**Sutureless Amniotic Membranes Workshop:**
**How to Properly Insert and Remove Them**

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Text NICHOLASCOLA090 to 22333 to join Live Text Poll

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**Special Thanks**
- Katena / IOP Ophthalmics
  - AmbioDisk 2
  - Speculum and forceps
  - Sponge Spears
  - Kontour Lenses
- Seed Biotech
  - Aril
- BioD Optix
  - BioDLogics

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**What is the Amniotic membrane**
- Amnion is avascular and a translucent membrane composed of an inner layer of epithelial cells which are planted on a basement membrane
- Amnion is made of Collagen I, III, IV, V and VII, laminin and fibronectin of which IV, VII, laminin and fibronectin are also found in conjunctiva and cornea

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**Mechanisms of Action**
- Promotes Epithelialization
- Suppresses Inflammation
- Inhibits Scarring
- Inhibits Angiogenesis
- Neurotrophic Factors
- Anti-Microbial Agent

All without the harmful side effects found in topical and oral medications

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**Indications**
- Acute Chemical/Thermal Burns
- Recurrent Corneal Erosions
- Neurotrophic Defects / Persistent Corneal Epithelial Defects
- Filamentary Keratitis
- Vernal Keratoconjunctivitis
- Recalcitrant Dry Eye
- Microbial Keratitis
- Nodular Degeneration
- PRK

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**Disclaimers**
- Allergan Pharmaceuticals Speaker’s Bureau
- Shire Pharmaceuticals
- Bio-Tissue
- BioDLogics, LLC
- Katena/IOP
- Seed Biotech
- Johnson and Johnson Vision Care, Inc.
**Indications**

- Acute Stevens-Johnson Syndrome/Toxic Epidermal Necrolysis
- Post-infectious Recalcitrant Corneal Inflammation (e.g. herpetic, vernal, and bacterial)
- In conjunction with:
  - Superficial Keratectomy
  - High-Risk Corneal Transplantation
  - Corneal ulcers, descemetocele or perforations
  - Scleral melts
  - Limbal graft for partial or total limbal stem cell deficiency
  - Oculoplastic procedures including lid, fornix, and socket reconstruction
  - Glaucoma Surgery
  - Conjunctivochalasis and conjunctival reconstruction
  - Pterygium surgery
  - Bullous keratopathy
  - Band keratopathy

**Available Sutureless Membranes**

- Prokera
  - Approved by FDA Dec 2003 as a Class II medical device comprised of cryopreserved amniotic membrane graft fastened to thermoplastic ring-set
  - Launched in April 2005
  - 17,000 milestone in September 2014
  - Dual action promotes healing of ocular surface and controls inflammation
  - Stored in medium made of Dulbecco’s Modified Eagle Medium / Glycerol containing Ciprofloxacin and Amphotericin B
  - Do not use on patients with a history of drug Rxn to Cipro or amphotericin B

- Prokera
  - Cryopreserved
  - Store in freezer
    - 1 year bet -49 deg C to 0 deg C (-56.2 F to 32 F)
    - 2 years bet -85 C to -50 C (-121 F to -58 F)- shelf life is 2 years from date of manufacturer
  - Allow to thaw to room temperature unopened for 5-10 min
  - Open inner pouch and remove using blunt forceps
  - Rinse with saline to reduce stinging sensation
  - Do not leave in eye longer than 30 days
**Tape-sorrhaphy**

A tape over the lid crease - Narrows the eye opening, Keeps ProKera centered, and Minimizes discomfort

**Prokera**

- Complete the donor and recipient information form and return immediately

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**Dehydrated Amniotic Membranes**

AmbioDisk (IOP Inc. / Katena)  
BioDOptix (BioDLogics)  
Aril (Seed Biotech)  
VisiDisc (Skye Biologics)  
ReNovaAT (RegenMed)  
AmnioTek-C (ISP Surgical LLC)  
Ophthalmogix (EvoLogics)

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**Dehydrated Membranes**

- All stored at room temperature  
- Shelf life typically 2-5 years  
- Do not need to be rehydrated  
- All require the use of BCL

- Complete the donor and recipient information form and return immediately
Dehydrated Membranes

- Ambio Disk
  - Ambio 2 (35μ)
    - 9, 12 or 15 mm
  - Ambio 5 (100μ)
    - 15 mm

- BioDOptix
  - Two Disc Sizes
    - 12mm or 15mm
  - BCL of choice
    - Careful with sizing
  - 40-60um thick membrane

Dehydrated Membranes

- Aril
  - 5 mm Disc
  - 8 mm disc
  - 10.5 mm disc
  - 15 mm disc
  - 1 cm x 2 cm ellipse

- Skye Biologics
  - VisiDisc Thin (45μ)
  - VisiDisc Thick (200μ)
  - 10 mm
  - 12 mm
  - 15 mm

Dehydrated Membranes

- Ophthalogix
  - 10, 12, 14, 16 mm discs
  - Eclipse Thick
  - Eclipse Slim (coming soon)

- Renovo-AT Oculus
  - 9, 12, 15 mm discs

- AmnioTek-C
  - 12 mm disc

Dehydrated 4 Step Process

1. Speculum Insertion
2. Membrane Placement
3. Bandage Contact Lens Placement
4. Speculum Removal

AmbioDisk

- Basement membrane side (epithelium) noted by correct right-to-left nomenclature orientation of “IOP”
- Apply to cornea with IOP down, i.e. basement membrane (epithelium) of tissue directly in contact with cornea.
- Processed with Streptomycin Sulfate and Gentamicin Sulfate
  - Caution in patients with allergies to these
1. **Lid Speculum Insertion**
- Insert the upper lid first followed by the lower lid
- Anesthetize the eye
- Recline chair to supine position
- Instruct patient to look down
- Insert upper speculum onto upper lid
- Instruct patient to look up
- Insert lower speculum onto lower lid, while squeezing near opening

2. **Membrane Placement**

3. **Bandage Contact Lens Placement**

4. **Lid Speculum Removal**
- Remove the Lower Lid followed by the upper lid.
- Instruct patient to look up
- Removed the speculum from the lower lid
- Instruct patient to look ****DOWN****
- Remove from the upper lid while pulling down and away from the patient
4a – Fine Tuning

Side Effects
- Contact Lens slippage or displacement of Prokera Ring
- Blurry Vision
- Burn and sting upon instillation
- Too uncomfortable for patient to tolerate
- Membrane dissolves too quickly
  - Need thicker membrane
- Membrane doesn’t dissolve
  - Typically due to CL being too tight
    - Recommend checking K Values prior to insertion and find appropriate BSCL
- Created irritation to cornea (almost micro burns)
  - Sensitivities to chemical make up of cryo / dehydration process

Suggestions
- Create a routine for using these
- Consent Form
- Home going instructions help
  - Antibiotic
  - Corticosteroid
  - Cycloplegic
  - Oral narcotic
- Debridement prior
- Follow up call
- Dropbox link to consent form, etc

Insertion Techniques
Conclusion

- When to use a Sutureless AM?
  - Promote Epithelialization
  - Suppress Inflammation
  - Inhibit Scarring

- How to use a Sutureless AM?
  - Practice makes perfect
  - Don’t wait for last resort treatment

Hands On Workshop
Please feel free to contact us:

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