Frosted Jones Tubes: A Success Story

Roger A. Dailey, MD, FACS
Lester T. Jones Chair
Past President, ASOPRS
Oculofacial Plastic Surgery
Portland, Oregon, USA

First described in 1965 by Dr. Lester Jones
Has remained the gold standard for treatment of epiphora resulting from blockage of the upper lacrimal system for >50 years.

Jones Tubes

Lester T. Jones Chair - 1992
John L. Wobig, MD, MBA, FACS

CDCR
- Flaccid canaliculi
- Persistent internal scarring
- Canalicular scarring
Endoscopic CDCR
Patient Instructions
- Squeeze eyes closed or press over tube with fingers when blowing nose or sneezing
- Gently “snuff” an artificial tear preparation through your nose twice per day
- Don’t blow air out of your tube
- Call if tube migrating out of position, not visible, or because of persistent tearing

Jones Tubes 2003
- Pyrex tubes
- 0.8mm internal diameter
- Various Collars (3, 3.5, 4mm)
- Various Lengths
- 30º angle bevel end
Jones Tubes 2003

- Vast majority do well with stability and removal for cleaning and re-fittings
- Some spontaneously “fall out”
- Extrusion rates reported as high as 49% (AJO 157(1):101-108, 2004 Jan)

Weiss Scientific Glass Blowing, Inc.

Etch with mixture of:
- Hydrofluoric acid
- Nitric acid
- Glycol

Monitor under microscope to avoid fractures and get final surface features

Frosted Jones Tube

Gunther Weiss

Steele, EA, Dailey, RA.

Case Series

- 10 patients who had previously undergone CDCR with placement of a Jones Tube who experienced extrusion.
- Single surgeon (RAD) performed all procedures
- All had previous success with their Jones Tubes
- Time from CDCR to extrusion ranged from one month to 14 years.
- Instead of replacing with original Jones tube, a new frosted tube was placed


Results

- Successfully managed 10 patients over 8 months
  - Proper functioning: no epiphora, no discomfort
  - No recurrence of spontaneous extrusion
  - No complication for extraction required for fitting/cleaning
  - Virtually no tube loss since first started using in February, 2004. Deep migration was noted and pursuit of a larger collar size was initiated

**Conclusions**

- CDCR with insertion of a Jones tube remains the standard of care for most upper lacrimal outflow problems
- Extrusion, the main complication, appears to be greatly reduced by this new (2004) “Frosted” Jones pyrex tube
- Retains all the benefits of the original: inert material, capillary action, easy to remove and reinsert, and inexpensive

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**Methods**

- Retrospective chart review
- All CDCR with FJT (RAD): January 1, 2006 to September 1, 2014
- The primary outcome measure was:
  - Correction of epiphora
  - Long-term retention of FJTs.

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**Conjunctivodacryocystorhinostomy (CDCR) with Frosted Jones Tubes**

*Effectiveness and Long Term Outcome*

Roger A. Dailey, MD, FACS  
Eric S. Ahn, MD  
Casey Aesthetic Facial Surgery Center  
Portland, Oregon

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**Results**

- 29 patients, 39 eyes met the criteria
- Avg follow up = 1088 days (range 178-2379)
- 35/39 had subtotal middle turbinectomy and/or anterior ethmoidectomy
- 12/39 had prior or concurrent septoplasty

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**Results**

28/29 (97%) patients COMPLETE resolution of tearing after surgery
Results

- 6/39 FJTIs were lost:
  - One tube fell out (1/39) – 3%
  - 5 tubes migrated in before 2010
  - 2010 started patient monitoring for inward migration and if seen, switched tube to 4.5 or 5 mm collar
  - After 2010 - 1 migrated in and required larger collar
  - No further tearing after repeat placement of tubes

Conclusions

- CDCR with FJT is highly effective at correcting epiphora - anatomic success of 100% and a symptomatic patient cure rate of 97%.
- Incidence of migration and loss out - 3%
- Incidence of migration in and loss should be zero
  - (with proper patient monitoring and increasing collar size to 4.5 or 5)
- Routine follow up and possible tube adjustments are a necessary part in ensuring optimal CDCR outflow.

Success Rate of Variable Collar Size Frosted Jones Tubes

Roger A. Dailey, MD, FACS
C. Blake Perry, MD
Casey Aesthetic Facial Surgery Center
Portland, Oregon

Frosted Jones Tube

- Purpose: examine the success and migration/extrusion rates with collars larger than 4.0 mm

Methods

- Retrospective chart review of all patients who received larger collar (4.5 or 5.0 mm) FJT between January 1, 2010 and July 1, 2016.

- Primary outcome measures
  - Correction of epiphora
  - Retention rates of larger collar FJTIs

Results

- 25 patients (29 eyes) met inclusion criteria
- Average follow up = 30 months (range 6.5 – 86 months)
- 28/29 eyes had complete resolution of epiphora after placement of larger collar FJT

- NO LOST TUBES
  - 14/29 eyes required adjustment in collar size after larger collar was placed (almost all done in the office)
  - 2/13 eyes that had a 5.0 mm collar required exchange to 4.5 mm collar due to collar prominence
  - No issues with any 4.5 mm tube
Results

- 100% anatomic correction of epiphora
- 97% symptomatic correction of epiphora

Conclusion

- Larger collar FJTs are well tolerated and help reduce the chance of tube loss
- No migration or extrusion seen in our study with proper tube adjustment
- FJTs highly successful in treating epiphora with minimal complications

Current Practice

- Frosted Jones tubes used primarily with a 4.0 mm collar and err on the long side
- Patients are seen at one week and then 6 months
- They are instructed to observe the tube collar every day and report any migration
- Tubes are changed if length not appropriate to a longer or shorter tube
- If inward migration is noted, a tube with a 4.5 mm collar is inserted. If continued migration, a 5.0 mm collar is used. Can use 5.5 mm as well (1 case now)

River Vision Development Corporation
RV001 (teprotumumab): A Phase 2 mAb Insulin-Like Growth Factor Type 1 Receptor (IGF-1R) Antagonist for Graves' Orbitopathy

Disease Time Course and Intervention Strategy

<table>
<thead>
<tr>
<th>Disease Severity</th>
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<tbody>
<tr>
<td>Active Phase</td>
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<tr>
<td>Stable Phase</td>
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<tr>
<td>Disease Time</td>
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<tr>
<td>1.5 → 3 years</td>
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<tr>
<td>3 → years</td>
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- Emergency decompression / eyelid surgery
- Untreated
- Corrective surgeries
- RV001
- Efficacious therapy
GO Autoimmunity: Key Role of Orbital Fibroblasts
Autoantigens: thyroid stimulating hormone receptor (TSHR) and IGF-1R

- Inflammation is a response to autoimmunity – not the cause of GO

TED Phase III Study
Patients in the active phase – no more than 9 mo from onset symptoms
No treatments other than supportive or minimal steroid use

THANK YOU