CURRENT TECHNOLOGY IN REFRACTIVE SURGERY

Kyle Sandberg, OD, FAAO
Chief, Refractive Surgery and Laser Services
Assistant Clinical Professor
Rosenberg School of Optometry

REFRACTIVE SURGERY

- Laser-Assisted in situ Keratomileusis (LASIK)
- Photorefractive Keratectomy (PRK)
- Intraocular Collamer Lens (ICL)
- Refractive Lens Exchange (RLE)
- Corneal inlays for treatment of presbyopia

LASER VISION CORRECTION

HISTORY OF LASIK: 25 YEARS IN THE U.S.

- In 1991, Dr. Stephen Slade performed first LASIK surgery in the U.S.: the blending of a flap and PRK became known as LASIK
- Summit was the first laser to achieve FDA approval for PRK in the US in 1995
- In 1998, first laser approved for LASIK by the FDA
- In 2000 Intralase was performed for the first time
- Today, 3rd & 4th generation femtosecond and excimer lasers are widely used in corneal and now cataract applications

LASIK VOLUME INCREASING SINCE THE GREAT RECESSION

PROWL STUDY (PT REPORTED OUTCOMES WITH LASIK)

- Quality of life pre op vs 3 months post op
- PROWL-1 = NAVY (n=224)
- PROWL-2 = General population (n=260)
  >96% achieved 20/20 or better binocular
  99% PROWL-1
  96% PROWL-2
- Halo glare and starburst did not increase
- Ghosting decreased 33% (pre op) to 6% (post op)
0.2% of eyes lost two or more lines of BCVA from before surgery to 3 months.

3 patients (1.3%) in PROWL-1 and 10 patients (3.8%) in PROWL-2 were dissatisfied with their vision at 3 months (2.7%).

In contrast, 14.2% of PROWL-1 patients and 8.2% of PROWL-2 patients were "completely dissatisfied" with their vision before surgery.

The most common reason for dissatisfaction was residual refractive error. Enhancements were not permitted in this study.

GLARE DECREASED: Symptoms of glare reported by 41% of PROWL-1 patients before surgery and 23% of patients at 3 months. In PROWL-2, 31% of patients reported glare before surgery, and 27% reported glare at 3 months.

HALOS DECREASED: Halos were reported by 41% of PROWL-1 patients before surgery and 19% of patients at 3 months. In PROWL-2, 31% of patients reported halos before surgery, and 27% reported halos at 3 months.

STARBURSTS DECREASED: Starbursts were reported by 48% of PROWL-1 patients before surgery and 34% of patients at 3 months. In PROWL-2, 34% of patients reported starbursts before surgery, and 45% reported starbursts at 3 months.

Up to 30% of patients developed new dry eye symptoms after surgery in this study out to 3 months postop.

OVERALL 96% satisfaction rate.
THE RIGHT SURGEON SHOULD PROVIDE THE FOLLOWING

- Quality of outcomes
- Talk to local ODs
- Observe surgery
- Does the surgeon share your philosophies?
- Support for optometry
- Return patients post-op
- Ocular
- Training for post-ops
- Patient experience
- Bedside manner of OMD
- Communication
- Quality of office staff
- Cost/Value?
- All refractive surgery is not created equal
- Training/Experience of the surgeon
- Technology ( Femto Laser, RLE, ICL, Inlays)
- Does the surgeon share your philosophies?
- Support for optometry
- Return patients post-op
- Ocular
- Training for post-ops

REMEMBER: Low cost does NOT usually mean the best quality outcomes, support for optometry or a good patient experience.

WHAT ABOUT PRK??

