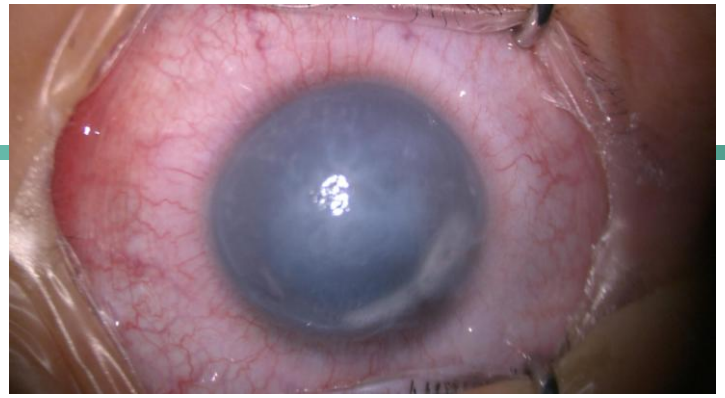
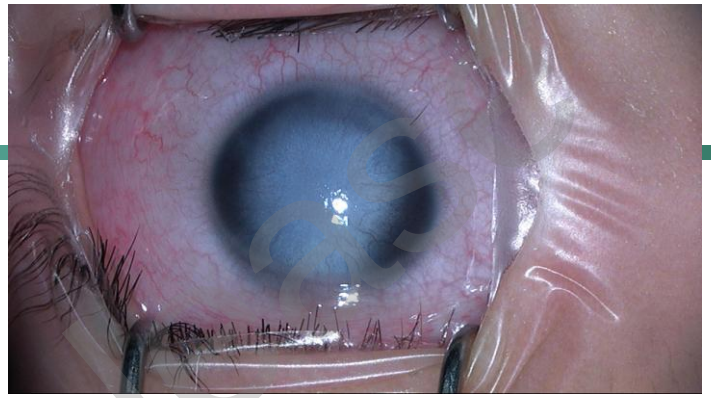
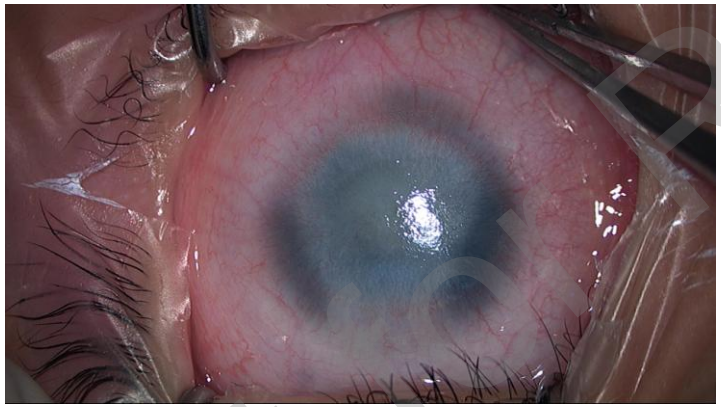
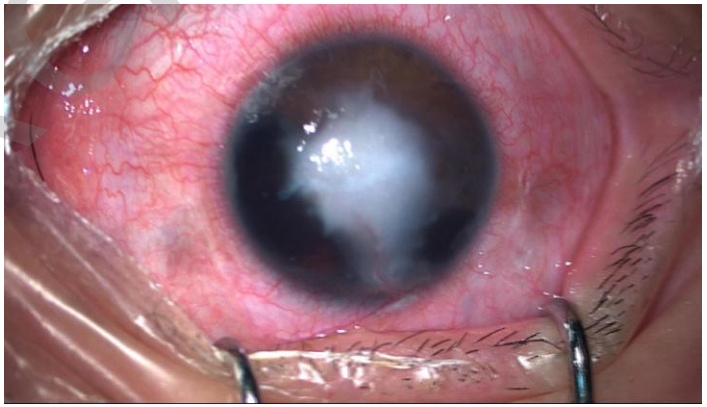
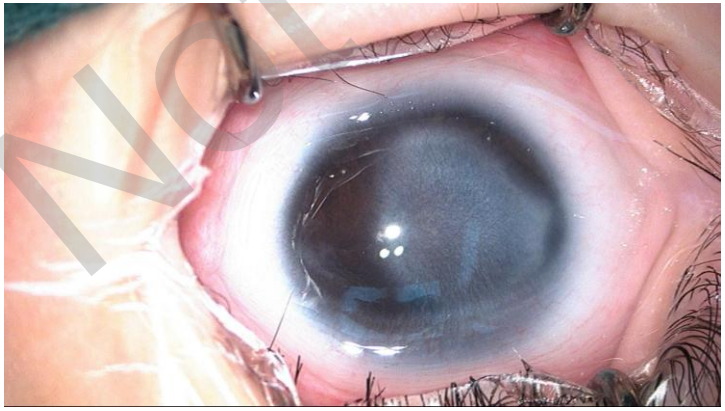
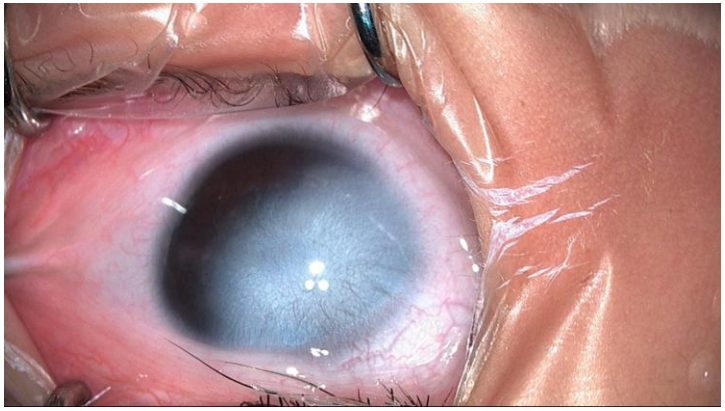
Age	Suture removal
1–6 months	4–6 wk
6–12 months	6–8 wk
12–24 months	8–12 wk
24–48 months	12–16 wk
5–15 years	4–6 mo

