

Co-management Pearls for Today's Refractive Surgery Patient

The field of refractive surgery is experiencing significant growth. With increasing safety and precision of expanding laser technologies, the number of laser vision correction procedures is increasing. Last month, the number of laser vision correction procedures was 20% to 40% higher than in August of last year. More and more, patients are seeking referrals through the web or come in referred by multiple sources. PRK and LASIK acceptance are comparable. Phakic IOLs have become main stream and more patients who are candidates for this procedure elect to have their vision corrected with this option. Premium IOLs added a new dimension to surgical options for presbyopic patients. The presence of a cataract is no longer necessary for lens replacement surgery. Refractive Lens Exchange, especially with a presbyopic lens, can provide an excellent solution to a patient with refractive error. Co-managing refractive surgery patients has become more multi-dimensional and exciting as we offer complete refractive services to patients of all ages and refractive errors. At Pacific Vision Institute, we provide tools and support to assist the co-managing doctors in counseling patients about refractive surgery options and in their post-operative management.

LASIK Co-management Pearls

- Let the patient know that multiple laser technologies are currently FDA-approved. Each system has its own advantages, depending on the patient's refractive error, wavefront aberrations, corneal curvature, and other characteristics. Rather than looking for specific technology, the patient should look for the surgeon with multiple technology capabilities so that the surgeon can use the technology that will give the patient the best results.



Figure 1. WaveLight Allegretto allows for LASIK or PRK customization based on both wavefront aberrations and corneal curvature

- Let the patient know that numerous peer-reviewed publications prove that IntraLase is preferable to mechanical microkeratome in terms of safety and results.
- For patients interested in doing more research on their own, recommend <http://scholar.google.com/> or www.pubmed.gov. These sites will provide them with scientific peer-reviewed publications rather than with opinion, sales and

marketing pieces often found on general internet searches even under the guise of unbiased publications.

- Enhancements are typically performed between six and nine months postop when the vision stabilizes. If a patient wants to wear a contact lens until they are ready for enhancement, it may be fitted at one month postop.
- Both myopic and hyperopic enhancements can be successfully performed. Small amounts of astigmatism can also be corrected.

PRK Co-management Pearls

- Let the patient know that vision results after PRK and LASIK are the same, it just takes longer to get to 20/20 with PRK (usually about 4 weeks). However, the vision is typically good enough to carry on with their usual daily activities.
- FML is used QID for one month and then BID for one month after the procedure
- Refraction is best performed at three months postoperatively. Prior to three months, different types of refractive error may be noted. Very commonly, astigmatism is found in the vertical axis. This typically represents epithelial healing and remodeling and has little correlation with the final outcome.
- Frequent use of non-preserved artificial tears will promote healing and faster visual recovery.

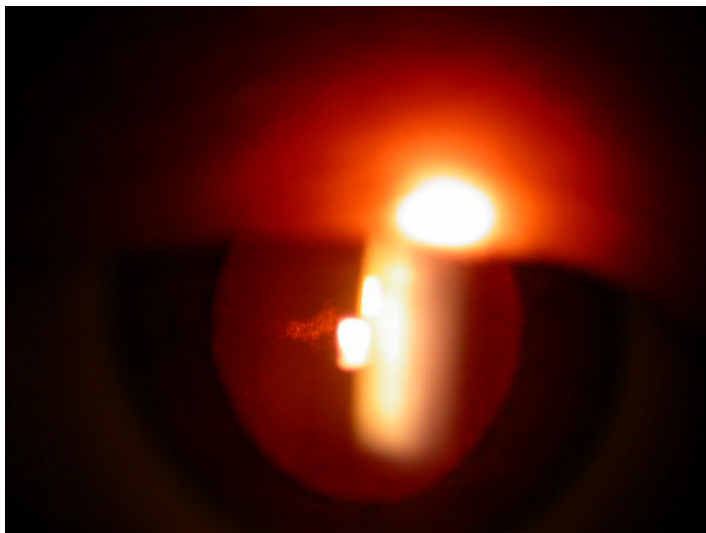


Figure 2. Day-time visual acuity with this posterior subcapsular cataract is 20/20. But, with glare, the vision drops to 20/40

Refractive Lens Exchange / Cataract Co-management Pearls

- Hyperopic, presbyopic patients >50yrs with early lens changes make the ideal candidates for a refractive lens exchange with a presbyopic IOL
- Medicare guidelines for a cataract are best vision worse than 20/50 but also glare testing worse than 20/40. We are treating functional vision so if a patient has concerns and there is some cataract, don't look at BCVA alone
- Posterior subcapsular cataract (PSC), even with good day-time visual acuity, can very symptomatic, resulting in significantly decreased night time vision (Figure 2.)
- There are many types of IOLs (3 presbyopic, 2 toric, 3 aspherics, multiple standard, etc.) that are FDA approved, each with their own characteristics. The patient should look for a surgeon who has experience with all the various lenses to custom match the best lens for each person to provide the most optimal result.