- PRK is not typically our first choice
  - Lower patient comfort
  - Longer healing time
  - Longer steroid taper
  - Higher risk of haze
- Still useful technology with thinner corneas or patient preference
  - Results are eventually equal to LASIK

<table>
<thead>
<tr>
<th>LVC: Allegretto Wave laser</th>
<th>Age (or label)</th>
<th>Myopia</th>
<th>Hyperopia</th>
<th>Astigmatism</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 and over</td>
<td>Up to +1.0D</td>
<td>Up to +4.0D</td>
<td>Up to +4.0D</td>
<td></td>
</tr>
</tbody>
</table>

ABSOLUTE CONTRAINDICATIONS (CI) TO LASIK/PRK

- Patients with uncontrolled collagen vascular, auto-immune or immunodeficiency diseases (RA, Sjogren’s, SLE)
- Growers do with Lupus nephritis
- Uncontrolled Immune deficiency/AIDS & active immunosuppression (HIV is not CI if controlled)
- Active ocular infection or inflammation of any kind
- Women who are pregnant or nursing (No corneal refractive surgery until at least 6 months postpartum and post lactation). Once outside this window, need rigorous documentation of refractive stability.
- Women who may become pregnant are OK
- Patients with signs of keratoconus or abnormal corneal topography
- Patients who are taking the following medications:
  - Isotretinoin (Accutane®) No refractive surgery for at least six months after discontinuing isotretinoin
  - Amiodarone hydrochloride (Cordarone®)

REF SX PRE-OP

- Pachymetry
  - Residual Bed = CCT - (100 micron flap + 16 x Dippers of ablation)
  - Residual Bed ≥ 250
  - Joint committee of AAO and ASCRS preferred practice pattern

- Topography
  - Look for signs of Keratoconus/PMD
  - Increased back surface elevation, irregular astigmatism, inferior thinning.
WOULD YOU DO LASIK??

32 yo WF... Hates her Contacts
 Manifest: -3.75 -1.50 x 20       20/30-
 -6.00 -0.75 x 170       20/25+

KCN

CL WEARERS

- Soft CLs – out minimum of 2 weeks prior to surgical consult
- RGP’s – 1 month plus 1 month per decade of wear (textbook)
- Practically wait for stability in serial K’s.

REF SX POST-OP

- Reassure the patient
- 1 DAY
  - CC: No pain/loss of vision. Hazy VA and RBS common. Sleeping with Shield
  - MEDS: Antibiotics, Steroid, PF AT’s q1h, 1000mg Vit C if PRK
  - VA: 20/30 – 20/40 (LASIK vs PRK). Check NVA if blended vision.
  - SLE: Flap in place, common to see some SPK, edema, BCL, haze and healing line in PRK.
  - NO IOP check
  - Sleep with Shield, CPM, BCL in place for PRK. No swimming, no water in eyes while showering, no eye rubbing, avoid dirty/dusty environments. Call if increased pain, decreased vision.

- Reassure the patient

REF SX POST-OP

- Reassure the patient
- 1 Week
  - CC: No pain/loss of vision. Possible RBS
  - MEDS: PF AT’s q1h, 1000mg Vit C if PRK. Continued steroid taper for PRK
  - VA: 20/15 – 20/40 (LASIK vs PRK). Check NVA if monovision.
  - SLE: Flap in place, may see some SPK, BCL, and healing line in PRK.
  - NO IOP check
  - D/C eye shield, remove BCL if healing line is closed. May “float” BCL with saline. Continue liberal use of AT’s. Aggressively manage ocular surface (plugs, Restasis, FreshKote prn). No eye rubbing.

- Reassure the patient

PHAKIC IMPLANTS

...Because if you only have a hammer, everything starts to look like a nail
**PHAKIC IMPLANTS**

**VERISYSE® (AMO)**
- Anterior chamber lens
- Visible to the naked eye
- FDA approved in 2004
- Corrects from -3.00D to -20.00D

**VISIAN ICL® (STAAR)**
- Posterior chamber lens placed in the sulcus
- Visible only under slit lamp
- FDA approved in 2005
- Corrects from -3.00D to -20.00D
- Available in hyperopic powers and toric lenses in Europe

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**VISIAN ICL**

- Peripheral iridotomies performed prior to implantation — 1-2 weeks pre-op
- Standard of care is simultaneous bilateral implantation
- Requires skilled surgeon — 1.4% risk of anterior subcapsular cataract
- Lenses may be removed or replaced (advantage over LASIK even for low refractive errors)
- Recovery is quick and patients experience great vision immediately
- Superior to LASIK/PRK with high refractive errors, severe DE, irregular corneas, large pupils