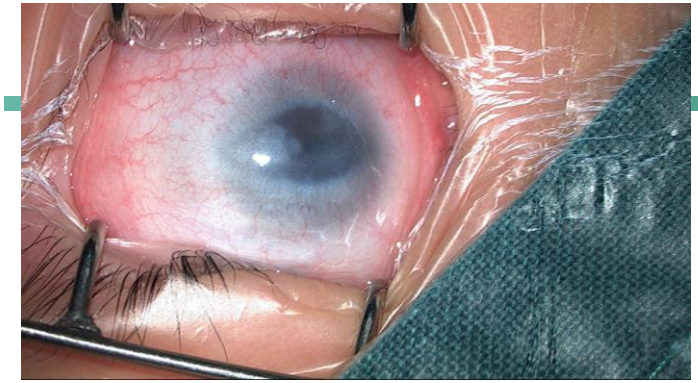
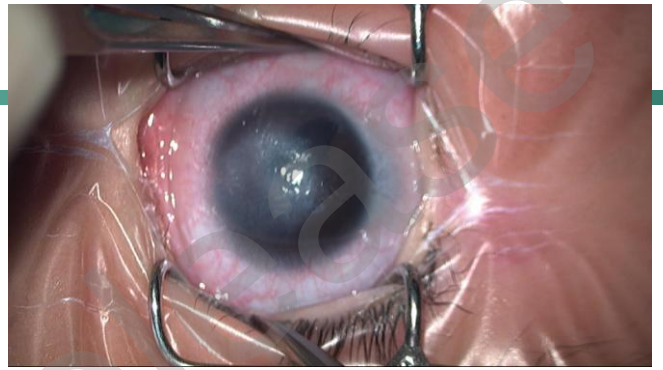
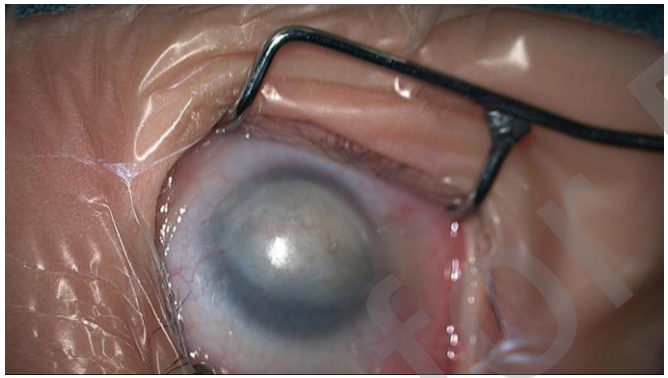
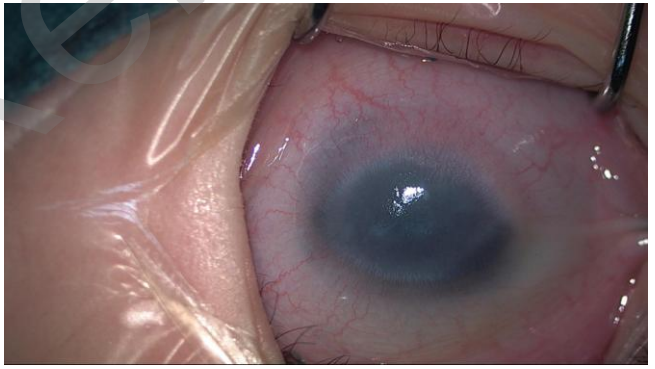
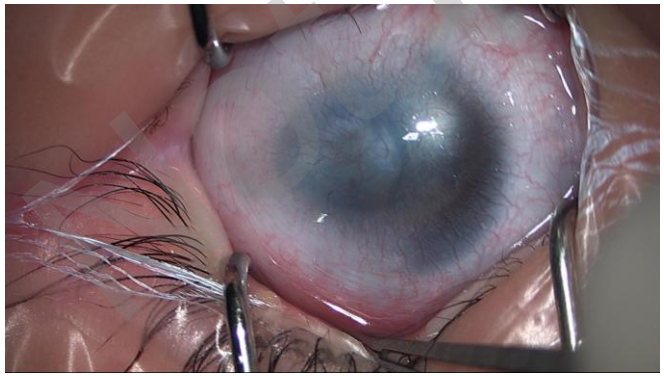
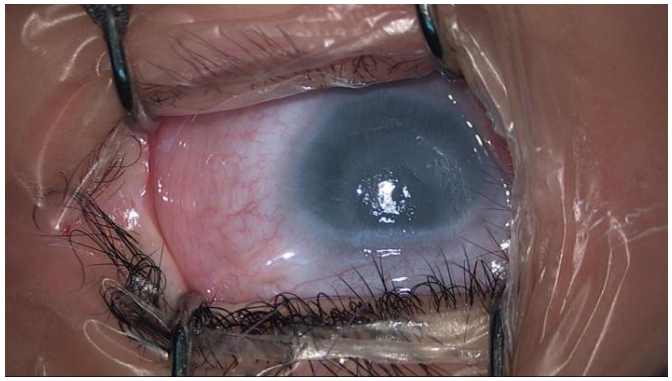
Reidy JJ. Curr Opin Ophthalmol, 2001, 12:258-261

