

# The Cutting Edge

OPHTHALMIC NEWSLETTER

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## KERATOCONUS UPDATE

**O**ur first attempt at keratoconus treatment therapeutically was about 12 years ago in a patient who was going to have a cornea transplant. Today we are confident that excimer laser surgery can be a very important treatment option for keratoconus.

Dr. Norton presented her results of almost 30 cases of excimer laser treatment of keratoconus and keratoglobus at the 2003 meeting of the American Society of Cataract and Refractive Surgery (ASCRS) in San Francisco, California.

It was presumed that thinning of an already mis-shaped and thin cornea would be problematic leading possibly to perforation or bulging of the cornea. There have been no reported cases of keratoconus that were treated by surface ablation with excimer laser and noted to have these serious problems.

Why is Excimer laser treatment so important for keratoconus? When it works long-term, it is important because many keratoconus patients with this disorder encounter considerable disability without special contact lenses and such lenses are only available at high expense and in affluent societies. Many adult keratoconus patients in Africa, India, South America and other less-developed countries have only cornea transplant surgery as a treatment option, and corneas for transplant in these countries are scarce.

Last year a Senegalese woman was brought to Syracuse by the Rotary Club's Gift of Vision Program for Excimer laser treatment of her keratoglobus with Dr. Norton. She had been legally blind for 20 years and had to drop out of school. Pre-operatively her vision was count-fingers at 3 feet. At 2 weeks post laser surgery she had 20/40 vision without glasses and by 3 months she saw 20/25 without glasses. She has enrolled in school and was able to get married (which her family had forbidden her to do because she was blind).

We hope our scientific reports and data will lay the groundwork for acceptance of Excimer laser surgery for keratoconus. Surface Excimer laser treatment for keratoconus is an exceptional treatment that could reduce the need for cornea transplants and expensive contact lens wear to treat keratoconus or keratoglobus.

**“Today we are confident that Excimer laser surgery can be a very important treatment option for keratoconus.”**

## KERATOCONUS PATIENT LETTER



*The author of the letter, Kathryn LaDuc, (pictured left) is another keratoconus patient that was treated by Dr. Norton with 2 minutes of excimer laser surgery. This patient can now see 20/25 or better without glasses or contact lenses. She is pictured here with Dr. Norton and Awa Diop, from Senegal, West Africa, whom Kathryn consulted with just prior to Awa's surgery.*

Dear Dr. Norton,

I have been thinking about how to begin a letter to you. I went on line to your website and saw Dana with her daughter and it spurred me to sit down and write this letter. You are all such amazing people.

You need to know that you have changed my life in an immeasurable way. You have given me the biggest gift (aside from my children) I have ever received, my eyesight.

It is very hard for me to describe how grateful I am for having the opportunity to meet you, let alone have the surgery performed by you. You are such a wonderful, caring person. You have made me feel as if I have known you my whole life. You are definitely a doctor who cares about her patients.

I have been visually “handicapped”  
*Continued on page 2*

## SCIENTIFIC MEETING:

Dr. Norton presented two scientific papers at the 2003 American Society of Cataract and Refractive Surgery meeting in San Francisco. One paper discussed the visual outcomes of keratoconus patients treated by Excimer laser and the other was a first of its kind case report of 4 keratoglobus eyes successfully treated by Excimer laser. At this same meeting, Dr. Norton's scientific poster reporting the first adverse reaction for Lumigan® associated Keratitis was accepted and displayed. The results of these reports are being prepared for peer-review publications.

## KERATOCONUS PATIENT LETTER

*Continued from page 1*

most of my life. I received my first pair of glasses at age 6 in the second grade. I have been dependent on them for almost 30 years. The thought of being able to function without them seemed impossible. However on June 11 of 2002, everything changed. I handed my glasses to my mom just prior to the surgery and have not touched them since.

It does bring tears to my eyes when I think of how the surgery has affected my life as a mother. I can really see my 2 year old play and read and my new 4 month old baby sleeps quietly and comfortably in the bassinet next to me and I can see her in the night should she need me. I no longer have to be dependent on finding my glasses. I can read the clock in the night and small print on

signs, etc. that I never dreamed possible. I believe my vision is better now than it was corrected.

It all seems like such a miracle to me. Thank you so much, I really could never thank you enough. You have touched my life in an incredible way. I will forever be grateful to you and your staff for making me feel like a friend and a patient. You have given me such terrific care.

I am willing to help you with other patients should they have questions or concerns, from a patient's point of view. I hope that Awa is doing fine and look forward to the possibility of keeping in touch with her as well.

Sincerely,  
Kathryn

## DRY EYE SYNDROME AND LASER SURGERY

After 12 years of treating patients with photorefractive keratectomy (PRK) for nearsightedness, farsightedness and astigmatism, it is an important fact that most of the candidates looking for PRK or LASIK are contact lens intolerant and have dry eye syndrome (DES).