**WHO CAN'T HAVE AN ICL?**
- Shallow AC (< 3.0 mm)
- Significant corneal/endothelial disease
- Narrow angles
- Glaucoma
- H/o significant or recurrent iritis
- Cataracts
- Caution with highly toric corneas (may combine with LASIK/PRK)
- This is not a multifocal lens

**ICL COMPLICATIONS**

- Pupillary block
- IOP spike
- ASC cataract — 1.4%
- Glare/halos
- Any complications associated with LASIK/PRK
- Document vault. Ideal is typically between 1/2 corneal thickness and 1.50 CCT
ICL POST OP

- REASSURE THE PATIENT!
  - Day 1
    - CC: No Pain (possible FBS), Subjective Improvement, Ask about sleep
    - Meds: Confirm appropriate usage
      - Antibiotic, NSAID, Steroid - let the patient tell you
    - Distance Vision with ph
      - Usually 20/40 or better
    - IOP
    - Slit
    - Normal = Temporal MCE, Descemet's folds, AC ran to 1+ cells and flare. Check vault. Check Iridotomies.

- REASSURE THE PATIENT!
  - 1 week, 1 month, 3/6/12. Annual Eye Exams are a must.
  - At EVERY visit, evaluate and record vault and check patency of PIs.

VAULT

CATARACT AND RLE

- All steps done manually (by surgeon's hand)
- Focusses the eye for a single distance
- Distance OU
- Patients should be counselled on the need for full time glasses

BASIC MANUAL CATARACT SURGERY

- No astigmatic correction or near vision
- This is the only lens option covered by insurance
- Lenses include:
  - Alcon SN60WF
  - Nanoflex

THE BASIC PCIOL

- In non-refractive cataract practices nationwide, it is the only option offered
- No astigmatic correction or near vision
- This is the only lens option covered by insurance
- Lenses include:
  - Alcon SN60WF
  - Nanoflex

DYSFUNCTIONAL LENS SYNDROME

<table>
<thead>
<tr>
<th>Phase of DLS</th>
<th>Treatment options</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Loss of accommodation</td>
<td>Corneal Inlay, Manovision LASIK, RLE</td>
</tr>
<tr>
<td>2. Loss of lens clarity</td>
<td>RLE</td>
</tr>
<tr>
<td>3. Full blown cataract</td>
<td>Cataract Extraction</td>
</tr>
</tbody>
</table>
### SURGICAL PRESBYOPIA CORRECTION

- Currently FDA Approved
  - Monovision LASIK
  - Conductive Keratoplasty
  - KAMRA Corneal Inlay
  - RVO Raindrop
  - Refractive Lens Exchange

- Ideas being investigated
  - Multifocal LASIK
  - Corneal Wakening with Femtosecond Laser (Intracor)
  - Scleral Expansion Surgery
  - New IOL technologies

### REFRACTIVE CATARACT SURGERY AND RLE

- Astigmatism Correction
  - Monovision
  - Distance
  - Near
  - Blended

- Ideas being investigated
  - Multifocal LASIK
  - Corneal Weakening with Femtosecond Laser (Intracor)
  - Scleral Expansion Surgery
  - New IOL technologies

- Femtosecond Laser Cataract Surgery
  - LensAR
  - LenSx
  - Victus
  - Catalys
  - ORA
  - LASIK Enhancement

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### FEMTOSECOND LASER ASSISTED CATARACT SURGERY

- Several Platforms
- The laser is responsible for aiding in:
  - Clear Corneal Incisions
  - Corneal Arcute Incisions
  - Capsulotomy
  - Lens Fragmention
- Increased predictability and repeatability of outcomes
- Faster healing
- Less phaco time and energy
- Increased cost

