

DALK for pediatric cases

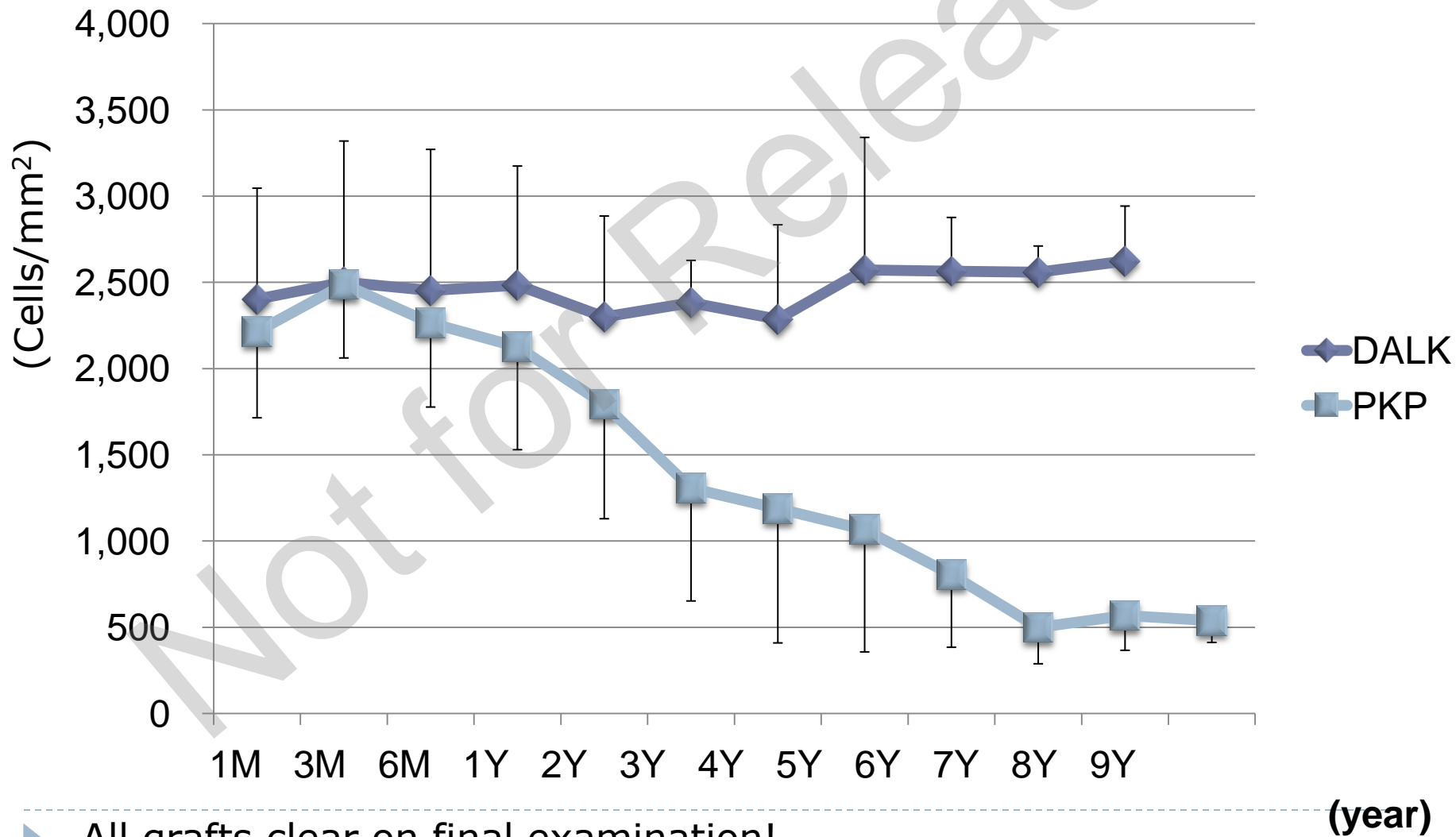
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Indications for DALK

- ▶ **For common disease**
 - ▶ Keratoconus, dystrophy
 - ▶ Still lacks conclusive evidence for advantage over PK
 - ▶ Coster et al 2014
 - Survival of DALK was worse than survival of PK for keratoconus
 - No difference for indications other than keratoconus
 - ▶ Yeung et al 2012
 - More patients preferred the PK-operated eye over the DALK-operated eye in a contralateral study (n=10 patients)
 - No significant difference in visual or refractive outcomes



Endothelial cell density



► All grafts clear on final examination!

