Δορυφορικό Συμπόσιο

«Γεφυρώνοντας το χάσμα μεταξύ Καταρράκτη και Διαθλαστικής Χειρουργικής»

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Χορηγός ALCON
Financial disclosures

• ALCON
Intraoperative Techniques for I.F.I.S.

- **Well-constructed corneal incisions.** It is essential, in potential IFIS cases, to create a triplanar, self-sealing corneal incision. A well-constructed incision may prevent iris prolapse through the wound. Incisions that are too short or are biplanar are more likely to have the iris prolapsed toward them. Some surgeons also report creating a slightly longer incision within the clear cornea plane for this reason.

- **Trypan blue.** Trypan blue helps the surgeon view and stay clear of the rim of the capsulorhexis if the pupil becomes miotic or other signs of IFIS occur during phacoemulsification. Trypan blue also helps the surgeon view areas of the capsule not well exposed by iris hooks. More recently, it has been suggested that the use of trypan blue, and its subsequent exposure to light for one minute, actually makes the capsule tougher and, hence, less susceptible to tearing.²

- **Low fluidics.** The use of less aggressive irrigation and aspiration is a logical step in managing a billowing iris. Surgeons have reported greatest success with simply reducing the fluidics parameters on the phaco machines by 10 to 15 percent (e.g., lowering bottle height from 95 cm to 84 cm). Newer phaco machines feature automated settings for use in IFIS patients. Up to 95 percent of IFIS cases have been reported as successfully managed when low fluidics were used in combination with a viscoadaptive ophthalmic viscosurgical device.

- **Iris retractors.** Until recently, iris retractors were very popular in the management of IFIS. But at least two extra incisions are needed for retractors, and their placement after the capsulorhexis can be tricky; they also tend to increase the surgical time.

- **Retractor rings.** The surgeon must be trained to use the rings, and their successful placement requires a narrow range of pupil size (between 4 and 7 mm). They are also difficult to place if the anterior chamber is shallow, or after the capsulotomy or hydrodissection has been performed.

- **Surgeon opinions vary quite widely on some of the above-mentioned methods. The use of intracameral epinephrine is perhaps the only intervention that is universally accepted as effective and convenient. With the variety of safe and effective options available to surgeons, the management of IFIS is fast becoming a matter of personal preference.**

² Managing Intraoperative Floppy Iris Syndrome
Written By: Sarosh Janjua, MD, and Sandra L. Cremers, MD, FACS
Edited by Ingrid U. Scott, MD, MPH, Sharon Fekrat, MD, and David F. Chang, MD
MAY 01, 2009 EyeNet / Eyenet Article
Active Fluidics™ Technology

• Designed to optimize chamber stability through dynamic IOP management\
5,8,9

• Active Fluidics™ Technology is designed to optimize chamber stability by providing more consistent IOP over a wide range of aspiration flow rates.5

During every case, flow rates vary. Unlike gravity and pressurized fluidics, Active Fluidics™ Technology detects and compensates to help maintain surgeon-selected IOP.

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Αντλία

Venturi: καθορίζουμε το vacuum (ανεξάρτητα από το υλικό αναρρόφησης)

Peristaltic:

- aspiration rate (ροή)
- vacuum (μετά το occlusion)
Wound burn
Ultrasound-induced corneal incision contracture survey in the United States and Canada

Tyler Sorensen, MD, Clara C. Chan, MD, Michael Bradley, MD, Rosa Braga-Mele, MD, Randall J. Olson, MD

Correspondence information about the author MD Randall J. Olson

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Results

Eight hundred forty-two cataract surgeons reported on 920,095 surgeries and 341 wound burns (raw incidence 0.037%). After a multivariate analysis, the wound burn incidence was significantly inversely associated with the surgeon’s surgical volume (45% decrease per doubling of volume; 95% confidence interval, 38%-55%; P<.001), the surgical approach (P<.001), and the ophthalmic viscosurgical device (OVD) used (P=.004). Machine or ultrasound modality used, region of the U.S. or Canada, and incision size were not related to wound burn.

Conclusion

Phacoemulsification-induced wound burn can be reduced by experience, by the approach used in nucleus disassembly, by choice of OVD, and most important, by not using ultrasound when the anterior chamber is filled with OVD.
Cataract Experts Share Their Surgical Mishaps

Q: How many serious wound burns have you experienced?

