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INTRODUCTION

In the United States, around 160 cases of pediatric Penetrating Keratoplasties (PK) are performed each year⁵. Due to the higher likelihood of post-PK complications in pediatric cases when compared to adult ones³, special consideration needs to be given to these patients due to an increased risk of herpes simplex virus (HSV) reactivation, graft rejection, ocular inflammation, and/or ocular hypertension/glaucoma^{1,2,4}.

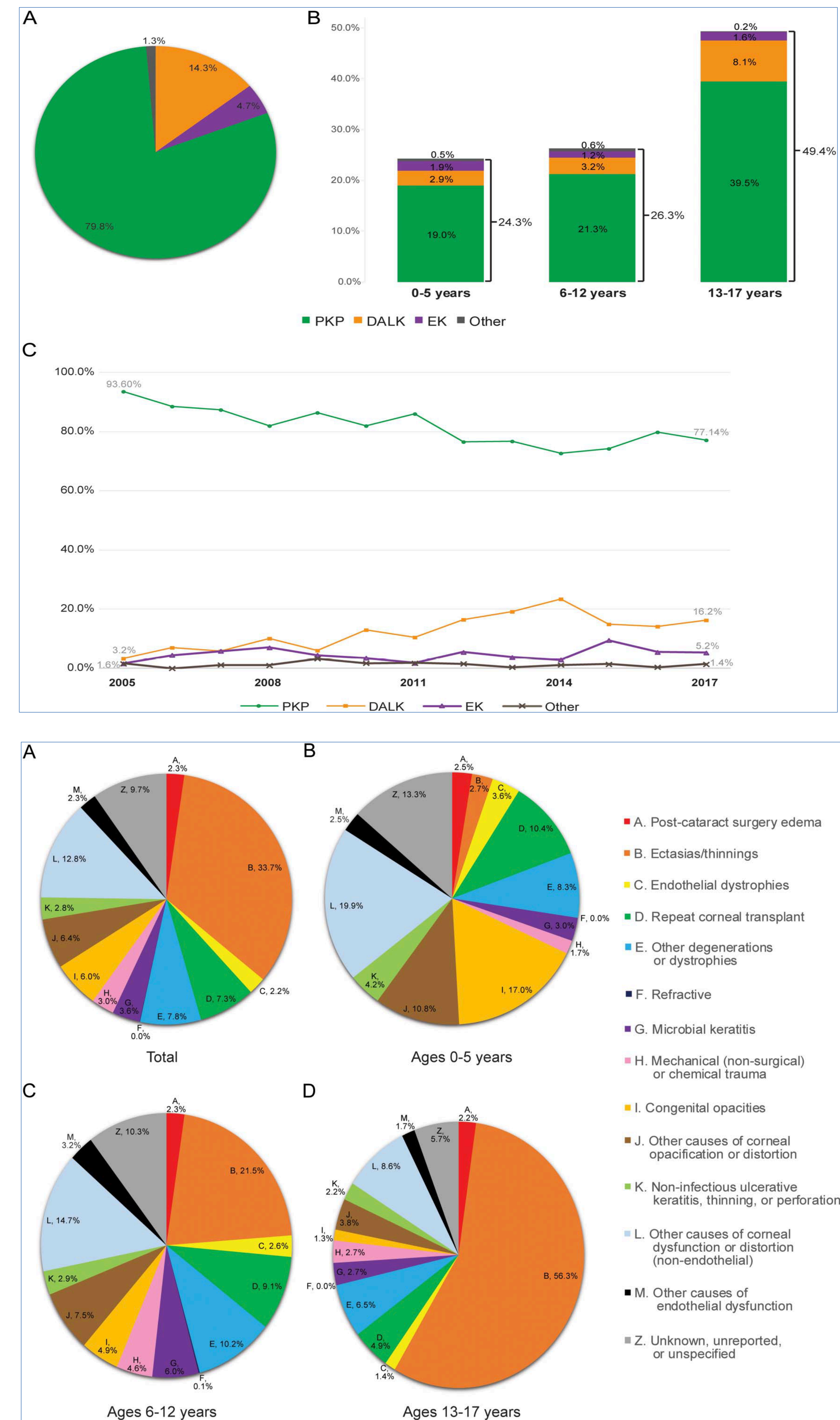


Figure 1: Frequency and Indications for Corneal Transplants in Pediatric Populations
Source: Zhu, et al.

Prosthetic lenses may be a temporary or permanent solution for poor surgical candidates suffering from leukocoria. Intervening with a prosthetic lens, particularly in girls, may help the development and maintenance of a healthy body image and strong self-esteem.