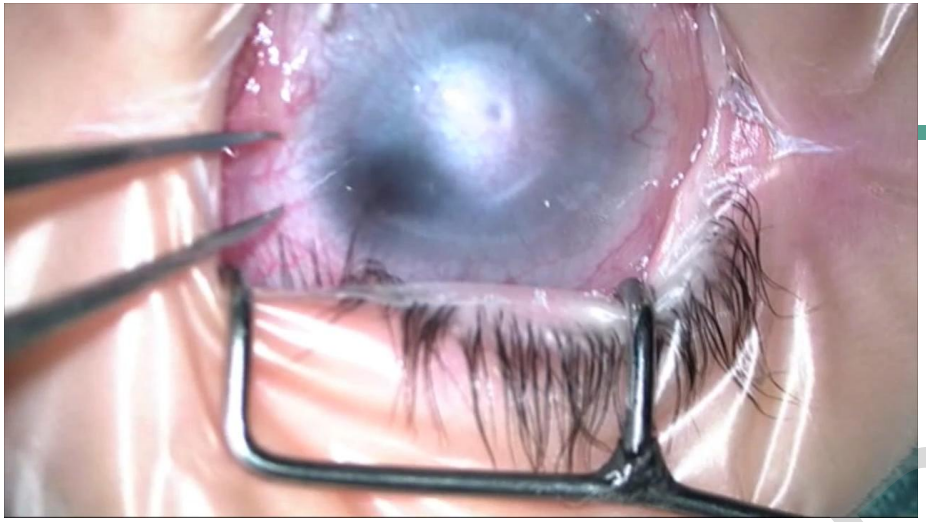
Results

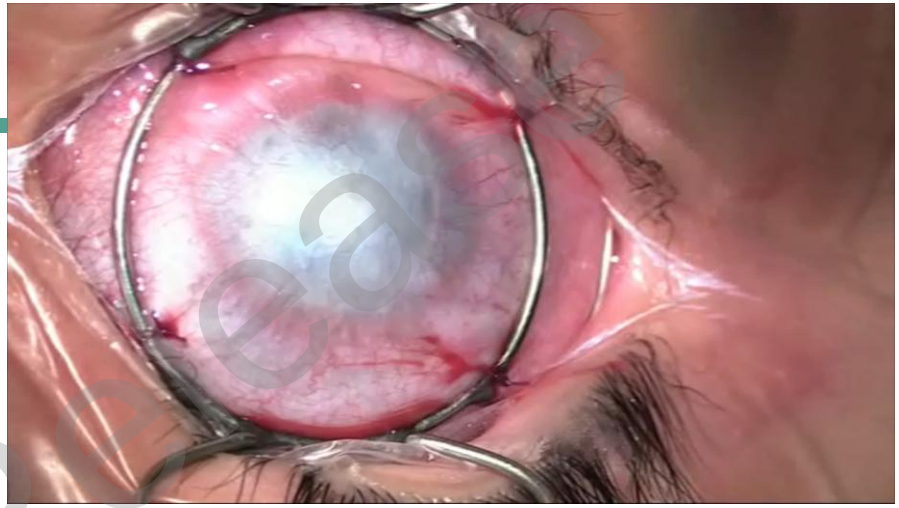
- Etiology

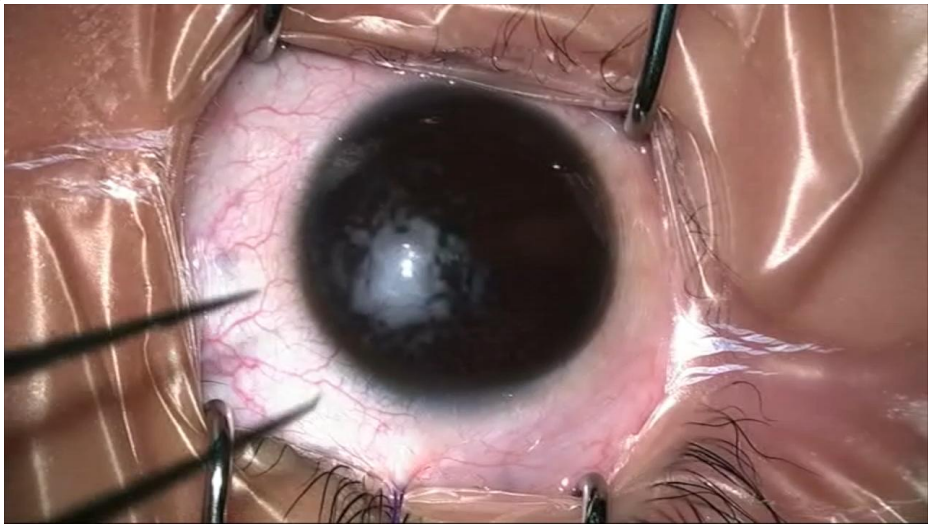
diagnosis	infant	child	total	ratio%
Congenital corneal opacity Sclerocornea	46	19	65	80.25
Acquired traumatic	1	4	5	6.17
Corneal immunologic rejection after keratoplasty	1	2	3	3.70
Active infection leading to perforation	1	1	2	2.47
Viral keratitis	0	1	1	1.23
Corneal dystrophies	0	2	2	2.47
Keratoconus	0	3	3	3.70
total	49	32	81	100%







Results

- **Graft Survival**

	infant	child	total
Transparency	40	29	69
Ratio%	81.63	90.63	85.19
Graft failure	9	3	12
Ratio%	18.37	9.37	14.81
Total	49	32	81