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### READY FOR SURGERY

### ASSESSING CANDIDACY FOR REFRACTIVE CATARACT SURGERY

- Refractive Cataract Surgery targets a very particular refractive outcome through the use of advanced technology IOLs and laser assisted cataract surgery
- Let the patient’s goals guide you
  - Do they want to be out of glasses for distance? Near? Both? Neither?
- Ocular health plays a key role
- Realistic expectations are key!
- Under-promise and over-deliver
- Astigmatism needs to be addressed
- Even small amounts warrant the use of the laser

http://www.wakelasik.com/site/tecnis-multifocal.htm
ASTIGMATIC CORRECTION

TORIC IOL
- Must have between 0.75D ~ 4D of CORNEAL astigmatism
- Astigmatism should be REGULAR
- Patient needs to be comfortable with wearing glasses
  - Will still need glasses for near (or distance if near target)
  - FEMTO-LASER: Arcuate incisions along the steep axis correct astigmatism
  - Can correct amounts even <0.50D
  - Used in combo with presbyopia correcting IOLs

LASIK may be planned in advance to address astigmatism


WHO DOESN'T GET A TORIC IOL
- Significant surface pathology
- Highly irregular astigmatism
- Careful with patients who need prism
- Patients expecting complete freedom from glasses
- Patients who love their glasses
- $$ is sometimes an issue

PRESBYOPIA CORRECTION

REFRACTION VS. DIFFRACTION

• Current technology depends largely on diffraction (ReSTOR® and Techni® Multifocal)
• The Crystalens® and Trulign® are fully refractive “accommodating” IOLs.

• Refraction is the BENDING of light as it passes through a material of a different index of refraction
• Diffraction is the “spreading” of the light wave as it encounters an edge. The media does not have to change.
DIFFRACTIVE OPTICS: WHERE DOES THE LIGHT GO?

Width of steps: add power.
Height of steps: the % of light going to near focal point.

RESTOR®
Anterior aspheric optic
Central 3.6 mm apodized diffractive structure.
Step heights decrease peripherally from 1.3 – 0.2 microns.
A +4.0 D at lens plane equaling +3.2 at spectacle plane.
Outer refractive zone.

TECNIS® MULTIFOCAL FAMILY OF IOLs

A full range of outstanding vision; personalized to each patient’s lifestyle.

TMF DATA

AM I A CANDIDATE?
- Because of the diffractive optics, multifocal patients should be free from ocular pathology.
- The eye should be capable of ~20/25 vision or better.
- No significant surface disease with normal topography.
- May consider presurgical treatment with Azalea and Restasis.
- Multifocal candidates are those that have a desire to be less dependent on spectacles.
- They should be willing to accept some initial glare/halos.
- Ideally are long time presbyopes.
- Better results are with bilateral lenses but combos are sometimes done.
- TMF is non-dominant with toric in dominant.

WHO IS NOT A CANDIDATE?
- Significant corneal disease/irregularities/scarring.
- Pupil abnormalities.
- Capsular or zonular problems.
- History of significant refractive surgery.
- >10 D hyperopic treatment.
- >8 D of myopic treatment.
- ER is generally a contraindication.
- Prior weiners.
- Patients who love their glasses.

ANTERIOR SEGMENT
- ARMD
- A few drusen are OK.
- Diabetic Retinopathy.
- History of significant hyperopic LASIK.
- Other macular pathology.
- Skin.
- Nerve fiber layer.
- VMT.
- 0 or worse.
- Vitiligo.

POSTERIOR SEGMENT
-＞10 D hyperopic treatment.
- >8 D of myopic treatment.
- ER is generally a contraindication.
- Prior weiners.
- Patients who love their glasses.
CRYSTALENS

• First and only FDA approved “accommodating” IOL
• Lens provides some near vision through anterior movement of the optic.
• Contraction of ciliary muscle produces redistribution of muscle mass
• This increases pressure in the vitreous and decreases AC pressure
• The movement of the optic is facilitated by the hinges

CRYSTALENS ADVANTAGES

AMO SYMFONY

• The proprietary diffractive echelette design feature extends the range of vision
• The proprietary achromatic technology corrects chromatic aberration for enhanced contrast sensitivity.

ADDITIONAL ADVANTAGE (IN THE U.S.)