(year)

Long-term graft survival (in theory)

- ▶ Median predicted graft survival (n=142/ group)
 - ▶ 49.0 years in the DALK group
 - ▶ 17.3 years in the PK group (p<0.001)
 - ▶ Borderie et al 2011
- ▶ Graft survival affected by:
 - ▶ Endothelial rejection
 - ▶ Suture complications
 - ▶ Suture infection, wound dehiscence
 - ▶ Original disease
 - ▶ Herpes keratitis, dystrophies, ocular surface disease



When is DALK better than PK?

- ▶ For the “not so common” disease
 - ▶ Therapeutic keratoplasty for infections
 - ▶ Ocular surface disease
 - ▶ Pediatric cases



Why DALK for pediatric cases?

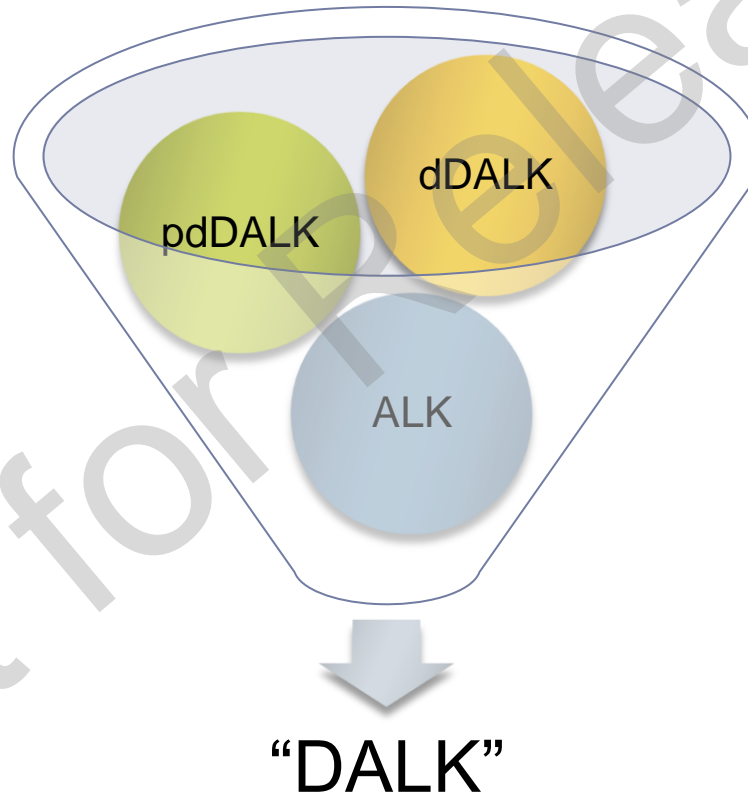
- ▶ **Seventy yrs old PKP donor cornea into a child**
 - ▶ Would probably not survive indefinitely
 - ▶ Risk of endothelial rejection
 - ▶ Yearly loss of endothelial cells
- ▶ **Surgical technique**
 - ▶ Big Bubble
 - ▶ Viscobubble
 - ▶ Manual dissection



