

# FIVE EVOLUTIONS

## In Retina Care

An overview of five game changers and advances in retinal care that benefit patients and providers today.



The retina space has evolved tremendously since I was in fellowship training and since my early days of practice. This article gives an overview of five technologies and treatments that have majorly advanced retina care and continue to benefit patients today.

**1** **OCT.** Arguably the biggest evolution in retina over the past 10-plus years is OCT imaging. OCT has

fundamentally changed all aspects of practice for retina specialists, starting with the way in which we visualize the posterior segment. In the past, flat contact lenses were used to analyze the macula and determine whether edema was present; with this two-dimensional imaging approach, clinical examination was challenging and time-consuming.

Today, retina specialists primarily use OCT to (1) make a diagnosis and (2) judge a treatment response, be it to anti-VEGF therapy or surgery. Educating patients about their OCT findings is crucial to helping them understand their disease and their treatment. OCT has also enabled retina specialists to visualize morphological changes and better understand various stages of diseases, such as vitreomacular traction, and to make improved diagnoses as a result.

Not only has OCT fundamentally changed clinical care, but it has also revolutionized practice workflow. When I started practice, OCT had not yet been widely adopted. Our traditional flow of patients went from optometry to general ophthalmology and then to retina. With the implementation of OCT, we have found that optometrists see the retina as well as we do, so they are able to make subtle diagnoses and send patients directly to us. Now when patients are referred in from optometry colleagues, we usually refer them back for optometric care. When patients are referred from general ophthalmology colleagues, we refer those patients back for cataract care. OCT has been a game changer in our referral patterns and in how we educate our referrals.

Going forward, advances in OCT imaging will enhance the speed at which we perform diagnostic testing and the detail of the images captured. Swept-source OCT imaging, for example, enables a faster scan speed than other OCT techniques, providing faster acquisition of images. In the future, we will likely be able to obtain much wider fields of view with OCT, which will enable us to stop using fluorescein angiography.

**2** **Anti-VEGF therapy.** Around the time that I was finishing fellowship, the FDA approved ranibizumab (Lucentis,

Genentech) for the treatment of classic and occult wet age-related macular degeneration (AMD), making it the first anti-VEGF agent available for this indication. Around this time, retina specialists also started using bevacizumab (Avastin, Genentech) off-label for wet AMD. Bevacizumab is still the medication most commonly injected into the eye, and it will likely continue to be because of its economic advantage over ranibizumab.

The introduction of anti-VEGF therapy facilitated unprecedented visual gains for patients with wet AMD. Several clinical trials substantiated the use of these agents, and additional innovation and regulatory approvals in the anti-VEGF space followed.

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### Small-gauge surgery.

Small-gauge surgery did to retinal surgery what phacoemulsification did to cataract surgery. It makes a real difference and is continuing to evolve, and the latest iteration is 27-gauge surgery. Small-gauge retinal surgery increases the speed of our procedures, and it shortens the healing time.

In addition to small-gauge surgery, there have been various other complementary evolutions, including valved cannulas, which allow safer

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surgery, and dual-blade cutters, which allow cutting speeds of up to 20,000 cuts per minute, enabling safer and more effective surgery. These advances have also expanded our surgical scope because they can be used to perform more difficult procedures.

The removal of vitreous opacities has become the second most common surgery performed in our practice after epiretinal membrane surgery. Sometimes, these patients come in after premium IOL surgery and report feeling like a screen door is between them and their best vision. Small-gauge vitrectomy is a safe and effective way to address this. The removal of vitreous

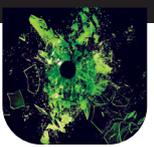
opacities can have a dramatic effect on patients' quality of life, as these have been reported to decrease contrast sensitivity by 50%.<sup>1</sup> Not unsurprisingly, successful surgery in one eye leads to treatment of the fellow eye in more than 70% of cases. In our practice, these individuals end up being our happiest patients postoperatively.

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### 3D heads-up surgery.

Heads-up 3D surgical technology has given us a tremendous ability to educate referring doctors with a unique and hands-on approach.

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necessary step before cataract surgery so that the retina specialist can identify and treat any retinal pathology as necessary, counsel patients to be vigilant for symptoms suggestive of a retinal tear or retinal detachment, make them aware of their particular risk factors for complications after cataract surgery, and adjust their expectations for visual recovery as indicated.

For patients at high risk of retinal complications, I also recommend planning cataract surgery with a retina surgeon on standby during the procedure if possible. If there is a problem with the stability of the lens or traumatic zonular loss, for instance, the retina surgeon can assist by removing

nuclear fragments that prolapse into the vitreous, potentially saving the patient from an additional surgery.

### **CONCLUSION**

Patients with retinal conditions or risk factors for retinal complications can have successful visual outcomes after cataract surgery. A preoperative evaluation from a retina specialist is essential to identifying underlying risks for potential retinal complications. Thorough documentation and discussion of preexisting visual limitations by both the retina and cataract surgeons help to set realistic postoperative expectations for patients.

Setting appropriate patient expectations and facilitating preoperative retinal evaluation are key to achieving safe, effective surgery in this population. ■

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