Trulign – First prebyopia correcting toric IOL available in the US

AMO SYMFONY

TECNIS® Monofocal IOL

TECNIS® Multifocal IOL

TECNIS® Symfony IOL

Near

Intermediate

Distance

POST-OP

DAY 1 - NORMAL

REASSURE THE PATIENT!

• For post-op eye
  • CC: No Pain (possible FBS), Subjective Improvement, Ask about sleep
  • Meds: Confirm appropriate usage
  • Antibiotics, NSAID, Steroid - Let the patient tell you
  • Distance Vision only, Near Vision only or Both for Multifocal
  • Usually 20/50 or better
• IOP
  • GAT ok.
• Slit:
  • Normal = Temporal MCE, Descemets fold, IOL centered, capsule intact, AC ran 1-3+ cells and flare
  • REASSURE THE PATIENT!!
1 WEEK - NORMAL

- REASSURE THE PATIENT!
- For post-op eye
  - CC: No Pain (possible PFS), Subjective Improvement, Ask about sleep?
  - Meds: Confirm appropriate usage
    - Antibiotic, NSAID, Steroid. Let the patient tell you
  - Distance Vision only, Near Vision only or Both for Multifocal
  - Manifest Refraction
    - Unexpected refractive shift warrants dilation to check for toric rotation or tilt
  - IOP: GAT ok.
  - SLE:
    - Normal = A few edema possible, IOL centered, capsule intact, AC quiet to 1+ cells and flare.
    - Iritis = Anti-inflammatory/drop may help, check with PT.
    - Anterior chamber with iritis or pupil retraction? Frequent pt. No eye rubbing.
  - scratching
  - Distance Vision only, Near Vision only or Both for Multifocal
  - Manifest Refraction

- REASSURE THE PATIENT!!

1 MONTH

- REASSURE THE PATIENT!
- For post-op eye
  - CC: No Pain (possible PFS), Subjective Improvement, Ask about sleep?
  - Meds: Confirm appropriate usage
    - Antibiotic, NSAID, Steroid. Let the patient tell you
  - Distance Vision only, Near Vision only or Both for Multifocal
  - Manifest Refraction
    - Unexpected refractive shift warrants dilation to check for toric rotation or tilt
  - IOP: GAT ok.
  - SLE:
    - Normal = K clear, AC deep and quiet, IOL centered. Consider DFE if retinal pathology
    - Iritis = Anti-inflammatory/drop may help, check with PT.
    - Anterior chamber with iritis or pupil retraction? Frequent pt. No eye rubbing.
  - Distance Vision only, Near Vision only or Both for Multifocal
  - Manifest Refraction

3/6 month f/u

- Obtain Medical History
- Ensure Exact Medical Drop Compliance
- Reassure the patient
- Measure uncorrected visual acuity
- IOP check
- Slit Lamp Exam (asses lids, conj, cornea, A/C, iris/IOL)
- Dilation only if needed
- Be available for urgent care or referral back to surgeon if needed (formal transfer of care has already been documented back to you)
- Dispense Progressive spectacles by 1 month postop
- Co-man fees paid directly by Medicare for basic cataract surgery

BASIC MANUAL CATARACT SURGERY

WHILE WE'RE ON THE TOPIC OF CATARACT SURGERY, LET'S TALK ABOUT GOING...

POSTOP CATARACT SURGERY CARE

LASER REFRACTIVE CATARACT SURGERY

- All of the above applies and is still medically necessary, same as basic cataract surgery care.
- Following is a list of items (some combination of which must be done and billed for) in order to meet the refractive surgery expectations of the patient IN ADDITION to the basic postop cataract care.
  - Preop Measurement of Accommodation Amplitude (when appropriate)
  - Preop Tolerance to varying amounts of blended/monovision (when appropriate)
  - Preop assessment of tolerance to multifocal optics (when appropriate)
  - Serial Postop Refractions, assessing for any need for postop LVC fine-tuning and/or YAG. MRx should be done at every postop visit
  - Serial Topographies assessing central astigmatism (when appropriate)
  - Pachymetry assessing for necessity/feasability of LVC enhancement (when appropriate)
  - Treatment of the ocular surface/dry eye pre and postop
  - Consider extension of global period beyond 90 days
  - Manage refractive symptoms according to preop expectations
- Collect from patient post-op refractive surgery care fees as per preop discussion of Care Form/agreed to by patient prior to procedure

