

**Complex
cataract cases
Managing
“catarocks”:
Better surgery
on dense
lenses,
intumescent
cataracts**

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Hypermature white cataract. According to Dr. Donaldson, this patient would benefit from femtosecond laser pre-fragmentation.

Source: Kendall E. Donaldson, MD

Surgical pearls for increased safety, smoother procedures

Managing a complex cataract case may try physicians' patience, but there are some ways to make surgery and postop management of these cases go more smoothly.

Careful consideration of the capsulorhexis, ophthalmic viscosurgical device (OVD) use, femtosecond laser use when available, and pre- and postop diagnostics and management will go a long way toward a better surgery. Here are some ways to better manage a dense lens or an intumescent or brunescient cataract.

Capsulorhexis tips

One reason to carefully create your

capsulorhexis in a white cataract is because the capsule is more friable and under pressure due to capsular distension syndrome, said Kendall E. Donaldson, MD, associate professor of ophthalmology, Bascom Palmer Eye Institute, Miami. In a dense brunescant cataract, visualization is often difficult, Dr. Donaldson said. This is why Dr. Donaldson prefers use of femtosecond laser technology in both circumstances. "Increased speed of capsulotomy creation increases the safety of the capsulotomy and prevents the potential extension of an anterior capsular tear, known as the Argentinian flag sign," she said. "For the dense brunescant cataract, the femtosecond laser eliminates this challenge by creating a perfectly centered, round capsulotomy, which then facilitates the rest of surgery." Although Stephen S. Lane, MD, medical director, Associated Eye Care, and adjunct clinical professor, University of Minnesota, Minneapolis, also favors femtosecond laser use for a capsulorhexis in these cases, he advises capsule staining with trypan blue if this is not possible, especially with a white lens. "I think it's become the standard of care to reduce complications. It allows you to perform a much more predictable and secure capsulorhexis," he said.

Surgeons need to remember that the capsule in these lenses tends to be more brittle, and they should go more slowly, said Mitchell P. Weikert, MD, associate professor and residency program director, Cullen Eye Institute, Baylor College of Medicine, Houston. To help avoid the Argentinian flag sign, Dr. Weikert recommends piercing with a 27-gauge needle and quickly aspirating lens material. "You may need to aspirate with a cannula to get more out. If there's a significant amount of liquefied cortex, it can be a back and forth process," he said. Surgeons can also use the Little maneuver if the capsulorhexis starts to go out toward the periphery. Replace the capsular flap back where it came from and pull it in the opposite

direction. "That will direct the tear back toward the center and help you regain control," Dr. Weikert said.

Selecting your OVD

The ideal OVD for use with dense lenses is one that will stay in the eye to maintain space and protect the corneal endothelium, Dr. Weikert said. Dispersive and viscoadaptive OVDs work well, but surgeons may still need to replenish them multiple times when operating on dense lenses or intumescent white cataracts.

"Although most viscoelastics work equally well for dense brunescant cataracts, denser agents such as Healon V or Healon GV [Abbott Medical Optics, Abbott Park, Ill.] or other high viscosity OVDs help tamponade the anterior capsule while performing a manual capsulotomy for safer removal of a white cataract," Dr. Donaldson said.

"I tend to use a space-maintaining viscoelastic as well as a dispersive one to coat the cornea," Dr. Lane said. "You can coat the cornea with a dispersive and then put in a cohesive one. Then if you do the rhexis through a small incision, there's less leakage through the wound, and you can maintain the intraocular pressure and get more stability," he said.

Removing a dense lens, phaco tips

Dr. Donaldson likes to use femtosecond laser-assisted cataract surgery for almost all dense lenses, and she tends to prefer a grid pattern of 350 to 500 microns with 2 cuts (4 quadrants) to prefragment the lens. "This allows me to dramatically decrease my cumulative dissipated energy during the removal of the lens material, making the case less traumatic to the cornea endothelium and other intraocular structures," she said. Even though the femtosecond laser has

invaluable uses with dense cataracts, it's not very effective at breaking up the lens itself, Dr. Lane said. "Breaking up the lens is not as useful as with a more routine lens where you can fracture it relatively easily with a femtosecond laser," he explained.

If using a phaco machine that has a filter on the aspiration line for cataract surgery, surgeons should watch for clogging when they manage dense lenses, Dr. Weikert said.

Additionally, if using a viscoadaptive OVD, surgeons often have to lower the flow settings, he added. "If it's too high, the OVD may not stay in the eye as well," he said. He also cautioned that there is an increased risk of wound burns if the tip becomes occluded and is not allowed to cool. Dr. Weikert finds that chopping works well to decrease the ultrasound energy that is used to disassemble the lens. It's always a good idea to have other lens options available in case you need to revert to an alternative, Dr. Weikert said. He also has a low threshold for using iris retractors or a Malyugin ring if there is any concern for adequate pupil dilation in these kinds of cases.

Pre- and postop management

Dense or brunescient cataracts come with their own unique challenges, which can change preop diagnostics or the frequency and duration of medication use before or after surgery.

Dr. Donaldson's practice tends to perform more preop testing due to certain research

protocols. This testing includes preop topography, tomography, specular microscopy, and keratometry on multiple devices. If the patient will receive a premium IOL, preop optical coherence tomography is also performed. If there's any complaint of ocular surface disease, the patient receives tear osmolarity testing and possibly pretreatment for dry eye.

"Postoperatively, all of my patients undergo refraction, topography, and specular microscopy 1 month after surgery. If they are in a dry eye program, they have repeat diagnostic testing to compare with their preop baseline," Dr. Donaldson said.

Dr. Weikert likes to have an ultrasound done in these patients to assess for back-of-the-eye problems such as retinal detachments or tumors. He will counsel patients that they are more susceptible to cornea edema so if they show up on postop day 1 with a cloudy cornea, they shouldn't feel frustrated or surprised.

AT A GLANCE

- When available, a femtosecond laser can help with capsulotomy creation in a white or brown cataract. If the laser is not available, staining with trypan blue can assist with visualization.
- Surgeons must use caution to avoid the Argentinian flag sign in white cataracts.
- An ideal OVD will stay in place during surgery and make the procedure safer.
- Preop testing can help detect other problems in these eyes that may be hard to visualize. Medications such as steroids and NSAIDs are best given for a longer time period than in other patients.

Dr. Lane will change the frequency and duration of medications used in these patients. "Because of the higher energy levels used and the longer time it takes to do phaco, it's worth considering steroids and nonsteroidal anti-inflammatory drugs earlier [NSAIDs], almost as in a diabetic patient at risk for macular edema," he said. He will start dosing with steroids and an NSAID at 2-3 days before surgery and extend their use until 6-8 weeks postoperatively versus 1 month.