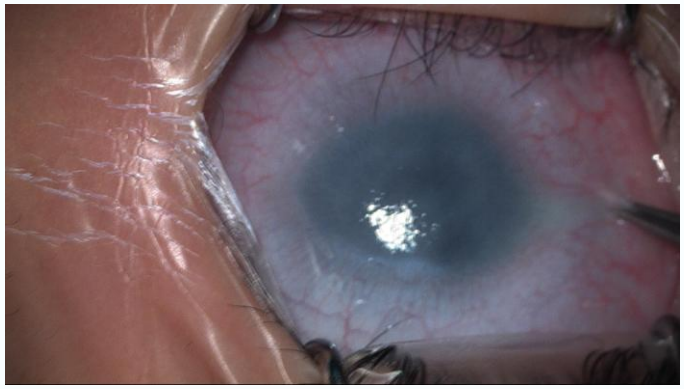
Results

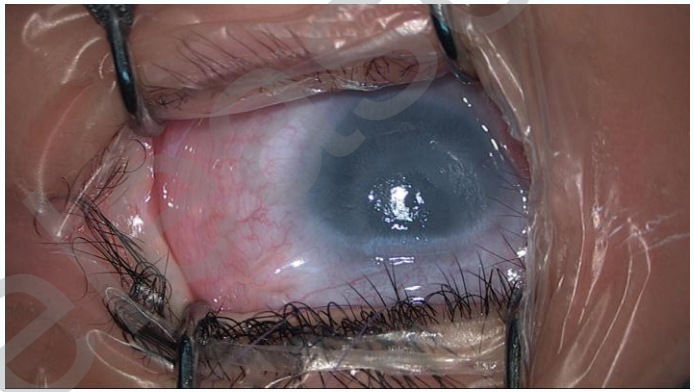
- Factor affecting of rejection

	infant	child	total
Graft failure	9	3	12
ratio%	18.37	9.37	14.81

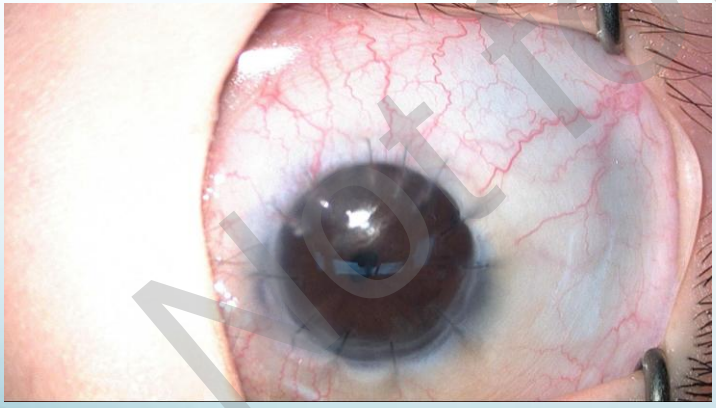
Rejection	Etiology					Surgery		
	Congenital corneal opacity	Perforation	Regrafts	PKP	PKP+ECCE	PKP+ECCE+IOL	PKP+IOL+AV	PKP+iridectomy
Infant	7	1	1	8	0	0	0	1
ratio%	77.78	11.11	11.11	88.89	0	0	0	11.11
Child	1	0	2	3	0	0	0	0
ratio%	33.33	0	66.67	100	0	0	0	0
Total	8	1	3	11	0	0	0	1
ratio%	66.67	8.33	25.00	91.67	0	0	0	8.33

