

The Evolution of Retinal Imaging

OCT provides a fast and flexible way to image any part of the retina.

BY MAHMUD NASER, MD

At the 2009 annual meeting of the AAO, I had the opportunity to take optical coherence tomography (OCT) scans with a demonstration model of the 3D OCT-2000 (Topcon Medical Systems, Inc., Paramus, NJ). Having reviewed other available systems, I found Topcon's OCT superior in terms of its high-resolution output, scanning speed, and ease of use. After purchasing this system, I have found that the 3D OCT-2000 delivers more than I expected.

As a glaucoma specialist, I treat various retinal disorders and perform approximately 15 OCT scans each day in my practice. I have found the 3D OCT-2000 to be indispensable for treating varied retinal conditions.

TRACKING AND TREATING MACULAR CONDITIONS

I noticed a very close relationship between clinical outcomes and the OCT findings for patients with macular conditions. Through my attendance at scientific confer-

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ences, I have been introduced to the use of OCT for the evaluation of the destruction of the retinal pigment epithelium and measuring retinal thickness in cases of edema.

Using the 3D OCT-2000, I can view detailed 3D scans with ease, monitor the status of macular pathology prior to treatment, and track regression during follow-up.

Patients' improvement is tracked at the micron level with OCT, and I have found that the scans correlate with the patient's visual acuity outcomes. For instance, a patient presented with macular edema and count fingers vision.

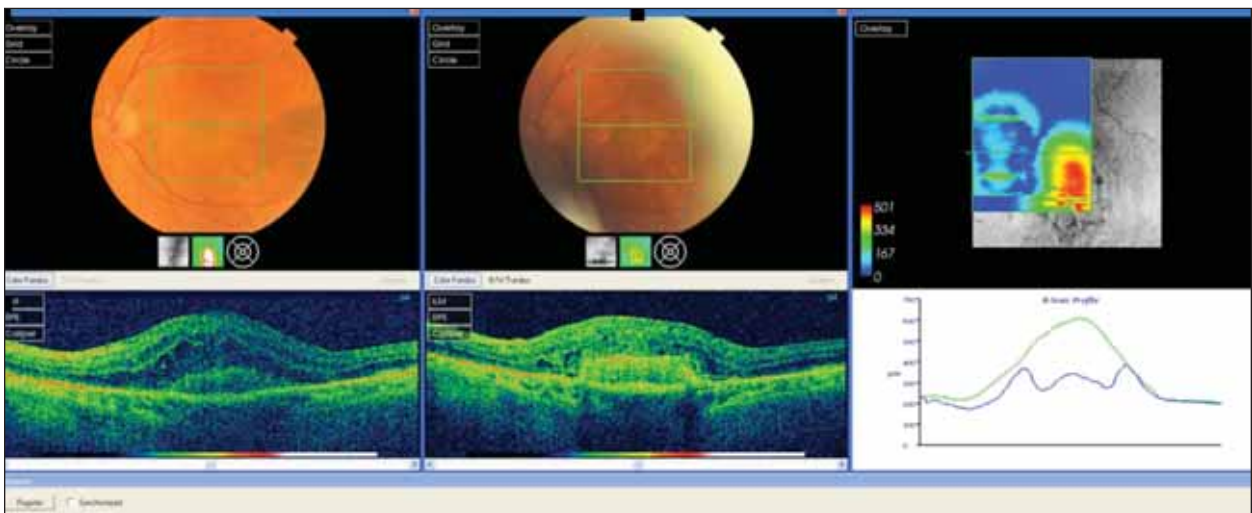


Figure 1. These 3D OCT-2000 scans detail the macula of a 77-year-old patient with macular edema. The image on the bottom left shows edema prior to Avastin treatment. In the bottom middle image, a reduction in the macular thickness 4 weeks after treatment can be seen. The patient's visual acuity improved from count fingers to 20/400.

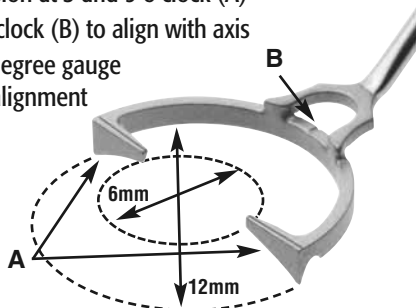
GRAETHER'S NEW TORIC SYSTEM



Graether Axis Marker - AE-2798

Part Axis Marker...

- 3mm marking extension at 3 and 9 o'clock (A)
- Unique notch at 6 o'clock (B) to align with axis
- Fits precisely in the degree gauge for perfect marking alignment
- Can also be used as a pre-op marker

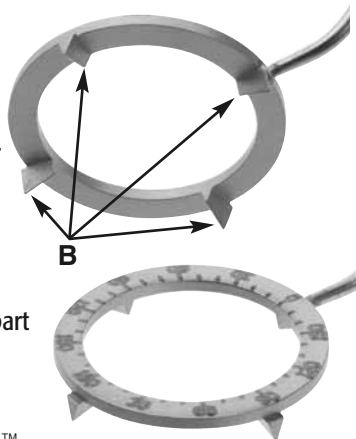


...Part Capsulorhexis Marker

- Doubles as a measurement for capsulotomy
- The intra-op marks provide a gap of 6mm; the ideal size for capsulotomy

Graether Degree Gauge - AE-1594

- ID: 12mm, OD: 16mm
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- Can also be used as a pre-op marker
- Degree markings are 10° apart



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CATARACT SURGERY FOCUS ON OCT

After initiating treatment with Avastin (Genentech, South San Francisco, CA) injections, I was able to use OCT to track the patient's progression to 20/400 vision and synchronize treatment with the patient's clinical outcomes.

MYRIAD OCULAR OBSERVATIONS

Scans taken with the 3D OCT-2000 provide excellent topography of the retina and optic nerve. The system also delivers high-resolution fundus photographs, which can be used for documentation and patients' records.

I can perform an optic nerve head analysis using the OCT, which facilitates early glaucoma detection, treatment, and follow-up. OCT also allows me to measure the thickness and loss of the optic nerve fiber layer. In glaucoma treatment, I find the OCT proves useful as a long-term study and monitoring tool.

Pigmented retinal lesions, choroidal neovascular disorders, and myriad other ocular abnormalities can also be detected with OCT.

FLEXIBILITY AND SPEED OF DETECTION

Although other OCT systems perform similar functions, the level of detail provided by the 3D OCT-2000 is very appealing to me. The system's ease of use, flexibility and speed allow me to image any part of the retina. In my experience, this platform is faster and allows a larger retinal area to be scanned compared with other systems. With the 3D OCT-2000, I am quickly able to gain valuable insight into patients' conditions and treatment options.

In my practice, I engage my patients in the outcome of treatment by showing them the results of their OCT scans. It proves to be a learning experience for them, as they are better able to understand their ocular condition and assess the results of their treatment. With the 3D OCT-2000, it is not necessary to dilate the patient's pupils for nonmydriatic imaging, which makes the system more practical for screening. Additionally, patients do not have to change position for their examination, as both eyes can be imaged by the 3D OCT-2000 in one sitting.

In my practice, my colleagues and I are in the process of integrating the 3D OCT-2000 with Topcon's EyeRoute Image Management System and our electronic medical records system. We believe that it will further advance our clinical efficiency. The more often I use the 3D OCT-2000, the more valuable it becomes to me. ■

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