

OPTIMIZING THE PREOPERATIVE ASSESSMENT AND ANESTHESIA STRATEGIES FOR CATARACT SURGERY



A careful patient evaluation in the office before surgery is scheduled can prevent challenges in the OR.

BY LISA BROTHERS ARBISSER, MD

In refractive cataract surgery, mastering each technique's intricacies is essential for optimizing patient outcomes. This column is designed to be a comprehensive guide for both novice and seasoned ophthalmologists that focuses on pivotal aspects of surgery. Drawing from my chapter on surgical pearls that appeared in the book *The Art of Refractive Cataract Surgery for Residents, Fellows, and Beginners*,¹ coedited by Fuxiang Zhang, MD, and Alan Sugar, MD, articles offer a detailed examination of surgical steps and are complemented by video demonstrations when available.

Each installment explores a different facet of surgery for the refinement of technique and patient care. The goals of this approach are to enhance surgical skills and promote a deeper understanding of the nuances involved in managing diverse cases.

1. Zhang Y. *The Art of Refractive Cataract Surgery*. 1st ed. Thieme Publishers; 2022. © 2022 Thieme Publishers. Reprinted with permission. www.thieme.com.

An office assessment precedes surgical scheduling. A peribulbar block can be considered for patients who are unable to fixate on a light or are uncooperative during the indirect ophthalmic examination due to blepharospasm, photophobia, or lack of gaze control because these issues rarely improve once the patient is on the table. A reliance on systemic medication for compliance can lead to unnecessary complications. A peribulbar block is optimal if one anticipates sewing the iris, creating large incisions, or fixing a lens to the sclera. General anesthesia is reserved for young and uncooperative patients and other rare situations. In some cases, such as with patients who have borderline dementia, allowing them to hold a loved one's hand under the drape in the OR may help avoid the need for general anesthesia.

CLAUSTROPHOBIA MANAGEMENT DURING OFFICE ASSESSMENTS

Claustrophobia should be identified and discussed during the office assessment. For such patients, I employed a device that gently blows air to elevate

the drape off the face. The drape adheres only to the operative side but occludes the view of the fellow eye, preventing the patient from inadvertently perceiving and following movement in the room. If this approach fails to alleviate the patient's discomfort, the drape can be taped entirely off the face before surgery begins, except for the portion that must adhere to the periocular operative area.

Patients are instructed to keep the fellow eye closed as much as they can tolerate. Demonstrating this approach during the office visit offers reassurance. Patients must abstain from consuming anything by mouth before surgery to ensure the option for a safe conversion to general anesthesia, if needed; however, I have never encountered a situation requiring such a conversion.

ANESTHESIA PROTOCOL Peribulbar Injection Technique

I learned—and taught my anesthesiologist—a single inferior peribulbar injection technique that originated with Roy H. Hamilton, MD, MS, who served as the anesthesiologist for Howard V. Gimbel, FRCS, AOE,

FACS, CABES. In our experience, a second injection was almost never required. Even if the block was incomplete, my expertise with topical anesthesia allowed us to address any residual squeezing or movement. I had no complications with this technique in more than 30 years, although I avoided its use in anticoagulated patients. However, no anesthetic is as safe as vocal local. I employed propofol (10 mg) only during the peribulbar block. For topical anesthesia patients, I used midazolam (Versed, Roche) and alfentanil (Alfenta, no longer available), both short-acting agents less likely to cause nausea compared with fentanyl. All patients had a saline lock in place for administering these medications and any emergency measures.

Sublingual Protocol for Routine Cases

For routine cases, one might consider a newer, cost-effective, and safe protocol involving a sublingual formulation of midazolam, ketamine, and ondansetron (MKO Melt, ImprimisRx), which eliminates the need for an intravenous catheter.¹

REFINING SURGICAL TECHNIQUE THROUGH REPETITION

When precision is measured in microns, nothing replaces the muscle memory gained from practice. I strongly recommend using eye models such as the SimulEye (Inseyet) to practice every step of cataract surgery. These tools allow surgeons to gain experience rapidly and without risking patient safety. An eye model can even be brought into the OR to practice using the footpedal, recognizing the sounds of occlusion, and refining coordination. Ophthalmic surgery is nearly unique in requiring the integration of eye, hand, foot, and auditory skills—skills that can be honed through consistent practice.

Routine and Outcomes

Developing a consistent routine enables surgeons to make each eye behave predictably, despite individual differences. This approach can reduce complications and increase the likelihood of successful outcomes. By adhering to a repetitive process, surgeons can quickly identify deviations or complications at their inception, allowing timely intervention and improved patient care.

ANESTHESIA GUIDELINES FOR CATARACT SURGERY

Preoperative Measures

Saline lock placement. In our OR, all patients had a saline lock intravenous line placed and secured before the procedure.

Initial sedation. Once monitors are connected in the OR, 1 mg midazolam is administered for sedation (dose range: 0.5–2 mg based on patient response).

Managing Anesthesia During Prep and Draping

For patients exhibiting lid squeezing or increased tension, a combination of 125 µg alfentanil and 10 mg propofol may be administered. If discomfort persists despite the use of a pledget soaked in topical anesthetic, a repeat dose of 125 µg of alfentanil may be administered. Alfentanil is diluted eightfold to achieve a concentration

where 2 mL corresponds to 125 µg. This ensures an adequate volume for administration and eliminates the need for a saline flush.

Intraoperative Anesthesia Adjustments

Response to discomfort. If the patient reports discomfort or the surgeon requests additional anesthesia, 125 µg alfentanil is administered. If discomfort persists, a repeat dose of 125 µg alfentanil may be provided.

Combination therapy. For unresolved discomfort after initial adjustments, a combination of 125 µg alfentanil and 10 mg propofol is administered in the same syringe, commonly referred to as the *piña colada formulation*.

Notes on Administration

Doses must be appropriately spaced to allow time for pharmacologic effects to manifest. Patient vitals are monitored

continuously during administration to detect and address potential adverse effects. Sedation and anesthesia doses are tailored to individual patient needs, with factors such as body weight, medical history, and response to previous sedation taken into account. Patients with chronic pain often require higher-than-expected doses because their neural gating mechanisms may amplify minor sensations into pain. ■

1. Smith JC, Hamilton BK, VanDyke SA. Patient comfort during cataract surgery: a comparison of troche and intravenous sedation. *AANA J*. 2020;88(6):429-435.

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