CK Co-management Pearls

- Best for presbyopic emmetropes and mild hyperopes with astigmatism less than 0.5D
- Trial frame monovision is a good predictor of successful outcome
- May be performed after LASIK / PRK / Cataract / Lens surgery

Intacs Co-management Pearls

- May be performed after LASIK
- IntraLase may be used to create intra-corneal channels
- Each cone must be evaluated individually to assess the predicted efficacy of the Intacs procedure
- Contact lenses may be fitted at three months after the procedure. Soft toric lenses often provide satisfactory vision.

Phakic IOL Co-management Pearls

- Not “new” technology. ICLs have been in use for 15 years with over 65,000 implants performed worldwide.
- Wider treatment range than LASIK or PRK
- Best option for patients with high myopia, dry eyes, thin corneas, or suspicious topographies
- Reversible if needed
- May do LASIK or PRK after surgery for touch-ups if needed
- For patients wanting more info, refer them to www.visioninfo.com for more info on the lenses, patient testimonials, etc.

Going from LASIK to Lens candidate

Patients typically come in asking for LASIK, regardless of their refractive error. They have heard of LASIK. Often they know people who've had it. It is the most familiar procedure for patients and, to them, it is synonymous with their desire to see better without glasses or contact lenses. During the consultation, however, it is our job to determine if LASIK is, indeed, the best solution for them or if they can achieve the vision result they want but with a procedure that is safer and better for them. In short, during their initial consultation we determine if corneal or lenticular procedure is best for them. If corneal procedure is best, then we determine if the procedure needs to be laser vision correction (LASIK or PRK) or CK or Intacs. If the lenticular procedure is best, then we determine if their natural lens needs to be replaced (Refractive Lens Exchange or Cataract Surgery) or if another lens needs to be added (phakic IOL).

Our initial assessment involves: refraction, placedo-based topography, Visante OCT, Pentacam evaluation of anterior and posterior cornea and corneal thickness, slit lamp examination of adnexa, tear film, cornea, and lens, and pupillometry. All along, we are assessing – cornea vs. lens procedure. Some patients may not be candidate for any procedure and, if so, we determine that at the initial consultation as well. Lens procedures are recom-



Figure 3. Dr. Steve Chang discusses IOL options with a presbyopic patient

mended for patients with high refractive error, thin or irregular corneas, presbyopic patients (especially if they have high refractive error), or patients with lenticular opacities.

If the lens-based refractive surgery is the best option for the patient, the patient is scheduled for the comprehensive examination. This generally includes ocular dominance, pupillometry refraction, slit lamp exam, tonometry, keratometry, anterior segment and lens evaluation, dilation, and posterior pole evaluation. Depending on the examination results, patients will fall into one of several categories; phakic IOL (ICL), refractive lens exchange (RLE), cataract, or no surgery.

The ICL candidate is generally younger (ages 21-45) with moderate to high myopia. They may be poor candidates for laser vision correction (LASIK/PRK) secondary to thin corneas, suspicious topographies, dry eyes, or myopia beyond the treatable range. For these patients we pay careful attention to sufficient anterior chamber depth (>3mm), angle structures, cataracts, glaucoma, and any signs of pigment dispersion syndrome, pseudoexfoliation, or iritis. We also assess the patient's endothelial cell density at slit lamp.

The ideal RLE candidate is generally in their 50's with hyperopia and early lens changes. They are often poor candidates for laser vision correction but are the most motivated to have some procedure done as they are unable to see well at both distance and near without the help of glasses. In these patients, we pay close attention to the anterior segment exam for any signs of pseudoexfoliation or pigment dispersion. We also pay careful attention to the macula and optic nerve for any signs of pathology.

The cataract patient tends to be older but can present at any age. These patients generally note that their vision is not great even with spectacles and oftentimes have difficulty with increasing glare at nighttime. Insurance and medical guidelines to determine a clinically significant cataract state that the patient must have a best visual acuity worse than 20/50 or a glare test worse than 20/40. The glare test is an extremely important test as it allows us to treat someone who may still see well at distance but is functionally disabled by glare caused by a cataract. A glare test can be performed in the phoropter. With the MRx dialed in, shine a transilluminator through the phoropter just below the visual axis and check the best visual acuity. In addition to these tests, we also pay close attention to the anterior and posterior segment exams to rule out any pathology.

Following the comprehensive examination, we have a detailed discussion and question and answer session with the patient to go over the procedures and discuss the appropriate lens options available to them. For the RLE and cataract patients, we will customize and tailor my discussion about the lenses based on my examination findings and the patients' needs and expecta-

tions. After our discussion, the patients will see a counselor who will handle all the administrative issues involved with the procedure and schedule pre-operative measurements.

