



Title: No Child Left Behind: A Deep Dive into the Wonder World of Pediatric Scleral Lenses for Ocular Surface Disease

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Abstract:

Course Description: The pediatric population is not exempt from the benefits of scleral lenses in ocular surface diseases. This course will review the fundamentals for successful patient outcomes in this unique patient population.

Objectives: fundamentals of patient selection, will highlight lens fitting approaches for success, as well as documented benefits in this unique patient population.

Before you start

1. Special Population
 1. Allow ample time for initial clinical evaluation; 1-2hrs
 2. Develop rapport with the parent then the patient
- Tackle the “fear of plastic”
 1. Make it FUN!
 1. Examination
 1. Visual Acuity
 1. Depends on patient’s ability and age
 1. Review and discuss different methods based on age and ability
 2. Setup
 1. Sit in exam chair, perhaps on parent’s lap
 2. Consider handheld slit lamp, or 20D lens with transilluminator, or Burton lamp
 1. The wratten yellow filter is pertinent
 - Slit-lamp evaluation
 1. Photo-documentation is key
 1. Excellent when there are fleeting views
 2. Long term: monitor for changes
 2. Patient-Candidacy – Critical for Success
 1. Determination approach/rationale



3. Scleral lens application/removal pearls
 1. “Eye Dunks” first – bringing lens filled with preservative-free saline to eye, but not quite apply
 2. Lid Spreads
 1. Parent/guardian to control upper lid while you control lower lid
 3. Hold lens in upright position and overfill with saline
 1. Consider preservative-free gel drops to avoid air-bubble
 2. Add fluorescein
 3. Follow normal eye’s tendency to perform a Bell’s phenomenon.
 4. If the patient is less than 1 year old
 1. Special considerations
 5. Over-refraction
 1. Objective
 1. Wet (cycloplegic) retinoscopy with lens in place
 1. For scarred/opacified eyes, use contralateral eye to determine prescription and balance the prescription.
 2. Subjective
 1. Depends on patient’s ability and age
 2. Types of eye charts
- Scleral Lens Fit Evaluations
 1. Fluorescein in lens bowl highlights corneal clearance
 2. White light to assess haptic alignment
 3. Assess fits at baseline, 3 and 6 hours of wear time
1. Monitor every 2-3 months for 1.5 years, then every 6 months for 2-3 years
2. Outcomes
 1. Short term
 1. Case- persistent epithelial defect
 2. Case- neurotrophic keratopathy
- Case- GVHD
 1. Case- SJS
 1. Long term
 1. Case- familial dysautonomia
 1. 12/12 wear case
 2. Case – Ectodermal Dysplasia
 1. Challenges
 2. A/R tips and considerations
 3. Long-term considerations
- Case- clearing of opacities



1. Case- refitting over the years
 1. Case Series
 1. Neurotrophic Keratopathy
 1. Familial Dysautonomia – 9-month-old
 1. Dense significant opacity right eye
 2. Presumed Herpes Simplex Virus post tree branch trauma – 11-year-old
 1. Dense significant opacity left eye
 - Post Radiation for brain tumor – 5-year-old
 1. Opacity right eye
 1. Stable ocular surface status post fitting
 1. 9-month-old now 11-years-old
 1. 11 years of stable ocular surface, no further breakdown
 2. 11-year-old now 24-years-old
 1. 13 years of stable ocular surface
 3. All resulted in significant clearing of opacities and corneal remodeling
 4. Discussion
 2. High anxiety, hyperactivity, and aggression
 1. 9 year-old Hispanic male
 2. Non-verbal
 3. Presumed diagnosis of Hereditary Sensory Autonomic Neuropathy (HSAN)
 4. History of hyperactivity, anxiety, and aggression
 1. Special Considerations for patient success
 5. Scleral Lens as a Lid Crutch: Paralytic Lid Ptosis/Chronic Exposure
 1. 7-year old Hispanic female
 2. Long-term approach for successful outcomes after 10 years
 6. Conclusions
 1. When managing pediatric patients with scleral lenses
 1. It is important to allow extra time in clinical schedules
 2. Co-manage closely with specialist, case workers, social workers
 - Closely motoring is imperative in this special population’
 1. Specially in Neurotrophic Keratopathy cases
 1. Is important to discern when is best not to move forward with fitting
 1. Even when in theory the patient can benefit
 2. If the patient is not ready
 1. Too anxious
 2. Uncooperative with application/removal



References

1. Carrasquillo, KG (2017) "Pediatric Scleral Lenses" in *Scleral Lens Challenges*. Ophthalmology: Current and Future Developments. Contemporary Scleral Lenses: Theory and Application, Vol 4, 371-434. Ed: Barnett, M. and Johns, LK.
2. [Walline JJ](#), Jones LA, Sinnott L et al. Randomized trial of the effect of contact lens wear on self-perception in children. *Optom Vis Sci*. 2009 Mar;86(3):222-32. doi: 10.1097/OPX.0b013e3181971985.