INJECTABLE COMBINATION OFFERINGS

SSP TECHNOLOGY™

Superior technology allows for an elegant injectable formulation for a large unmet physician and patient need.
DROPLESS CATARACT SURGERY

**Issues with Topicals**
- **Dosage/convenience/compliance**
  - Family members often have to help
  - Forgetting to administer the drops
  - Dilution of medication by administering too close together
- **Physical limitations**
  - Rheumatoid arthritis
  - Kyphosis
  - Torticollis
  - Scoliosis
  - Tremor
  - Uncooperative/Combative pt
- **Accuracy – medication of cheeks = more refills = more money**

**COST – Reduced burden on the healthcare system**
- **Insurance limitations and pharmacy issues**
  - Pre-authorization & unauthorized substitutions excessive
  - Phone calls and unfilled prescriptions
  - Pharmacy inventories, back orders, delay in obtaining drugs

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**Jeffrey Liegner, M.D. – 738 dropless eyes**
- 95% of patients were able to eliminate drops completely

**Stewart Galloway, M.D. – 2,300 dropless eyes**
- 1.4% incidence of CME overall
- No cases of endophthalmitis
- No cases of steroid response

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**INTRAOPERATIVE**

- Delivery may be transzonular or through a pars plana approach

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**DROPLESS THERAPY**

**TRANSZONULAR INJECTION APPROACH**

**Pars Plana Approach**
**TOPICAL COMBINATION OFFERINGS**

<table>
<thead>
<tr>
<th>Combination</th>
<th>Concentration</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pred-Moxi Drops</td>
<td>prednisolone acetate 1%, moxifloxacin hydrochloride 0.5%</td>
<td>3 mL / 6 mL</td>
</tr>
<tr>
<td>Pred-Ketor Drops</td>
<td>prednisolone acetate 1%, ketorolac tromethamine 0.4%</td>
<td>3 mL / 6 mL</td>
</tr>
<tr>
<td>Pred-Moxi-Ketor Drops</td>
<td>prednisolone acetate 1%, moxifloxacin hydrochloride 0.5%, ketorolac tromethamine 0.4%</td>
<td>3 mL / 6 mL</td>
</tr>
<tr>
<td>Pred-Moxi-Brom Drops</td>
<td>prednisolone acetate 1%, moxifloxacin hydrochloride 0.5%, bromfenac sodium 0.09%</td>
<td>5 mL</td>
</tr>
</tbody>
</table>

*All formulations contain boric acid as an inactive ingredient*

*Compounded by a pharmacist pursuant to a prescription to meet the needs of individual patients. May be customized.*

**CORNEAL INLAYS**

**KAMRA (B+L)**

- 3.8mm diameter 10 micron thick disc
- Placed under a flap made with a femtosecond laser
- Between J2 and J3 mean NVA 20/20 DVA
- Thousands of holes to facilitate transport of corneal nutrients
- Placed in non-dominant eye with little effect on distance vision

**RAINDROP™**

- 2 mm clear hydrogel lens (30 microns)
- Changes the curvature of the corneal surface (Prefocal cornea)
- Placed in non-dominant eye
- Small degradation of distance VA
- Placed under femto flap ~1/3 K thickness (160 micron flap)

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**Corneal Response to Raindrop™ Near Vision Inlay**

**RAINDROP™ NEAR VISION INLAY IN VIVO**

Optovue high resolution OCT image
**RAINDROP® NEAR VISION INLAY IN VIVO**

**Subject Satisfaction:**
- Overall satisfaction with vision (scale 0-100)
  - Pre-op: mean score 54.7 ± 29 (including near vision correction)
  - Post-op: mean score 83.2 ± 22 (uncorrected at all distances)

- Percentages of patient satisfaction:
  - Pre-op: 66% were satisfied with their habitual correction
  - Post-op: 92% were satisfied with their inlay vision