During the pre-operative exam for an ICL patient, we will perform an IOL master examination to gather information on the patient's axial length, keratometry, and white-to-white corneal diameter. We also gather corneal topography data as well as manual corneal diameter measurements using a caliper. Next we will schedule the patient for their laser peripheral iridotomies and the actual surgeries. For the RLE and cataract patients, we will also perform an IOL master and corneal topographies as needed. Following this examination, the procedure will be scheduled. ■



Figure 4. Maureen Powers, Ph.D., Julia Kuznetsova UCLA Student, and Gina Day, O.D. are conducting vision therapy research

2007 PVI Ongoing Research

- Vision Therapy (Figure 4. Maureen Powers, Ph.D., Gina Day, O.D. and Julia Kuznetsova UCLA Student are conducting vision therapy research)
- Safety and efficacy of topical morphine and sumatriptan in postoperative pain after PRK.
- Management of astigmatism during cataract and lens surgery
- Anterior segment OCT follow up of post-LASIK corneal healing

2007 PVI Faculty Presentations/Publications

- Faktorovich EG. Efficacy of topical morphine for pain control after PRK. American Academy of Ophthalmology. 2007
- Faktorovich EG. Efficacy of topical morphine for pain control after PRK. American Society of Cataract and Refractive Surgery. 2007
- Faktorovich EG. Phototherapeutic keratectomy for post-LASIK ametropia in patients with epithelial basement membrane dystrophy. American Society of Cataract and Refractive Surgery. 2007
- Faktorovich EG, Lee SF. PRK 2007: managing patients for optimized outcomes. 6th Annual San Francisco Cornea, Cataract, and Refractive Surgery Symposium, 2007
- Faktorovich EG, Lee SF. Presbyopia solutions. Ocular Symposium, 2007
- "Femtodynamics: A guide to laser settings and procedure techniques to optimize outcomes with femtosecond lasers", Faktorovich EG. Book accepted for publication, Slack Inc, Thorofare, NJ
- Faktorovich EG. The pro's of using Visante Anterior Segment OCT in corneal and anterior segment imaging. Ophthalmology Management. Accepted for publication
- Powers M, Day G. Internet-based treatment of binocular vision disorders in post-refractive surgery patients. College of Optometrists in Vision Development.
- Faktorovich EG, Nosova E. Phototherapeutic keratectomy for post-LASIK refractive error in patients with anterior basement dystrophy. Submitted for publication. Journal of Refractive Surgery
- Lee SF, Faktorovich EG. Femtodynamics: optimizing femtosecond laser settings and procedure techniques to optimize outcomes. Submitted International Ophthalmology Clinics.
- Chang SH. Presbyopic IOLs: What, When, Why? 6th Annual San Francisco Cornea, Cataract, and Refractive Surgery Symposium. San Francisco, CA 2007
- Chang SH. Phakic IOLS and Astigmatism Control. Cataract and Lens Surgery Grand Rounds. Pacific Vision Institute, San Francisco, CA 2007
- Chang SH. Refractive Cataract and Lens Surgery. Asian Optometric Society, SF Bay Area, CA 2007
- Chang SH. Comanaging IOLs: Roadmap for Success in Today's Marketplace. Ophthalmology Management. Accepted for publication
- Chang SH. New Vision After Cataract and Lens Surgery: A Complete Guide to Seeing Young Again. Book in publication.
- Assil KK, Sturm J, Chang SH. Verisyse Lens Implantation in a Three Year Old with Anisometropic Amblyopia- 4 year follow-up. Journal of Cataract and Refractive Surgery. Accepted for Publication
- Assil KK, Chang SH, Sturm, J, Bhandarkar S, Christian W. Photopic Pupillometry Guided Lasik (PPL): A New Treatment for Hyperopic Presbyopia. Journal of Cataract and Refractive Surgery. Pending Publication.

Calendar of the Upcoming Events for PVI Affiliated Doctors:

By invitation only:

- 09/20/07 Glaucoma Grand Rounds
PVI, San Francisco, *Dr. Sidney Williams*
- 10/17/07 Medications Ground Rounds
PVI, Peninsula, *Dr. Karen Oxford*
- 11/15/07 Retina Grand Rounds
PVI, San Francisco, *West Coast Retina*
- 12/13/07 PVI Holiday Dinner
Ritz Carlton, Half Moon Bay
Practice Management Presentation
- 01/17/08 Refractive Surgery Grand Rounds
PVI, Marin, *Dr. Ella Faktorovich*
- 02/21/08 Strabismus Grand Rounds
PVI, Peninsula, *Dr. Kim Cooper*

General Educational Events:

- 03/21/08 7th Annual San Francisco Cornea, Cataract, and Refractive Surgery Symposium
Ritz Carlton, San Francisco
Invited Guest Faculty

Sight Gags by Scott Lee, O.D.



Scott F. Lee, O.D., Editor-in-Chief, eFocus.

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