

Optometric Co-Management of Corneal Refractive Surgery
QEI Newsletter Summer 2007 Newsletter
Elliott Myrowitz, O.D., MPH

Reviewed and edited by:
QEI Committee
Roy Chuck, M.D. PhD and Valerie Seligson, O.D.

While millions of LASIK and PRK procedures have been performed in the US and around the world, the patient sitting in your exam chair often asks your opinion on how good a candidate they are for corneal refractive surgery. What are the risks and benefits? What are alternative options? What follow up is necessary? Are there any long term considerations? In this rapidly developing field your answer this year will most likely be different next year.

Patient education is extremely important in refractive surgery. While corneal refractive surgery can be done safely in a very high percent of the population over a large range of refractive errors, the real question is should it be done? What are the patient's expectations? I rely heavily on my "low tech" methods such as "trial frame" simulations and contact lens demonstrations. I can quickly demonstrate treatment options and say, "This is what your vision will be 24 hours a day after the surgery" and I spend time ensuring the patient sees all the effects of the targeted treatment plan. I discuss what glasses and contact lenses can do as alternative options now and in the future. If topography and pachymetry are available the risks of LASIK vs. surface treatment can be discussed, including the increased risk of ectasia increasing when the residual stromal bed is too thin, (the safe limit of 250-300 microns is still being studied). As the most common post operative LASIK symptom is dry eye any patient with preoperative signs or symptoms needs to be alerted to this side effect and treated for this condition preoperatively. Dysfunctional tear syndrome treatments include using OTC eye drops, punctual plugs, lid treatments, and cyclosporine A 0.05%.

There are relative and absolute contraindications for corneal refractive surgery. The FDA and more recently the American Academy of Ophthalmology (AAO) list these contraindications to LASIK. The AAO guidelines consider connective tissue or autoimmune diseases and systemic immunosuppression as relative contraindications and only uncontrolled diseases and uncontrolled ocular allergy as absolute systemic contraindications. Are these guidelines too conservative? Much of these guidelines are based on photorefractive keratectomy (PRK) theoretical risks and not actual data. Recent reports conclude LASIK could be performed effectively and safely in selected patients with stable and controlled systemic diseases (1).

LASIK patients should be seen postoperatively at one day, one week, one month and three months or anytime the patient has a concern not easily addressed over

the phone. Most offices offer postoperative periods of 1-2 years. The most common complication is ocular surface dysfunction and is usually mild. Less common complications include slipped or wrinkled flaps, significant epithelial defects, epithelial ingrowth, diffuse lamellar keratitis (DLK), and infection.

PRK or other surface ablation procedure patients should be seen postoperatively at one day, day 4 to remove the bandage contact lens, one month then monthly until finished their steroid drops. Then, similar to LASIK follow up.

Urgent referral to the patient's surgeon would include any flap wrinkle or fold that is visually significant, corneal infection, and sometimes DLK. Comanaging corneal infections can be challenging as the flap may need to be lifted for cultures and treatment and often due to mycobacterium or recently reported MRSA organisms. Most case of DLK will respond well to topical steroids, typically dosing Pred Forte 6 times a day for several days then a taper over two or more weeks. But if worsening within a few days, the risk exist of progressing to stage 4 keratitis where stromal melting can occur and the patient is left with a hyperopic shift and irregular astigmatism. There are anecdotal reports that systemic steroids and immunomodulators such as methotrexate have been tried in the more severe cases of DLK, with limited degrees of success.

Epithelial ingrowth, over and under correction, and corneal haze are all complications that can be monitored and treated over a period of weeks. Epithelial ingrowth is rare on initial treatments and may occur in 5-10% of retreatments. If not visually significant it may be monitored and left alone. If progressing and reducing visual acuity or causing symptoms then a debridment should be scheduled when convenient for everyone. Retreatment is usually after 12 weeks for LASIK, 6 months for surface treatment, and is a mutual patient-doctor decision not based on residual refractive error alone. Corneal haze in surface treatments is a known complication in higher refractive powers (over 6 diopters of myopia) and in all cases of surface retreatments. Younger patients, under 40, are also at a higher risk of haze than older patients. Today however the risk of visually significant haze is very low with the use of mitomycin C (MMC) for higher refractive power treatments. MMC is also used in borderline refractive error cases in younger patients (under age 40) or in all surface retreatments. MMC is also used in surface treatments over past Radial Keratotomy (RK) and is working well to prevent haze.

Wavefront guided laser treatments have shifted the visual outcomes to reduce the risk of poor quality of vision, especially glare. Also, the potential for better vision than glasses or contacts is improved over standard laser treatments.

In conclusion, carefully select, educate and follow your refractive surgery patients and they will be very pleased with their quality of vision and improved visual freedom.

A very good source of Optometric comanagement data and nice slit lamp photographs is found at the following website;
www.aoa.org/documents/Co-Management.pdf This 22 page document includes photographs of Orbscan documented keratoconus, corneal haze, epithelial ingrowth, flap folds, diffuse lamellar keratitis (DLK) and more.

1. Cobo-Soriano R, Beltran J, Baviera J. LASIK outcomes in patients with underlying systemic contraindications. *Ophthalmology* 2006;113:1118e1-8.

Here is part of the abstract.

The case groups were composed of 275 eyes of 141 consecutive patients who underwent a LASIK procedure with any of the following underlying conditions: autoimmune connective-tissue disorders (n = 62), psoriasis (n = 91), intestinal inflammatory diseases (n = 67), diabetes mellitus (n = 44), and history of keloid formation (n = 18). Twenty-nine patients (56 eyes) were receiving systemic immunosuppressive therapy. The control group comprised 358 eyes of 181 patients without the above-mentioned conditions who underwent LASIK.

CONCLUSIONS: In our experience, LASIK can be performed effectively and safely in selected patients with stable and controlled systemic diseases with favorable postoperative anatomic and visual outcomes. The absolute exclusion of certain systemic contraindications should be reconsidered.