

Modifications to Patient Positioning for Cataract Surgery

Simple techniques for performing phacoemulsification in patients with postural disorders.

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Phacoemulsification is routinely performed with the patient lying supine with his or her head flat to optimize the red reflex and surgical view. If a patient has a medical condition that precludes lying supine, then both the patient and surgeon may be uncomfortable. If the surgeon's view is compromised due to poor positioning, the potential risk for complications increases.

Positioning can be challenging in a variety of medical conditions, including kyphosis, chronic obstructive pulmonary disease, congestive heart failure, cerebral palsy, myotonic dystrophy, obesity, and Meniere disease. With simple modifications to the patient's position, successful, uncomplicated cataract surgery can be performed.

CASE REPORT

A 56-year-old man presented with a decrease in vision due to age-related cataracts in both eyes. He had severe congenital kyphosis and was unable to lie flat on the operating table (Figure 1). The patient consulted other ophthalmologists, but most were uncomfortable performing cataract surgery because he was unable to lie flat.

We performed a mock drill in the operating room to determine the best position for the procedure, which involved adjusting the microscope and phaco machine footpedal. The patient was seated on the operating table with the help of a few pillows (Figure 2).

With the patient seated and the surgeon standing (Figure 3), standard phacoemulsification under topical anesthesia with the WhiteStar Signature System with the Ellips Transverse Ultrasound handpiece (Abbott Medical Optics Inc.) was performed in the patient's



Figure 1. (A, B) A patient with severe kyphosis.

right eye, and a Sensor foldable IOL (Abbott Medical Optics Inc.) was implanted in the capsular bag. The surgical procedure was uneventful; a video can be viewed at eyetube.net/?v=sisul. Postoperatively, the patient achieved 20/20 UCVA in his right eye.



TECHNIQUES FOR POSTURAL DISORDERS

The following techniques have been reported to solve positioning problems in patients with medical conditions that prevent them from lying flat.

No. 1: Face-to-face position. Ang et al¹ positioned a patient seated in a standard reclining cataract surgical chair in an almost upright position. They rotated the ceiling-mounted surgical microscope 60° from the vertical to point toward the patient. The surgeon sat beside the patient, and, while facing him or her, oper-



Figure 2. (A,B) Same patient as Figure 1, on the operating table in a seated position supported by pillows.

ated at nearly arm's length. Topical anesthesia without sedation was used, which, according to the authors, allowed the patient to follow requests regarding where to fixate. With the surgeon's arms outstretched and at an unfamiliar angle, an inferior surgical approach via a clear corneal incision at 270° was used. Ang and colleagues reported using this face-to-face positioning technique for two patients, neither of whom experienced intra- or postoperative complications. To date, it has not been reported in the literature that an inferior approach would lead to greater postoperative complications compared with normal positioning.

No. 2: Standing phacoemulsification in reverse-Trendelenburg position. Mansour et al² described a standing phacoemulsification technique for morbidly obese patients. For this technique, the surgeon was standing, the surgical microscope was at minimum magnification and in the maximum upward position, and the patient was in reverse-Trendelenburg position. This position may help lower posterior venous pressure by reducing central venous pressure. Patients with morbid obesity face a variety of health complications including increased risks of cataracts and elevated intraocular pressure.

No. 3: Side-saddle position. The side-saddle position is an alternative to standing when using the operating microscope.³ The patient is positioned on the operating table at the lowest inclination tolerable, and the operating microscope's axis is tilted back 60° toward the horizontal. The footpedals are placed parallel to the long axis of the operating table. The patient's head is rotated toward the surgeon and/or in a chin-up position. The surgeon sits side-saddle with his or her thighs parallel to the long axis of the operating table and facing the head of the bed. The globe is tilted slightly more superotemporal than usual to optimize visualization of the red reflex, and an inferotemporal surgical approach is used.



Figure 3. (A, B) Surgeon performing phacoemulsification in a standing position.

This approach is familiar to surgeons who operate from the side of the table. Surgery performed in this position may be facilitated with topical anesthesia, allowing the patient to fixate according to the surgeon's request. The more upright the patient is, the more the operating microscope must be adjusted toward the horizontal. Consequently, the surgeon's arms will be more outstretched. The surgeon must decide whether he or she is more comfortable sitting side-saddle or standing.

No. 4: Phacoemulsification in a standard waiting room chair. Modifications can be made to a standard waiting room chair for patients with both respiratory disease and claustrophobia. Fine et al⁴ altered a common waiting room chair, attaching an adjustable headrest to the back of it, thus allowing the patient to remain seated upright with his or her head tilted back but supported. Other minor adjustments were made to the chair, such

TAKE-HOME MESSAGE

- Orthopedic, neurologic, cardiovascular, and pulmonary conditions can affect a patient's positioning during cataract surgery.
- Successful, uncomplicated cataract surgery can be performed in individuals who are unable to lie supine with simple modifications to a patient's and/or surgeon's position, the surgical microscope, and operating chair and/or table.

as adding weights for stability and lowering the height so that a patient's legs extended outward to provide counterbalance. This technique is useful for patients who can tolerate sitting with their head extended back.

CONCLUSION

Orthopedic, neurologic, cardiovascular, and pulmonary conditions can affect patients' positioning during cataract surgery. Adjusting the operating chair and/or table, rotating the surgical microscope, altering the surgical approach, and using pillows are effective techniques for managing patients unable to lie supine during the procedure. ■

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