Pre-operation

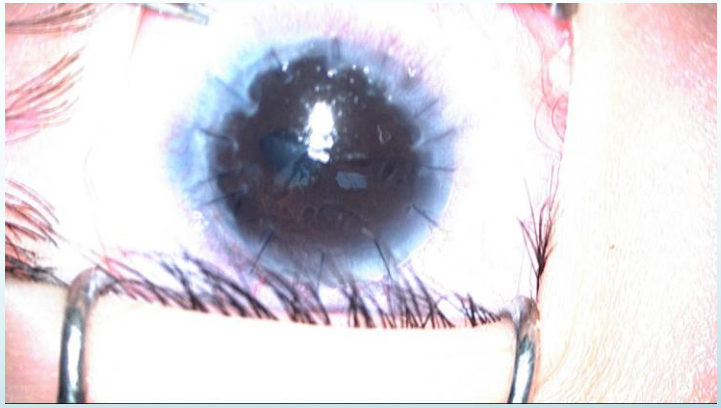




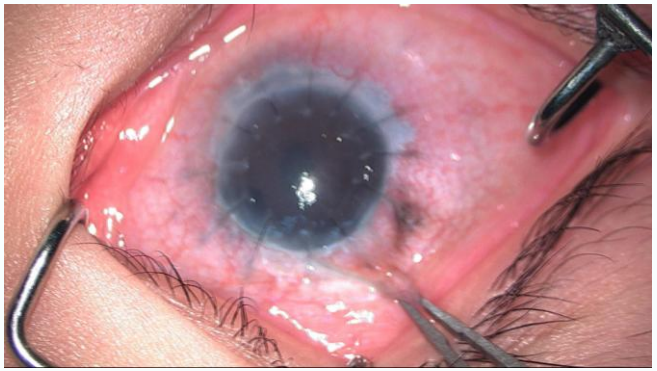
Post-op 6mos



Post-op 3mos

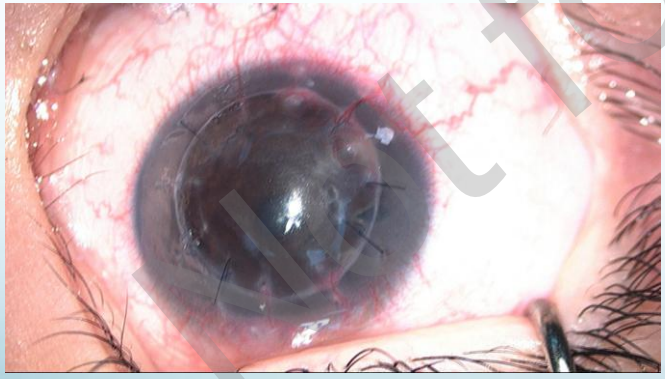


Male, 4 yrs, 6 months after surgery



Male，2 yrs，8 months after surgery

Male，3 yrs，6 months after surgery

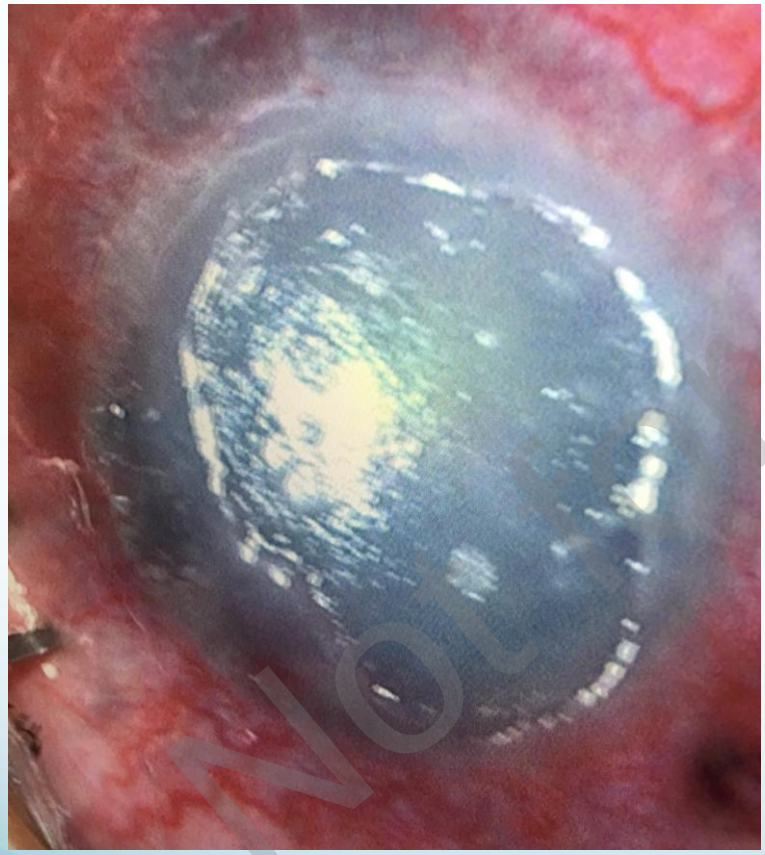


