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Advanced Phaco Techniques for Brunescant Nuclei *Cross-Action Chop Circumferential Disassembly*

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Brunescant nuclear sclerosis challenges phacoemulsification surgeons with its leathery interdigitated posterior fibers and the rubbery density unique to this cataract type. Patients often experience symmetric progression and do not notice the slow deterioration of contrast sensitivity and acuity. Unless a discrete opacity develops, patients tolerate advanced disease before seeking surgery. These eyes have minimal cortical cushioning and a fragile zonular apparatus, which increase interventional risk. The goal of immediate visual rehabilitation and clear corneas on postoperative day 1 can be attained in almost 100% of cases with modern phacoemulsification technology and meticulous attention to detail. Even the most brunescant black or tan lens can be safely and predictably conquered without planned extracapsular techniques, sharp choppers, leaving the safe central zone within the capsulorrhexis, or sculpting of any kind. This chapter will detail the technique that is used to facilitate attaining this goal in even the most challenging eyes. It is called cross-action vertical chop with circumferential disassembly.^{1,2}

PREREQUISITES

Brunescant cases require a little extra time in the schedule. As long as the patient can fixate on the indirect light during the preoperative exam, standard topical anesthesia is adequate. Employ modern phacoemulsification machines that permit a noncontinuous delivery of ultrasound.

This technique requires a minimum 5-mm pupil dilation to permit an adequate continuous curvilinear capsulorrhexis (CCC; Figures 20-1 and 20-2). Staining the anterior capsule helps because nuclear brunescence dulls the red reflex. Vertical chop with circumferential disassembly allows the CCC to be tailored to the optic size rather than to the size of the nucleus.^{3,4}

The primary incision should be snug (appropriate to the phaco tip), and the paracentesis should not exceed 0.5 mm to achieve a closed chamber with minimal leak.

The author strongly prefers the Rosen splitter (Katena, Denville, NJ) for chopping. It fits easily through the small paracentesis, is blunt at the tip and outer edge, and has a hatchet-like inner aspect.