

# OptiPoint Corneal Template Makes CK Easier

The new device eliminates most sources of surgeon error and improves patients' experiences.

BY DANIEL S. DURRIE, MD

Conductive keratoplasty (CK; Refractive Inc., Irvine, CA) for the correction of hyperopia and presbyopia is a relatively simple procedure. In order to achieve optimal refractive results, however, there are a few technical challenges that the surgeon must overcome. To this end, my colleagues and I have been studying the new OptiPoint Corneal Template (Refractive, Inc.), which addresses all of the inherent surgical challenges of NearVision CK (Refractive, Inc.) and thus makes the procedure easier to learn and perform consistently. In addition, patients find NearVision CK more tolerable with the OptiPoint template. This article discusses my experiences thus far with the OptiPoint Corneal Template.



Figure 1. After centering the new OptiPoint Corneal Template on the patient's eye, the surgeon applies the first of eight CK spots in the 6-mm optical zone via the template's holes, which are all set to the proper depth, angle of approach, and spacing around the eye.

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## TECHNICAL PEARLS

To use the OptiPoint Corneal Template, the surgeon first marks the center of the pupil. I use a Sinsky hook (Katena Products, Inc., Denville, NJ) for this step. Next, the surgeon centers the middle opening of the corneal template over the mark and applies the device to the eye using light vacuum suction with a spring-activated syringe. Two rings of eight predrilled holes at 7 and 8 mm indicate precisely where to place spots with the CK Keratoplast tip probe (Refractive Inc.).

Surgeons select the appropriate CK treatment plan based on their own nomograms, just as they would with the freehand CK technique.

## ADDRESSING CHALLENGES

### Overcoming Four Obstacles

The OptiPoint Corneal Template addresses at least four common challenges with the NearVision CK procedure: centration; alignment or placement of spots; depth of treatment; and pressure on the cornea.

### Centration

Without the OptiPoint Corneal Template, an erroneous initial mark using an inked CK corneal marker can result in a decentered treatment. The standard CK corneal marker creates inked hash marks on the cor-

nea at the 6-, 7-, and 8-mm optical zones, and it is difficult to remark the eye if they are not quite centered. With the OptiPoint template, the surgeon can easily line up the device's pattern with the pupil's inner mark. If it is not placed properly in the middle, the template can be adjusted appropriately. Once suction is activated, all of the template's spot holes are perfectly centered relative to the median mark. Of course, one still needs to make sure that the template does not slip. If there is any movement, however, one would notice through the template that the central mark was off-center or invisible.

### **Placement**

For ideal results with CK, all of the spots need to be equidistant from the center of the cornea, perpendicular to the cornea, and tangential to one another. The angle of approach with the probe and the position (or stability) of the surgeon's hand can affect the placement of a spot when the treatment is applied freehand. The OptiPoint template stabilizes the eye and ensures proper treatment.

This stabilization is important, because it reduces the likelihood of induced astigmatism. CK works by shrinking corneal collagen. Applying the CK spots in a perfect circle produces an even thermal effect that forms a belt around the cornea to steepen it. If one of the "belt loops" is not in the correct place, or if the tensile forces between spots are uneven for some reason, then the treatment's effect may be reduced, or astigmatism may be induced. Similar problems can occur with corneal sutures in corneal transplants.

### **Depth**

When inserted through the OptiPoint template into the cornea, the probe's depth is precisely controlled by the device. As long as the tip is inserted all the way into the cornea—and it is very easy to see that it is—the radiofrequency energy is delivered to the exact same depth at every treatment spot. As a result, my colleagues and I are achieving a consistency across all CK spots that I expect will improve the procedure's stability.

### **Pressure**

In recent years, the importance of pressure in CK procedures has become apparent. H. L. "Rick" Milne, MD, of Columbia, South Carolina, was the first to realize that the harder the surgeon pressed, the less effect he achieved.<sup>1</sup> The resulting LightTouch technique (Refractec, Inc.) has provided better, more consistent outcomes, but it requires surgeons to judge the size of

the corneal indentation to determine whether the pressure is adequate. Distinguishing a 2- from a 3-mm dimple is not always easy. In addition, instructors have always taught surgeons to "follow the cornea down" as it shrinks away from the probe after the first few spots in a LightTouch procedure. The OptiPoint Corneal Template addresses this issue.

Once the device is activated, the surgeon really cannot press too lightly or hard; he always gets the same degree of pressure as long as the probe's tip is inserted all the way into the cornea. Variability in the pressure from spot to spot or from surgeon to surgeon is markedly reduced, thereby improving the consistency of effect and decreasing induced cylinder.

### **SIMPLICITY AND SPEED**

Using the OptiPoint template definitely shortens the learning curve for NearVision CK. Learning how to apply and use the OptiPoint template takes just a case or two. I am planning to teach the procedure to residents this year, and I feel confident that young residents with minimal corneal surgical experience will be able to master the technique. As an instructor, I can make sure the resident centers the corneal template and adequately affixes it to the cornea before he begins the procedure.

In fact, we originally conceived the OptiPoint template as something surgeons would discontinue after gaining experience. Surprisingly, Antonio Mendez Gutierrez, MD, of Mexicali, Mexico (the inventor of the CK procedure), Dr. Milne, and I all now prefer using the OptiPoint template to the freehand CK technique. I found that, although it initially slowed me down slightly, the device now makes the procedure faster, because I can apply all of the spots in a clockwise manner rather than in a cross-cornea pattern to balance the effects as I go.

The OptiPoint template offers benefits to the patient as well. The template obscures his vision slightly, similarly to what happens during a microkeratome pass. I tell patients their vision will get a little fuzzy, and that they will see some light, but to stare straight ahead. This process seems to eliminate concerns about where they should fix their gaze during treatment.

### **RETREATMENTS**

Retreatments can be performed by rotating the template as one would rotate an inked CK corneal marker and applying the treatment spots in a freehand fashion. We have also performed some post-LASIK enhancements using the OptiPoint template without any flap-related problems. I do not anticipate an increased rate

of flap-related complications in post-LASIK eyes due to this device.

### CONCLUSION

The OptiPoint Corneal Template is FDA 510(k) approved and should be available on the market in a few months. In the future, other configurations may become available, some that have only the spots needed for a given procedure, or perhaps there will be a post-LASIK template for eight spots at 7.5 mm. For now, the prototype works well for most typical CK cases.

One- and 3-month data will be presented at the ASCRS meeting later this month. Our results thus far have been very good, even out to 6 months. My colleagues and I have seen less regression than we did with the LightTouch technique and very low rates of induced astigmatism. As with any refractive surgery, I would encourage surgeons to monitor their own data and refine their nomograms based on their outcomes.

The OptiPoint Corneal Template represents an advance for the patient and the doctor. Surgeons will find that it addresses many of the technical challenges that may have caused them anxiety when performing CK previously. Although we await definitive results from our study, I am confident that the OptiPoint template will improve results by reducing variability. ■

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1. Milne HL. NearVision CK with LightTouch. My personal technique and nomogram. Available at: <http://www.refractec.com/docs/pdf/MilneWhitePaper.pdf>. Accessed March 20, 2007.

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