Male，2 yrs，12 months after surgery

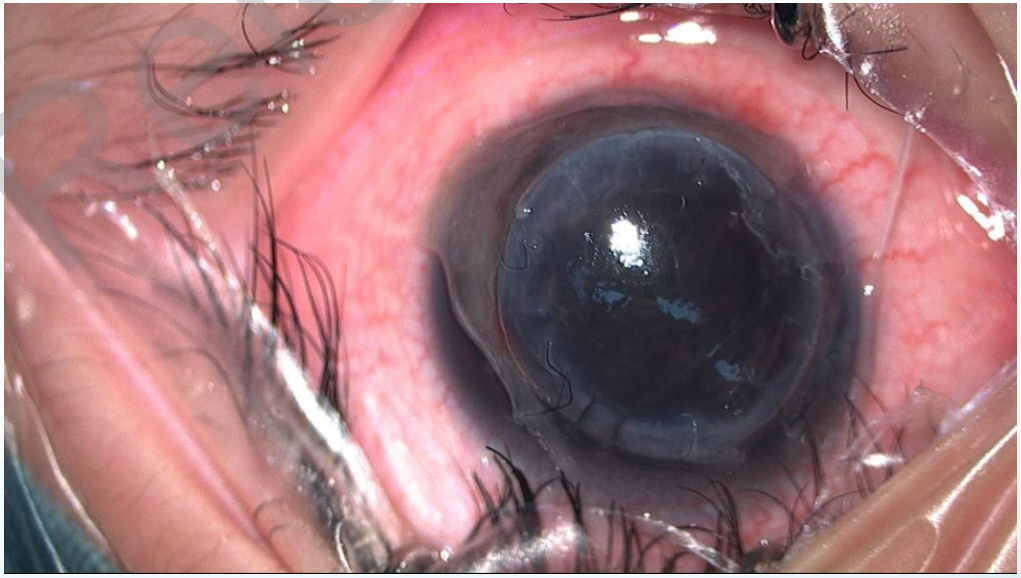
Complications

- Corneal epithelium defects: Limbal deficity, hard treatment
- Infectious： Suture removed delay？
- Glaucoma: IOP examination difficulty
- Immune rejection
- Corneal melt
- Complicated cataract

