

What Is the Limit of Imaging?

The introduction of imaging into retina practice has improved our ability to review the retina and diagnose pathologies, and it has grown our understanding of the diseases we treat in the clinic and OR on a daily basis.

When time-domain optical coherence tomography (OCT) was introduced, it was described as a way to capture an in vivo biopsy of the human eye. The release of commercial devices employing Fourier-domain formulas for image capture (ie, spectral-domain OCT) brought us closer to this reality. Now, spectral-domain OCT is being employed in novel ways to capture images of the choroid (enhanced-depth imaging, or EDI) and it is being studied as a potential tool to bring into the OR to guide surgical maneuvers.

Manufacturers are creating devices that image the peripheral retina, the output of which may have significance for early disease recognition and/or discerning the risk of progression of retinal and macular pathologies. An intriguing technology (RHA, Annidis) uses light from multiple wavelengths to capture segmented images of the retina and choroid. We may yet learn a great deal about the pathophysiology of age-related macular degeneration, diabetic macular edema, and other disease states.

So, what is the limit of imaging? It seems we are bound only by the capabilities of current technology, but there

is every indication that future iterations of imaging platforms will expand our view. New light sources, faster software, and imaging techniques and enhancement that have not yet been invented have the potential to change what is knowable.

But, what is the limit of the clinical utility of our imaging? This is a more difficult question to answer at the present time. Although we may gain access to greater detail in our images or even the ability to capture more of the retina in a single shot, seeing more will mean little for clinicians if it does not change how patients are managed. Advanced imaging is important for expanding the knowledge base; however, clinicians should ask whether a new piece of technology will impact clinical practice before investing in a new device or an upgrade.

This issue offers a look at some of the current research in the field of imaging and visualization. There is a report on the 3 widefield imaging devices currently offered on the commercial US market, as well as articles on the potential utility of EDI- and intraoperative OCT.

This special cover feature is offered as a glimpse of what the future may hold, but with the important caveat that although imaging adds to the clinical impression, it cannot be a substitute for the knowledge and discretion of a trained physician. ■



Robert L. Avery

Robert L. Avery, MD
Associate Medical Editor

Allen C. Ho

Allen C. Ho, MD
Chief Medical Editor