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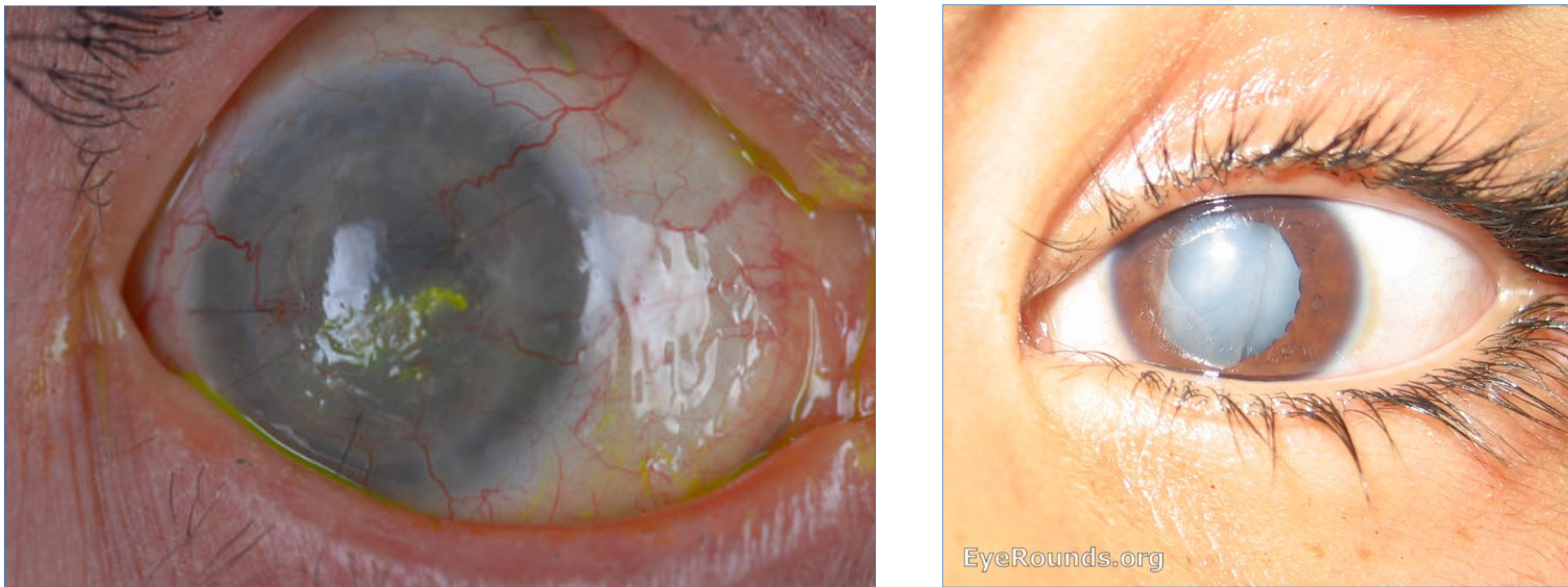


Figure 2: Corneal Opacification with Neovascularization and Traumatic Cataract
Source: University of Iowa Health Center and lasikcomplications.com

CASE REPORT

A 9-year-old Asian female was referred for a cosmetic, prosthetic contact lens fitting status-post a failed repeat penetrating keratoplasty following Herpes Simplex Virus (HSV-1) keratitis OS. As the infection and surgeries had taken place in prior years, with the most recent PKP occurring in 2018, she had developed a subsequent dense amblyopia OS. Further surgical complications include a traumatic cataract and angle-closure OS. IOP was well-maintained with Latanoprost 1 gt OS and Dorzolamide / Timolol 1 gt BID OS. She was thrilled that her initial visit was on a school day as she was concerned about the appearance of her opacified cornea in front of her classmates.

Manifest Refraction

OD: +0.50sph 20/15
OS: plano HM, pinhole: NI

Slit Lamp Examination:

	OD	OS
Lids	1+ scurf	1+ scurf, protective ptosis
Conj	White and quiet	White and quiet
Cornea	Clear	s/p PK – opacified, superior "Munson's sign", 3-4+ corneal edema, resolving bullae, dense stromal neovascularization, 2 buried sutures superonasally
Pupil	Unremarkable	Iatrogenic polycoria with atrophy
AC	Deep and quiet	Peripheral anterior synechiae
Lens	Clear	4+ cataract

CONTACT LENS FITTING

Despite numerous devices and multiple attempts, corneal topographies could not be obtained on the affected eye. Instead, a diagnostic fitting was initiated. Due to her dark iris color, a tinted lens was trialed first.

Due to the patient's irregular corneal shape and small HVID, all in-office trials exhibited extreme fluting. A trial lens was ordered with steeper base curve radius, larger diameter, high plus power, and an iris diameter/color to match her right eye.



Trial #	POWER	Color	Brand	Type	Base Curve (mm)	Iris Diameter (mm)	Overall Diameter (mm)
1	plano	Walnut #3	Alden	HP 49 Sphere	8.6	11.0	14.5
2	plano	Walnut #3	Alden	HP 49 Sphere	8.0	11.0	13.8
3	-4.75-5.00x160	Clear	Alden	NovaKone Toric	7.8	N/A	15.0
FINAL	+6.00	Walnut #3	Alden	HP49 Sphere	8.0	11.0	15.0



With the help of the consultation department, the patient's initial lens was immediately dispensable and finalized at the follow-up. She only wears the lens to school on a daily wear schedule and replaces it quarterly.

CONCLUSIONS

Among the indications for pediatric corneal transplantation, HSV keratitis is the most common cause of acquired, non-traumatic corneal scarring requiring surgical intervention⁴. Pediatric PK patients have varied rates of graft rejection (22-43%) due to their hyperactive immune systems². In addition, anatomical differences in a child's sclera may result in crimpling of the eyeball during surgery and subsequent forward displacement of iris diaphragm and lens². Patients can be left with a myriad of surgical complications including significant irregular astigmatism and a topography similar to that of primary corneal ectasias. When fitting specialty soft lenses, numerous parameters can be customized including: material, base curve, power, diameter, center thickness, iris color, pupil details, etc. By working closely with her cornea specialist, we were able to find a well-fitting contact lens to meet her cosmetic needs for improved self-image, confidence, and social acceptance.