<table>
<thead>
<tr>
<th>None</th>
<th>48%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>26%</td>
</tr>
<tr>
<td>2-3</td>
<td>15%</td>
</tr>
<tr>
<td>&gt;3</td>
<td>11%</td>
</tr>
</tbody>
</table>
The role of the equipment

• Tortional Vs Longitudinal phaco

• Cooling the phaco tip through small incision
Τι είναι το OZIL

Σύστημα εφαρμογής υπέρηχων στρέψης (torsional- oscillations) με σκοπό την επίτευξη αποτελεσματικότερης φακοθρυψίας λόγω της ελαχιστοποίησης της απώθησης (repulsion) και της εκλυόμενης θερμικής ενέργειας
Γιατί Ozil* micro coaxial ????

• Μείωση της θερμότητας στον οφθαλμό κατά 60%

• Αξιοποίηση του Intrepid ® Balanced tip

• Καλύτερο “κράτημα” του πυρήνα (ξεφλούδισμα)

• Δυνατότητα συνδυασμού με κλασικούς U/S

• Καλύτερη διαχείριση των υγρών 10,11

*Trademarks are the property of their respective owners.
8. Zacharias J. Comparative thermal characterization of phacoemulsification probes operated in elliptical, torsional and longitudinal ultrasound modalities. ASCRS-ASOA Symposium and Congress; April 25-29, 2014; Boston, USA.
Εξοικονόμηση ενέργειας

• «Κόβει» και αριστερά και δεξιά σε αντίθεση με την κλασική που «κόβει» μόνο κατά την εμπρός κίνηση
• Oscillations σε 32 kHz - U/S σε 43 kHz
• Μικρότερη τριβή στην τομή
• Ελαχιστοποίηση της απώθησης

8. Zacharías J. Comparative thermal characterization of phacoemulsification probes operated in elliptical, torsional and longitudinal ultrasound modalities. ASCRS-ASOA Symposium and Congress; April 25-29, 2014; Boston, USA.
BALANCED™ TIP

- Kelman® Mini Flared tip design

Intrepid® Balanced tip design

AMPLITUDE 130u

AMPLITUDE 192u
INTREPID® Integration

• **The INTREPID® BALANCED Tip**

• The INTREPID® BALANCED Tip is an innovative tip designed to improve efficiency\(^1,2\) by:

  • Reducing tip movement at the incision\(^1,2\)
  
  • Enhancing torsional tip movement at the distal end\(^1,2\)
  
  • Providing an alternative “straight” tip for torsional phaco

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1 Effect of balanced phacoemulsification tip on the outcomes of torsional phacoemulsification using an active-fluidics system

2 Heat Generation and Efficiency of a New Modified Phaco Tip and Sleeve
Centurion® Energy Delivery

Designed to reduce heat transfer to the eye, OZil® technology has 60% less temperature rise.¹⁰

*Trademarks are the property of their respective owners.

10. Zacharias J. Comparative thermal characterization of phacoemulsification probes operated in elliptical, torsional and longitudinal ultrasound modalities. ASCRS-ASOA Symposium and Congress; April 25-29, 2014; Boston, USA.
Centurion * Energy Delivery

• Lower temperature rise for reduced heat transfer to the eye

• The Centurion * Vision System’s OZil * Phaco and BALANCED Tip combine to deliver a lower temperature rise than traditional and Ellips FX ® ultrasound modalities.

*Trademarks are the property of their respective owners.
8. Zacharias J. Comparative thermal characterization of phacoemulsification probes operated in elliptical, torsional and longitudinal ultrasound modalities. ASCRS-ASOA Symposium and Congress; April 25-29, 2014; Boston, USA.
Lens-iris diaphragm retropulsion syndrome (LIDRS)

In 1992, Zaubermaṇ first described a phenomenon that occurs during phacoemulsification and that is characterized by

*excessive anterior chamber deepening,*

*retropulsion of the iris,* and

*extreme widening of the pupil.*

In 1994, Wilbrandt and Wilbrandt designated this phenomenon as **lens-iris diaphragm retropulsion syndrome (LIDRS)** and described its mechanism. Posterior movement of the lens iris diaphragm causes significant discomfort and pain under topical or intracameral anesthesia, and an excessively deep anterior chamber renders phacoemulsification more difficult for the operating surgeon.