**CASE 1**
- 39 yo WF referred by her OD for refractive surgery consultation. Desires less dependence on glasses and contacts
- PMHx – none
- POHx – RGP wearer x ~15 years.
  - Last worn 2 months ago
- FMHx – none
- Medications – none
- NKDA
- Former smoker
CASE 1

- Surgical options
  - LASIK
    - Pach: OD = 525 – 100 (flap) – (16 x 9.50D) = 273 Residual Bed
      OS = 535 – 100 (flap) – (16 x 10.25D) = 271 Residual Bed
  - ICL
    - Ant Chamber depth: OD: 2.85mm
      OS: 2.84mm
    - Lens Rise
    - Lens Shape...

LENSES RISE – TYPICAL PATIENT
LENS SHAPE – TYPICAL PATIENT

LENS RISE – OUR PATIENT

CASE 1

- Surgical options???

- Refractive Lens Exchange???

CASE 1

Pt elects:

- RLE OD with LensAR
- RLE OS with LensAR/LASIK combo

OS sx first:

- Flap cut OS
- RLE sx performed 2 days later
  - Weakened lens zonules and deep, round lens shape noted during procedure.
CASE 1

1 day s/p RLE OS

- VA: 20/10 (D), 20/30 (N)
- IOP (GAT): 17mmHg
- Astigmatism: 0.00 D, 90°
- Cells: 1-
- Anterior Chamber: Normal
- Lens: Exhibited mild pseudophacodonesis and was mildly decentered superior temporal (~0.5 mm)
- Meds:
  - Pred Forte QID OS
  - Prolensa qhs OS
  - Vigamox QID OS
- Call if RSVP

1 week s/p RLE OS

- VA improving. Pt is very happy.
- Lens exhibited pseudophacodonesis and was mildly decentered superior temporal (~0.5 mm)
- Meds:
  - Pred Forte TID OS with 1 week taper
- Call if RSVP
- Discussed that lens stability is an issue. Proceed with LASIK as planned OS, but wait 12 months before RLE OD.

5 weeks s/p RLE OS – LASIK pre-op OS

Uneventful LASIK sx performed OS 5 days later

1 mo s/p LASIK OS

Pt states VA is “Amazing”

DVAsc OS: 20/20-2 NVAsc OS: J1

CASE 2

22 y.o. WM – Interested in LASIK due to his active lifestyle (SCUBA instructor, fishing, travel). He does not currently wear glasses/CL but is interested to find out what can be done to help his “bad” eye.

EFFECTIVE LENS POSITION

- If IOL is 0.5 mm posterior to the assumed plane, a 21D lens will produce only 20D of correction
- If IOL is 0.5 mm anterior to the assumed plane, a 21D lens will produce only 22D of correction
CASE 2

Options
• LASIK?
• PRK?
• ICL?
• RLE?

But he’s only 22… Do we dare!!!

ABSOLUTELY!!!

CASE 2

• The plan:
  * RLE with LensAR OD first
  * What do we treat OS??
    * Dry $$= +1.00 \cdot -0.25 \cdot 040$$
    * Cyclo $$= +4.00 \cdot -0.25 \cdot 040$$

POST OPS

1 Day

1 Week
CASE #3 (quick one)

- 69 yo WF (retired)
- 2+ NS OU
- BCVA 20/40 OU
- Moderate DES
- Habitual Rx -3.00 -0.50 x 090 OU/+2.50 Add
- A few small drusen in the macula
- ~1.25 D cyl OU by Pentacam, Atlas and Lenstar
- Loves to watch TV. Reads about 1 hour per day
- Uses the computer once a week for email

Options?
- Basic with full time specs
- Toric OU for distance with readers
- Toric blended vision
- TMAF with AK
- treat DES preop

WHY EMBRACING REFRACTIVE SURGERY IS GOOD FOR MY PRACTICE AS AN OPTOMETRIST

ARTHUR A. MEDINA, JR., OD

COMANAGEMENT

- Participating in integrated care is good for you, for the profession and most importantly for the patient.
- The patient benefits most of all when everyone works as a peri-operative team.
- There is a huge opportunity for optometry to be involved in medical.
- "There is no more profitable use of my time than comanaging a LASIK patient."

