

Ultrasound Biomicroscopy Is Advantageous for Glaucoma and the Anterior Segment

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BY J. JAMES THIMONS, OD

Ultrasound biomicroscopy (UBM) is a unique technology for the glaucoma and anterior segment clinician, as there is no other imaging device capable of assessing anterior segment pathology with the same level of depth and clarity in the entirety of the anterior segment. High-density anterior segment optical coherence tomography is capable of imaging corneas, and to some degree viewing the angle, but it cannot consistently image the scleral spur, which is essential to defining angle depth and accurately diagnosing and subsequently managing a complex, or even moderately complex, case of glaucoma.

WHEN I USE UBM

I most commonly utilize UBM for narrow-angle or suspected narrow-angle glaucoma patients or those who present with potential mixed-mechanism glaucoma. Another common utilization is in individuals who have had various forms of filtration surgeries involving stents, tubes, or other devices who need to be imaged to determine both placement as well as the general wound-healing characteristics that are present after surgery. Occasionally, I use UBM for IOL or cataract surgery patients who have postoperative complications. UBM can help determine the source of an inflammatory response or discomfort and can identify when the IOL needs to be repositioned or explanted.

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HOW I USE UBM

Typically, I delegate the task of performing UBM to my technician. The beauty of having him perform UBM is it frees my time to focus solely on analyzing the data. My technician sets up the UBM, initiates the unit, and performs a four-plane analysis of the anterior chamber. I can view the video clips that are present and pick out the images that are most useful to me in my analysis. Occasionally, if I am overseeing a particularly challenging case, I remain in the room while the technician performs the UBM. Under those circumstances, I will have my technician image while I watch. This allows me to focus on the anatomy while he is performing the diagnostic assessment. I can control the foot pedal and push it to freeze an

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image or store it into the image bank. Similarly, I may record single frames from the video for documentation and place them into the medical record. This approach works well because my colleagues and I use our technicians to extend our patient care abilities and to gather information in anticipation of our visit with the patient. It is then merged together into a final assessment, diagnosis, and treatment plan.

While the technician is performing UBM, I am able to see other patients, allowing me to maximize my time and revenue in the process of acquiring information. My goal is to efficiently assess and treat as many patients as is reasonable within the course of a day. If I am handling every task, I limit the amount of patients I can see and how many interventions I can utilize because of time constraints. The only way to extend my time is to allow talented and skilled staff to move into positions of responsibility to help acquire information, interface with the patient, and assist in management. My technician’s ability to perform these tasks before or during the process of patient care extends my own capacities considerably.

PEARLS FOR UBM

Clinicians tend to rely on visual information that is relatively easily tainted, such as slit lamps and gonioscopes, because we are working with very bright lights. As a result, we tend to overestimate the angle status. It is important for clinicians to crossreference questionable angles by doing UBM in a dark environment to see the true angle anatomy. Since using UBM for angle assessment, I have found that there is a markedly different end point than I was used to.

In our practice, we have found it useful to house the UBM unit in a location that allows it to be used independently of the examination rooms so that it will get used more often. This way, we have a separate space for the diagnostic workup and a discussion with the patient. Finally, it is necessary for everyone on the staff to understand how and why we use UBM as

well as all of the instruments in the practice. Without this understanding, what occurs is a lack of continuity of process. For example, a patient may call in and ask why he or she received a bill for UBM. The staff person will, instead of saying “I don’t know,” explain that the doctors use UBM for diagnosing special patients with various types of glaucoma. The patient knows they were seen for glaucoma, so that reinforces the patient’s understanding of why the test was performed. This idea of a team approach has been an invaluable asset to our practice’s growth.

WHY I USE UBM

When clinicians choose technology for their office, it’s critical to consider how that technology will impact their unique patient base and whether it’s going to complement existing systems.

UBM is an ideal addition, in part because of its extremely reasonable price relative to reimbursement and its utilization. For example, an instrument like an optical coherence tomography unit may cost \$45,000 to \$75,000 and reimburse at a rate of \$45 per patient, whereas my UBM cost \$20,000 and reimburses at rate of \$108 per patient. It is an instrument that adds to one’s diagnostic armamentarium and is able to effectively pay for itself in a relatively short period of time.

CONCLUSION

When I am considering equipment to purchase for the practice, I focus on the number of potential utilizations, procedural reimbursements, and cost. If an instrument can be paid off within 2 years, it is a good technology. If it takes 2 to 3 years and is valuable to the practice, it is still a good technology, but if it takes longer, I am not sure how valuable the instrument is, no matter the price. UBM, given its potential utilization two to four times a week, can be paid off in less than 1 year. That is why it is such a valuable tool—it has a small footprint, relatively low cost, high level of diagnostic quality, and adds a unique additional system to the office for the layering of the glaucoma patient base as it relates to providing total care. ■

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