DALK in children

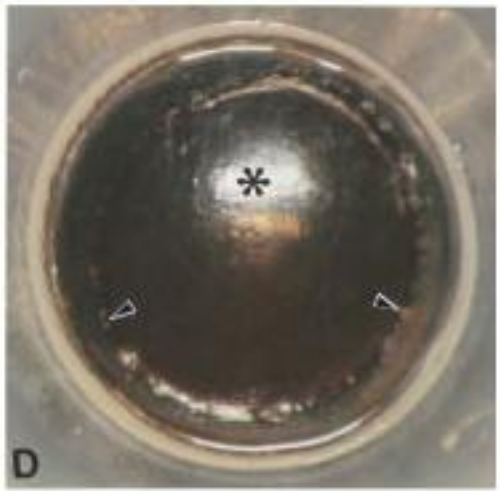
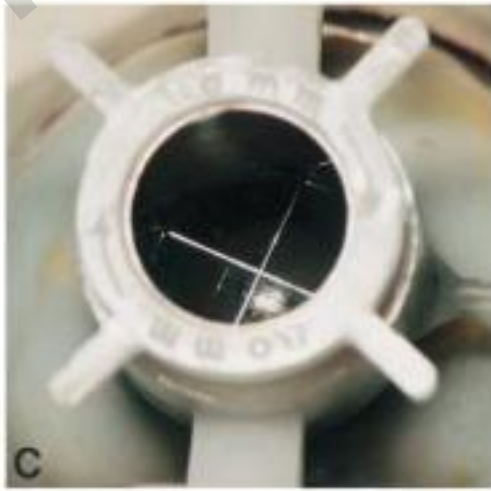
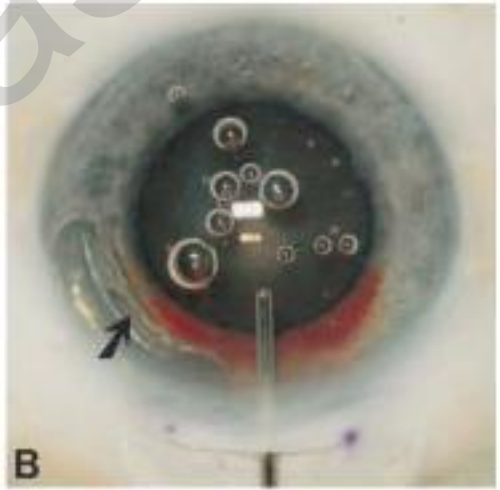
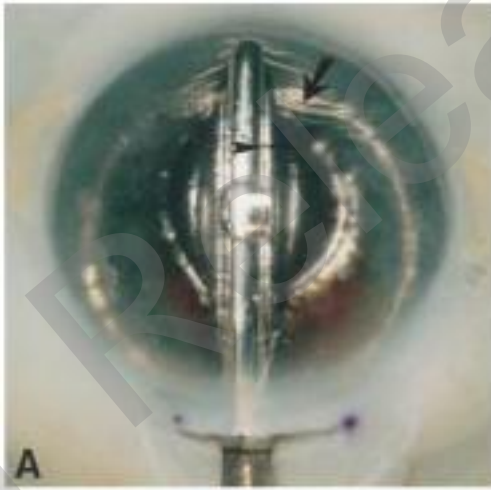
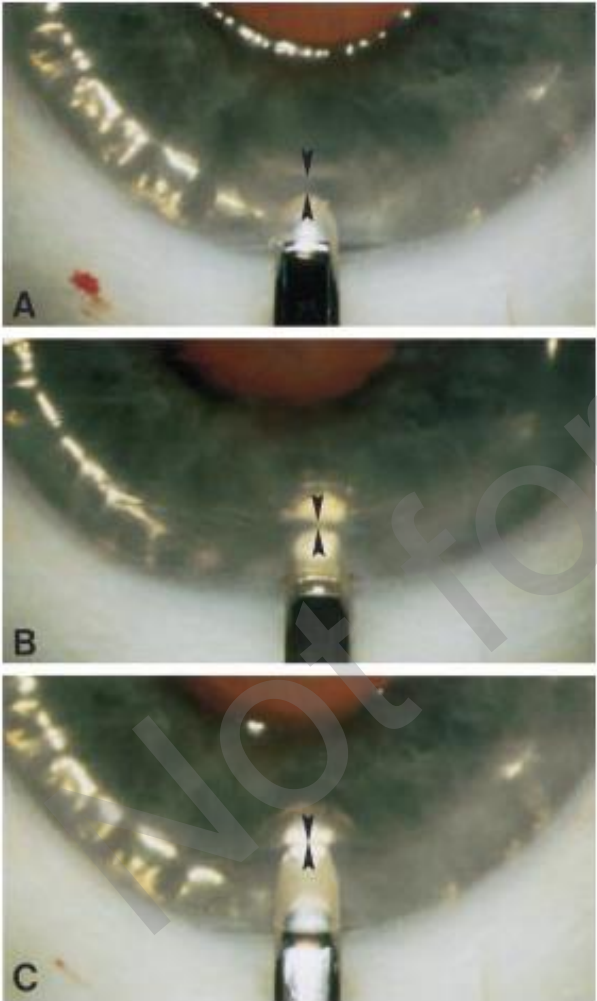
- ▶ Harding et al, *Ophthalmology*, 2010
 - ▶ Nine patients (13 eyes)
 - ▶ Mucopolysaccharidoses (MPS), scars, keratoconus
 - ▶ Conversion to PK in 2 eyes
 - Excessive GAG in MPS?
 - ▶ Ashar et al, *Am J Ophthalmol*, 2013
 - ▶ Twenty-six patients
 - ▶ Big bubble 5 eyes
 - ▶ Manual dissection 21 eyes
 - ▶ Complications
 - ▶ Suture infiltrates
 - ▶ DM detachment
-
- ▶ Big Bubble technique may not be safe in children

