

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



Nicholas Colatrella, OD, FAAO, Diplomate AAO, ABO, ABCMO  
Jeffrey R. Varanelli, OD, FAAO, Diplomate ABO, ABCMO

Text NICHOLASCOLA090 to 22333 to join Live Text Poll

**Disclosures**

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

## Special Thanks

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

## 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

## 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

## 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

## 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®  
BIOLOGICAL MEMBRANE  
1-888-296-8858  
7000 SW 97<sup>th</sup> Avenue  
Suite 211 Miami, FL 33173  
www.biottissue.com  
www.prokerainfo.com

<http://www.blythemedical.com/>  
<http://www.seedbiotech.net/>

Ambio-Disk  
www.loginc.com

katena  
www.katena.com

SKYE<sup>™</sup> BIOLOGICS  
Skye<sup>™</sup> OculoMatrix  
www.skyebiologics.com

## Prokera

## 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

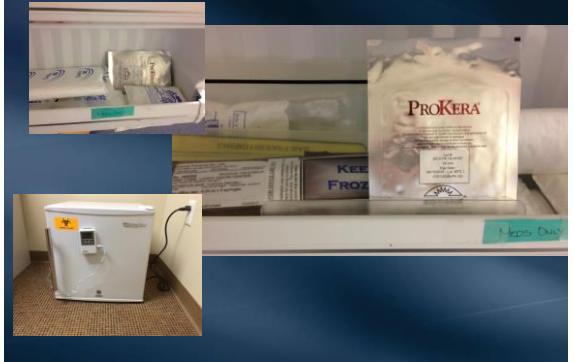
## Prokera



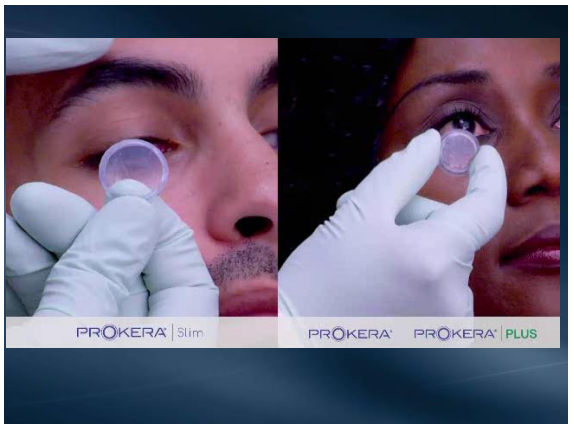
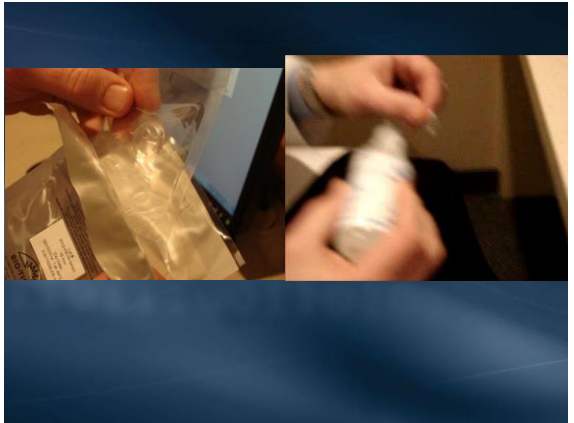
# Prokera



# Prokera



# Prokera



## Tape-sorrhaphy

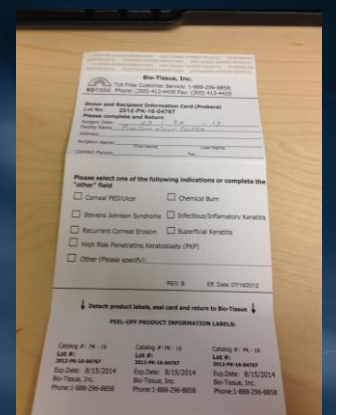
Courtesy Dr. Tseng



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



## Dehydrated Amniotic Membranes

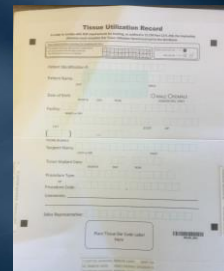
- AmbioDisk (IOP Inc. / Katena)
- BioDOptix (BioDLogics)
- Aril (Seed Biotech)
- VisiDisc (Skye Biologics)
- ReNovaAT (RegenMed)
- AmnioTek-C (ISP Surgical LLC)
- Ophthalmogix (EvoLogics)

## 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



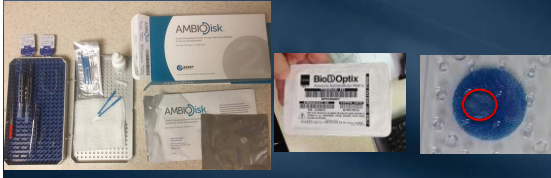
- Complete the donor and recipient information form and return immediately



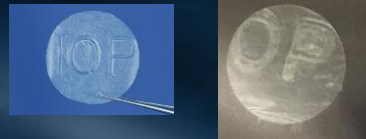


## Dehydrated Membranes

- 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



## 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

## 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

- Ophthalmogix
  - 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



## 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



## 1. Lid Speculum Insertion



## 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



## 4. Lid Speculum Removal



## 4a – Fine Tuning



## Suggestions

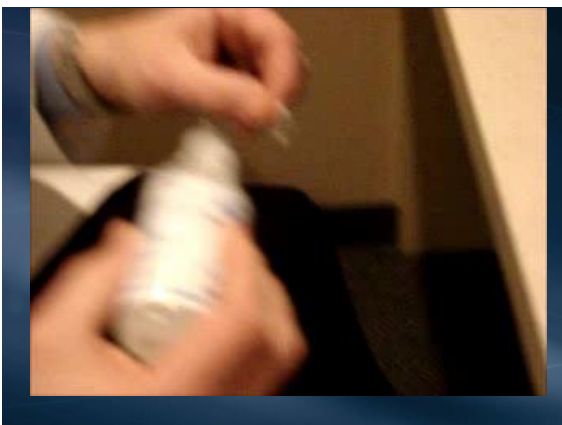
- Create a routine for using these
- Consent Form
- Home going instructions help
  - Antibiotic
  - Corticosteroid
  - Cycloplegic
  - Oral narcotic
- Debridement prior
- Follow up call
- Dropbox link to consent form, etc



## 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

## 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:

Nicholas Colatrella, OD, FAAO, Dipl AAO, ABO, ABCMO  
NColatrella@pineconevisioncenter.com

Jeffrey Varanelli, OD, FAAO, Dipl ABO, ABCMO  
jrveyedoc@gmail.com