THE PATIENT COMES FIRST

- For Many Patients, Refractive Surgery is the Best Solution For Vision.
- Contact Lens Abusers
- First Responders
- Athletes
- Military
- Disabled
- Extreme Anisometropia
- Mothers with young children
- Travelers
- Active Lifestyles
- Patients with Cosmetic Concerns
- Unknown other reasons...

YOU CAN'T TALK SOMEONE OUT OF HAVING LASIK

- Offering refractive surgery as an option to every patient is simply playing defense.
- Defense Wins Championships

Jobson Research’s 2012 Contact Lens Wearers Insight Survey

- 46.8% are at least considering refractive surgery
- 21.6% will probably have vision correction surgery
- 19.4% will definitely have vision correction surgery
- 13.2% are unlikely to even have vision correction surgery
- 10.6% are unwilling to even have vision correction surgery
- 5.0% will not have vision correction surgery

2012
BENEFITS OF OFFERING LASIK SERVICES

- Patient Retention
- Case Examples of Refractive Surgery: Patients still coming back and others we know of that have recently gone elsewhere for LASIK without their OD knowing it
- Profitability
  - Provide Dollars on Routine Eye Exams vs. Compensation for a single co-managed LASIK patient
- Partnership with the network
- Partnership with a trusted surgeon (what is the value of having a surgeon practice you trust not to compete, but to cooperate completely?)

EQUAL OPPORTUNITY VISION TREATMENT CENTER

- Must be embraced and announced that refractive surgery is offered early, and throughout the patient encounter
  - Signage (in and outside of the office)
  - Website Presence
  - Telephone Greeting/Scripting
  - Doctor-patient discussion. Verbal offering of refractive services

BREAK DOWN THE “MYTHS” ABOUT REFRACTIVE SURGERY

- Your astigmatism is too high
- Your refraction is not stable
- You are too Young
- You are too Old
- Woman should not have refractive surgery until they are finished child-rearing
- People are still dependent on glasses even after refractive surgery, therefore its not worth the investment
- It is too new, don’t know the long term results yet
- I am conservative, refractive surgery is simply unnecessary and therefore risky

WHAT IS OPTOMETRY’S ROLE IN COMANAGEMENT?

- Surgical comanagement is optometry’s opportunity and responsibility
- While many ophthalmologists embrace the integrated model, a large cohort believe there is no role for optometry in peri-operative care

QUOTE FROM WELL RESPECTED SURGEON

- “Preoperatively, the optometrist gives up an annuity when patients are referred for surgery. The preoperative workup should always be done by the surgeon—determining the right refraction to treat and planning surgery is an integral part of the procedure.”
- “Postoperative management always should be done by MDs, and preferably the surgeon. Optometrists are not qualified to recognize or treat complications, and even worse, optometrists especially benefit when there is a small residual refractive error. When patients with residual refractive errors are followed by the surgeon, the treatment is a quick and rapidly-healing enhancement procedure. When the patient is followed by an optometrist, the treatment is a pair of glasses, a continued annuity and an opportunity to discredit the benefits of refractive surgery. Elevating optometrists to engage in postoperative management is crazy. It harms patients and it has harmed our field.”
ETHICS

- You cannot be compensated for a referral
  - Referral fees are ILLEGAL.
- You SHOULD be compensated for legitimate peri-operative care
  - Peri and post-op care warrants a comanagement fee
- Your #1 priority is your patient
  - You should give patients ALL the options that are available to them.
- It is unethical to withhold access to refractive surgery for personal gain (i.e., I can sell more glasses/contacts)
- Must be willing to be available to your patients in the peri-operative period (the “medical model”)
  - Not just 9-5
- Optometric Oath
  - I WILL place the treatment of those who seek my care above personal gain and strive to see that none shall lack for proper care.
  - I WILL advise my patients fully and honestly of all which may serve to restore, maintain or enhance their vision and general health.

THANK YOU!!!

Kyle Sandberg
ksandber@uiwtx.edu