Definition of 'DALK'?



A new surgical technique for deep stromal, anterior lamellar keratoplasty

Gerrit R J Melles, Frank Lander, Frank J R Rietveld, Lies Remeijer, W Houdijn Beekhuis, Perry S Binder



Hurler-Scheie syndrome (11 yrs old)



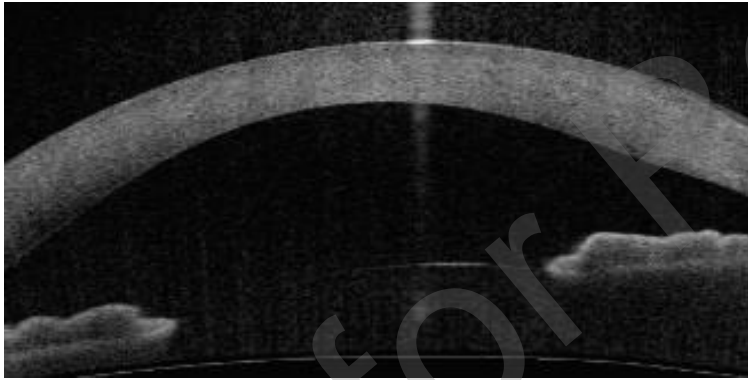
BCVA: R) 0.03 (0.04) L) 0.02 (0.04)

Type I mucopolysaccharidosis

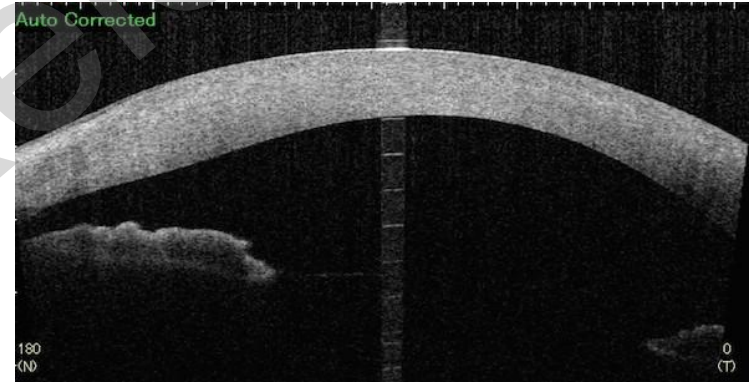
Deposition of heparan sulfate, dermatan sulfate



Hurler-Scheie syndrome (11 yrs old)