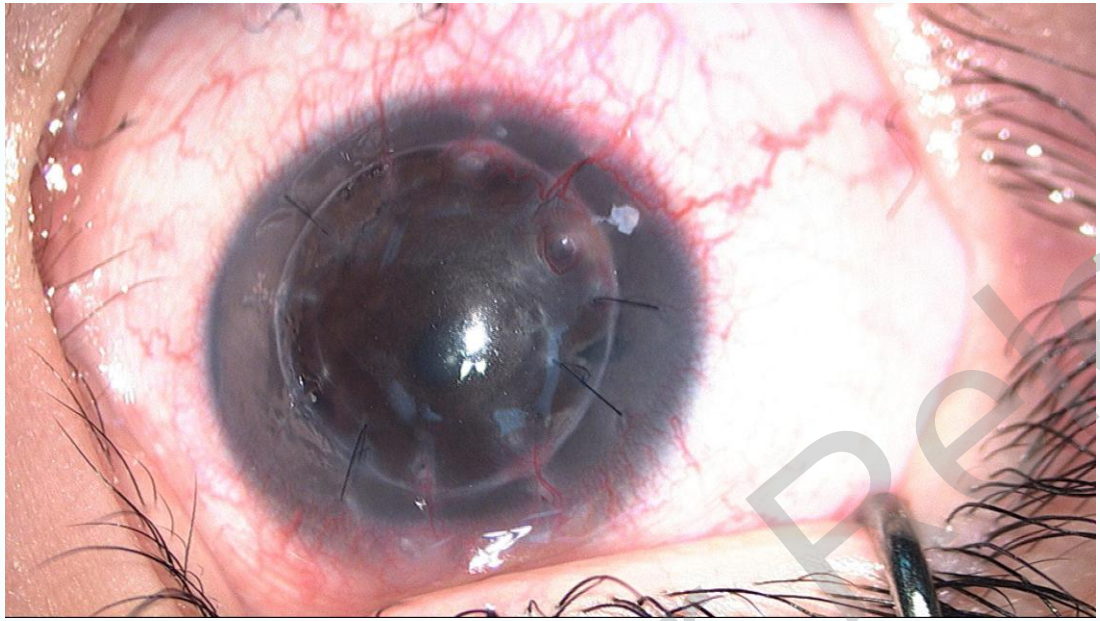
Corneal epithelium defects



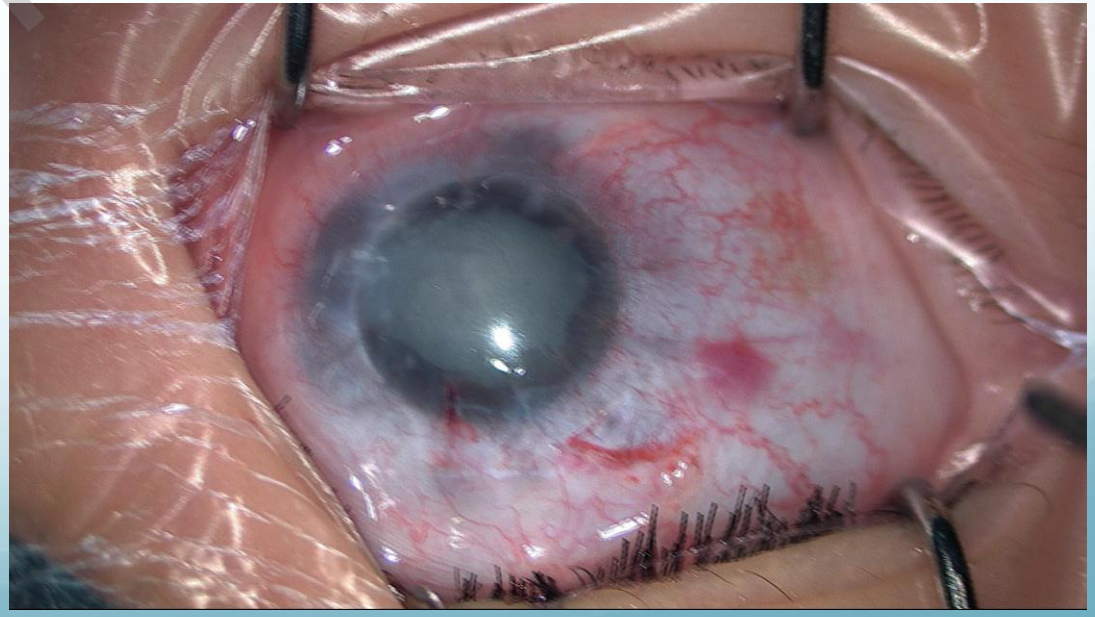
Wound Dehiscence



Rejection and CNV 6 months after surgery

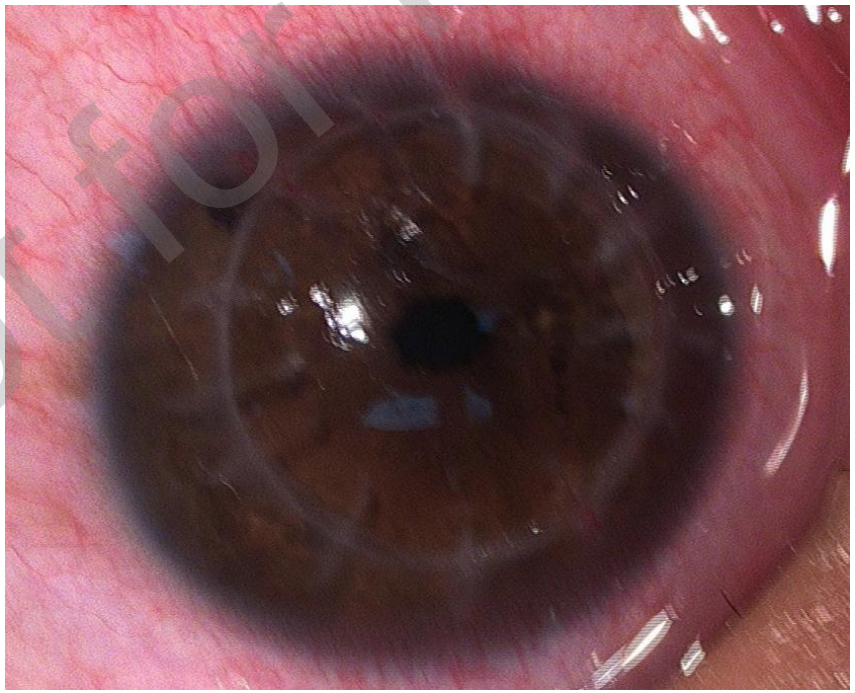


Complicating cataract six years after PK



Conclusion

- Corneal transplantation has had moderate success in providing children the possibility of improved vision through restoration of a clear optical window
- Corneal transplantation may be the only opportunity for infant to obtain functional vision



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THANK YOU!