Sutureless Amniotic Membranes Workshop:
How to Properly Insert and Remove Them
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Disclosures
- Allergan Pharmaceuticals Speaker’s Bureau
- 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
- Seed Biotech
  - Aril
- BioD Optix

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**
  - 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

- **Ambio-Disk**
- **BioD**
- **Skye™ OculoMatrix**
  - 448 Deer Creek Trail
  - Hoschton GA 30548 US
  - Tel. +1 706 654 3209
  - http://www.syebiologics.com

- **Optix International, LLC**
  - 9525 Gordon Bernard Cove
  - Bartlett, TN 38133
  - Tel. +1 901 377 6750
  - orders@skyebiologics.com

- **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-sorhaphy

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)
AlphaVision (Amniotic Therapies)
ReNovaAT (RegenMed)
AmnioTek-C (ISPP Surgical LLC)

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

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

BioDOptix
- Two Disk Sizes
  - 22mm 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
- Skye Biologics
  - VisiDisc Thin (45μ)
  - VisiDisc Thick (200μ)
    - 10 mm
    - 12 mm
    - 15 mm

Dehydrated Membranes
- Aril
  - 8 mm disc
  - 10.5 mm disc
  - 15 mm disc
  - 1 cm x 2 cm ellipse

Dehydrated Membranes
- AlphaVision
  - 1.5cm x 2cm
  - 2cm x 3cm
  - 8, 10, 12, 15 mm discs
- Renovo-AT
  - 9, 12, 15 mm discs

Dehydrated 4 Step Process
- 1. Speculum Insertion
- 2. Membrane Placement
- 3. Bandage Contact Lens Placement
- 4. Speculum Removal

AmnioTek-C
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
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
  - https://www.dropbox.com/sh/5sb1pyaxl734vtq/AAAyNeW2ujTtwcSZL7CGSubKa?dl=0

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:

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