

Tarek S. Hassan, MD

Dr. Hassan is a vitreoretinal physician at Associated Retinal Consultants in Royal Oak, Michigan, and a Clinical Assistant Professor of Biomedical Sciences at Oakland University in Rochester, Michigan.

1. What do you find most challenging about the field of retina?

Over the past few decades, vitreoretinal surgeons have become quite good at repairing the anatomic abnormalities of many potentially blinding retinal conditions due to improvements in education, research, and technology. Many of the medical and surgical challenges I faced early in my career have become much more manageable—and even surmountable—in recent years, including the treatment of choroidal neovascularization, refractory macular edema, proliferative diabetic retinopathy, retinal vein occlusions, macular holes, and retinal detachment. As our treatment of these conditions improves, we raise the bar for our expectations of what we can ultimately achieve for our patients, particularly with respect to what is most important to them—their visual acuity.

Our successes with prior treatment challenges lead to the new challenges we face today. I feel the most difficult of these is obtaining lasting visual improvements in eyes with many of the conditions for which we have anatomic but not functional solutions. The pace of research is staggering at times, and I am encouraged that we are now investigating neuroprotection, retinal and retinal pigment epithelium (RPE) cell transplantation, stem cell research, early diagnostic techniques, and disease prophylaxis. Achieving success in these areas will translate into visual acuity improvements for our patients that match our ever-improving anatomic results. We want all “fixed” retinas to be “seeing” retinas, and I am confident that in the future we will be able to deliver this to our patients.

2. How do you select patients for vitreoretinal surgery?

Like all types of surgery, proper patient selection for vitreoretinal procedures is extremely important to maximize patient outcomes. We now have safer surgical options for a multitude of conditions because surgical technology has rapidly improved. Certainly, there are conditions such as retinal detachment, macular holes,

dense nonclearing vitreous hemorrhages, endophthalmitis, and intraocular foreign bodies for which surgery is indicated with little debate among most of us.

Performing procedures for more elective etiologies, such as epiretinal membranes, refractory diabetic macular edema, and short-duration vitreous hemorrhages (less than 1 month), must result from comprehensive decision-making by both surgeon and patient.

Our surgical goal of repairing anatomic abnormalities must be achievable with low-risk procedures and result in functional preservation, restoration, or enhancement of the patient’s vision. Fortunately, the risk profile for most vitreoretinal surgeries is low, as significant complications typically occur in less than 5% of patients that undergo most procedures we perform. Thus, my indications for surgery depend most on the needs of the patient. These may include removing a nonclearing vitreous hemorrhage as soon as we feel ample time for spontaneous clearing has

been given; removing an epiretinal membrane when resultant decreased and distorted vision interfere with the patient’s functioning; trying to resolve macular edema after laser and/or intravitreal injection therapy has failed, etc. In short, my indications for surgery are driven by the need to improve vision as soon as prudently and safely possible.

3. Have any recent studies or new technologies influenced your surgical technique?

Rapid technologic development in our field and the recent introduction of a number of new instruments and systems has allowed me to enhance my surgical technique. The development of higher-powered xenon and mercury vapor light sources and their associated instrumentation has had the greatest recent influence on my surgical approach. I find the use of peripheral lighting to be revolutionary during vitrectomy for cases that have pathology anterior to the equator, in particular for cases of diabetic retinopathy with tractional pro-

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liferation and rhegmatogenous retinal detachment. The light sources are so powerful that using a chandelier (I prefer it in the form of a lighted infusion line) frees one hand from having to hold a light pipe, which allows me to perform true bimanual surgery with any two instruments while maintaining excellent visualization. I still use a light pipe when working on the macula and sometimes while using a peripheral light source as well. The illumination characteristics of both wide-field diffuse and handheld tangentially applied light together can offer great views of posterior pole pathology. Peripheral lighting has further broadened my use of 25-gauge vitrectomy by opening the door to the use of more bimanual instrumentation, thereby expanding my indications for this technique.

4. How has small gauge (23-, 25-gauge) vitreoretinal surgery changed the field of retina, and what gauge are you currently using?

Small-gauge vitrectomy has been a dramatic advance in the practice of vitreoretinal surgery. I was fortunate to have been part of the testing and development of 25-gauge systems over the past decade. I have seen them progress from a much more limited form in their infancy to their current more mature and widely applicable stage. Advances in cutter design now allow much improved, efficient, and safe vitreous removal. These better vitreous cutters, wide-field viewing systems, peripheral chandelier light sources, stiffer and more varied handheld instrumentation, as well as more surgeon experience, have led to a tremendous expansion of indications for 25-gauge vitrectomy that now include most vitreoretinal pathologies. The reduced surgical trauma induced by a transconjunctival small-gauge incision translates into less postoperative pain, redness, and inflammation, and is associated with decreased postoperative astigmatism and faster patient recovery of vision.

I use 25-gauge vitrectomy for at least 75% of my cases because the current 25-gauge instrumentation allows me to accomplish my surgical goals in an efficient, safe, and elegant manner in eyes with many indications. Some surgeons prefer 23-gauge to 25-gauge vitrectomy because of its greater similarity to 20-gauge systems, although they still seek the advantages seen with smaller-gauge transconjunctival surgery. In my practice, I have found little use for this “compromise” gauge instrumentation, although I am confident that such systems also lead to excellent surgical outcomes. With the most current 25-gauge systems and equipment, I feel I have all the purported advantages of 23-gauge vitrectomy but can obtain them using smaller, better healing, less trauma-inducing

25-gauge incisions. For cases that I feel need more robust instrumentation, I prefer the gold standard larger 20-gauge systems with, which I can maximize all parameters needed for the best possible surgical outcome.

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As the years pass since the advent of smaller-gauge vitrectomy, I remind myself more and more that obtaining maximum patient outcomes is the overall, driving goal. Perhaps we should worry much less about the size of the holes we make in the eye and the instruments we put through them; 20-, 23- and 25-gauge systems all currently work very well.

5. What has been the biggest surprise of your career?

I continue to be surprised and impressed by the tremendous number of opportunities that exist to contribute to our rapidly expanding field, and by the many intelligent, motivated, thoughtful, and caring basic and clinical scientists who maximize those opportunities to bring about huge changes in our treatment of blinding retinal diseases. We have a particularly tight-knit, collegial, and cooperative group of thinkers in our field who have been able to collectively do amazing things, such as revolutionize the treatment of exudative macular degeneration, and who will continue to make great strides and bring wholesale changes in the way we manage our patients in the future.

Throughout my career, I have been fortunate to participate in fantastic innovation and progress, and I cannot overstate how exciting and satisfying this has continued to be for me. I have had wonderful mentors who have encouraged my academic and professional pursuits throughout my career, and I now make it my goal to apply myself with the utmost effort, interest, and compassion to the care of my patients, the service of the profession, and the betterment of the field of retina as a mentor to others. Through my interactions with many outstanding colleagues and friends, I have seen that every interested retina specialist can make a difference in our field, whether through patient care, research, activism, charity, or education, and that retina specialists are a very impressive collective unit that can bring about tremendous progress in the fight against blinding eye disease. ■