Right : 842µm



Left: 916µm



Modified Melles technique

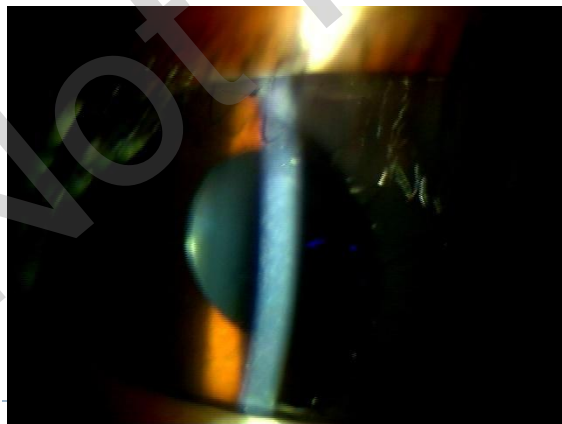
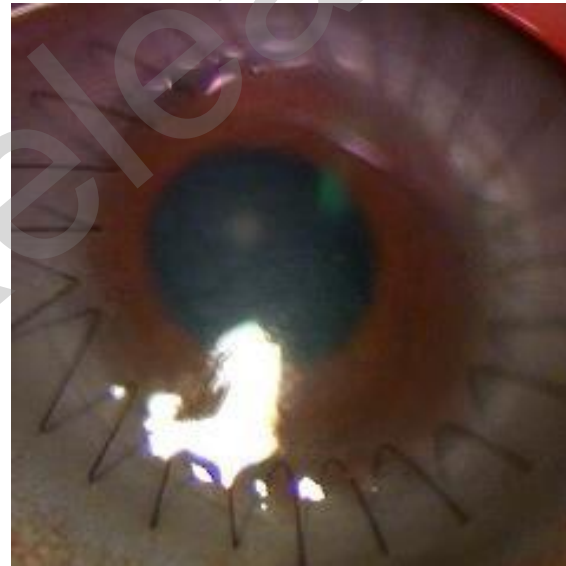


Post op

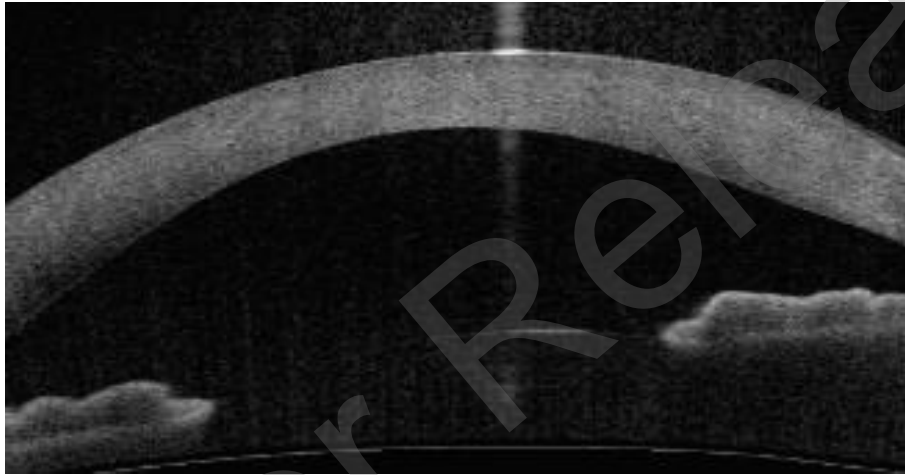
BCVA: R) 0.2



L) 0.2



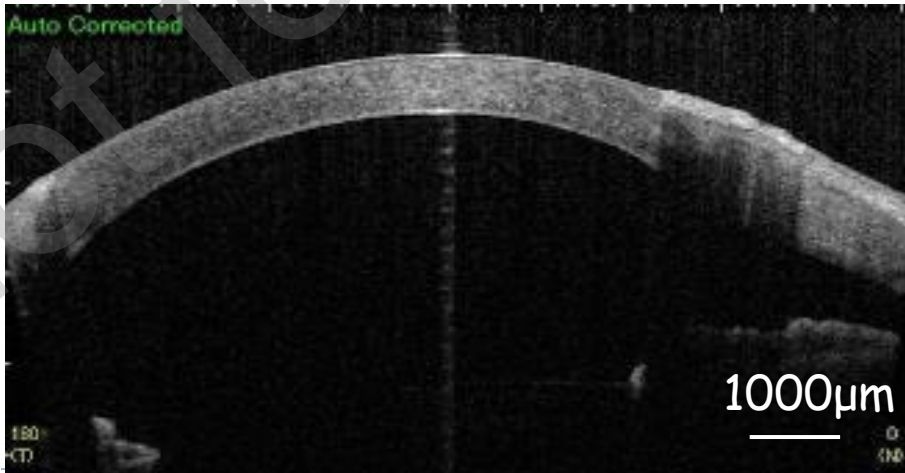
Pre-op



Pachymetry

842 μ m

Post-op



642 μ m



Conclusion

- ▶ DALK is a safe and effective choice for pediatric cases of stromal disease
- ▶ Re-DALK is not difficult, and does not enhance risk of failure compared to PK



Not for Release

Thank you!

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