Our studies from 1997 using tearscope analysis to measure the tearfilm stability revealed DES in at least 53% of patients (mean age 40). If one looks at older groups, the percentage of DES patients increases. Almost none of these patients had ever heard of DES prior to their evaluation for Excimer laser surgery. Dr. Norton produced a scientific video about DES. This video was presented at the American Academy of Ophthalmology in 1998 and illustrated considerable improvement in the visual outcome of PRK if DES is aggressively managed prior to and during healing.

Starbursts, haloing and glare at night post PRK appear to be more related to DES than pupil size. Large pupil patients generally do not have "starburst" if the tear film is adequate. Dr. Norton has done treatment of these laser patients and the comment of one large pupil patient post excimer laser surgery was "I had more starburst when I wore contact lenses and if I let my eye dry out, the starburst returns."

The Central New York area and the Northern U.S. have less humidity and drier environments than in the Southern part of the country. Aggressive management of DES can greatly enhance the results of PRK and patient education about this issue is extremely important to achieve good results from laser, which lasts over time.

## WHAT'S NEW WITH EXCIMER LASERS

There are new laser options such as eye-trackers, small beam or flying spot lasers with computer wavefront aberrometry-assisted surgery.

The public is being marketed about new changes in laser technology before it can be proven that such changes improve the final visual outcomes produced from Excimer laser surgery.

Our laser, which is well maintained by service contracts has been used since December of 1995 and was the first VISX laser installed after FDA approval of phototherapeutic keratectomy. Our results show a 20% increase in 20/15 visual outcomes for uncorrected acuity by changing our medical treatment regimen and follow-up care, not the laser machine itself or the laser software.

The patient has a big responsibility to use the medical therapeutics with laser surgery and to understand the need for compliance with use of post op drops essential to good healing. Poor compliance with follow up can lead to poorer vision, "starbursts and glare" due to corneal haze, scarring or central island formation on the cornea surface. These conditions give rise to double vision, poor night vision or difficulty reading.

An experienced laser surgeon, who takes the time to deliver and evaluate surgical techniques, uses and provides close personal follow-up with patients to educate them, can achieve the best results from laser surgery. This is what patients should be seeking, not the latest marketed and advertised laser option or device.

## HOW DOES LASIK AND LASEK DIFFER FROM PRK

PRK can be done with minimal use of other instruments, the Excimer laser procedure lasts a minute or 2 and cutting devices are not used.

LASIK uses a microkeratome blade, which is clamped to the eye. A flap is cut under high pressure and the cut must occur in less than 60 seconds. Draping the eye and use of instruments to handle the flap are needed, so the LASIK procedure can take 10-20 minutes to complete. The flap made for LASIK can result in complications that are sight-threatening, but PRK has no flap and is a safer procedure. The infections in LASIK have risen to 1 in 1,000 eyes at some high volume centers. Many Canadian laser centers that do LASIK have closed and some have closed because of patient problems from LASIK complications.

Safety and accuracy of Excimer laser surgery should be the goal of the patient and the surgeon, so reduce your risks and avoid hazards of inexperienced surgeons, out of town surgery and risky techniques.

LASEK uses micro-instruments to lift only the surface skin cells (called epithelium) without pressure. No pressure or suction device is needed. LASEK takes about 10 minutes to do and has less risk than LASIK. No studies clearly show that LASEK is better than PRK. PRK is considered the safest of the three procedures.

## GIFT OF VISION

### **Gift of Vision:**

Manuel Moncada (center), traveled from Chihuahua, Mexico to have Dr. Norton perform a cornea transplant as part of the Rotary Clubs Gift of Vision Program.

*Pictured from left are Manuel's mother, Jim Gascon, of the Marcellus Rotary Club, Austin Beltrani, Dewitt Rotarian and translator, and Dr. Norton.*



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## RESEARCH PROJECTS SECTION

### 1. Glaucoma Drops

Since our last edition, Dr. Norton's patients participated in a study called START (Study of Travatan® as Replacement Therapy). Nearly 1000 other sites participated in this study, which followed patients with primary open-angle glaucoma or ocular hypertension. The result showed that Travatan® (ALCON, Inc.), when used with patients who failed to achieve adequate IOP control on other drop regimens, lowered IOP (intra-ocular pressure) further.

### 2. Pain after PRK

Dr. Norton was one of the Principle Investigators for the FDA multi-center study that resulted in the approval of Acular®L.S. (Allergan, Inc). The double-masked trials were done on post-PRK patients to study the effects of this new formulation on post-operative pain.

One of the main reasons LASIK was developed was to avoid post PRK pain. Use of Acular® L.S. was found to significantly reduce post PRK pain and is now available for doctors to use. Surgeons may return to PRK for more patients now that this drug has shown to reduce pain.



## STAFF NEWS

Jerva Eye Laser Center technician Terry Baker and administrator Dana Baker recently welcomed a new addition to their family. On July 10, 2003, Dana gave birth to their second child, Mateo Isaiah.

*Mateo is pictured here with his sister Chenoa about 1 month after his birth. (photo courtesy of Syracuse in focus)*

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