9. The Incidence and Risk Factors of Lens-iris Diaphragm Retropulsion Syndrome during Phacoemulsification
Dong Hui Lim1,2, Dong Hoon Shin1, Gyule Han1, Eui-Sang Chung1, Tae-Young Chung1
Lens-iris diaphragm retropulsion syndrome (LIDRS)

Risk factors associated with LIDRS

• Vitrectomy
• Long axial length
• 3.0 mm Vs 2.2 mm incision size

9. The Incidence and Risk Factors of Lens-iris Diaphragm Retropulsion Syndrome during Phacoemulsification
Dong Hui Lim1,2, Dong Hoon Shin1, Gyule Han1, Eui-Sang Chung1, Tae-Young Chung1
32 years old, inflammatory glaucoma, 3rd time glaucoma surgery with a Baerveldt implant, high myopia, visual fields affected,

$36 \text{ mmHg} = 48.9 \text{ cmH}_2\text{O}$
Simple steps for surgeons to optimize phaco fluidics

Adjusting bottle height, aspiration flow rate and vacuum level can improve efficiency and increase patient safety during cataract surgery.

Uday Devgan, MD, FACS, FRCS (Glasg)

If your technique involves sculpting a nuclear groove, such as with divide-and-conquer or stop-and-chop, a lower vacuum setting (50 mm Hg to 60 mm Hg with large-bore needles, 80 mm Hg to 100 mm Hg for smaller-bore needles) is sufficient to remove the emulsified material. If you require purchasing power to hold or manipulate the nuclear pieces, such as with a chop technique, then a higher vacuum level is needed (200 mm Hg to 250 mm Hg for large-bore needles, 350 mm Hg to 450 mm Hg for small-bore needles).

Because our goal is phaco-assisted aspiration of the cataract, in which the primary modality is fluidics with the ultrasound energy used to prevent blockage of the tip, a high vacuum level should be used to remove nuclear fragments.
Active Fluidics* Technology

- Designed to reduce surge\textsuperscript{10}
- Through its Active Fluidics* Technology, the Centurion\textsuperscript{*} Vision System is designed to significantly reduce occlusion break surge versus AMO WHITESTAR Signature* and INFINITI\textsuperscript{*} Vision System.\textsuperscript{10,11}

**Average Volume Trace\textsuperscript{3} Vac Limit=600 mmHg, IOP Setpoint=55 mmHg**

**Occlusion Break Surge Across Vacuum Limit Range\textsuperscript{10}**

*Trademarks are the property of their respective owners.

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Active Fluidics™ Technology results in reduced occlusion break surge and more consistent IOP compared with gravity fluidics.
Centurion* energy delivery - procedure efficiency

The Centurion® Vision System was designed to set the global standard for efficiency in the OR. The system features the unique combination of OZI® technology and innovative fluidics for enhanced emulsification that requires minimal fluid.

12. Clinical study using a new phacoemulsification system with surgical intraocular pressure control
Kerry D. Solomon, MD, Ramon Lorente, MD, Doug Fanney, MBA, Robert J. Cionni, MD, J Cataract Refract Surg 2016; 42:542–549 Q 2016 ASCRS and ESCRIS
THE INTREPID® TRANSFORMER I/A HANDPIECE

The Right Tool for Every I/A Technique

The Transformer I/A Handpiece has been specifically engineered to allow surgeons to easily transition from either coaxial or bimanual cortical removal without changing handpieces:

- Increased clock hours of access
- Access behind the lens for viscoelastics removal
- Lens positioning in bimanual mode

* Compared to coaxial mode

Two Approaches. One Solution.

Standard coaxial mode with polymer aspirating tip and irrigating sleeve**.

During bimanual mode, the irrigating sleeve remains in the primary incision while the polymer-tipped aspirating port is used in a secondary incision**.

A simple twist separates the handpiece into two individual components**.

** Refer to the INTREPID® Transformer I/A Handpiece Instructions For Use.

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Data provided by Alcon
INTREPID® TRANSFORMER I/A

Aspiration handpiece

Aspiration tip
Elongated port: 0.2 mm x 0.4 m

Irrigation/Aspiration handpiece

I/A tip
Circular port OD 0.3 mm
**Coaxial Performance**

All the advantages of the Alcon INTREPID® polymer technology
- Smooth capsular friendly tip
- Enhanced irrigation flow
- Accessibility to cortical material in the majority of clock hours

*In coaxial mode, the Transformer NA Handpiece gives surgeons the assurance of smooth, one-handed cortex removal.*

**Bimanual Performance**

- Greater access to the subincisional cortex*
- Increased capsular polishing flexibility via the polymer-tipped bimanual aspirating port
- Flexibility to switch the aspirating handpiece to the other side to access any remaining cortex

*Compared with coaxial mode

*In bimanual mode, the sleeved portion of the handpiece maintains chamber stability while the transformed aspiration port is free to enter a side incision.*
Ευχαριστώ πολύ

N. Μιχαλιτσιάνος