

# PHACOEMULSIFICATION IN POSTURAL DISORDERS

How to achieve a balance between positioning and surgery.

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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 the surgeon may be uncomfortable. If the surgeon's view is compromised by poor positioning, the potential risk for complications increases.

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

## CASE EXAMPLES

### No. 1

A 56-year-old man presented with a decrease in vision due to age-related cataracts in both eyes. He had severe



Figure 1. Patient with severe thoracic kyphosis.

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 OR to determine the best position for the procedure, which involved adjusting the surgical microscope and phaco machine's foot pedal. 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) was performed on the patient's right eye, and a Sensor



Figure 2. Patient is on the operating table in a seated position with the help of a few pillows.



Figure 3. Surgeon performing phacoemulsification while standing.

foldable IOL (Abbott Medical Optics) was implanted in the capsular bag. The surgical procedure was uneventful; a video may be viewed at [youtube.com/watch?v=jb0yXVVpajM](https://www.youtube.com/watch?v=jb0yXVVpajM). Postoperatively, the patient achieved 20/20 UCVA OD and N5 with +2.50 D add.

#### No. 2

A 55-year-old woman presented with a decrease in vision due to age-related cataracts in both eyes. She was obese, had a cardiopulmonary problem and Ménière disease, and was unable to lie flat on the operating table. The patient consulted other ophthalmologists, but again, most were uncomfortable performing cataract surgery because she was unable to lie flat. As in the aforementioned case, we performed a mock drill in the OR to determine the best position for the procedure, which involved adjusting the operating microscope and phaco machine's foot pedal. The patient was seated on a plastic chair, and another plastic chair was used to keep her legs extended (Figure 4). We used a pillow (for back rest) and a headrest to support her neck/head. Her neck was extended (chin elevated), and she was asked to look upward.

While standing, the surgeon performed standard phacoemulsification under topical anesthesia on the patient's left eye and implanted a Tecnis Multifocal foldable IOL (Abbott Medical Optics) in the capsular bag. The surgical procedure was uneventful; a video may be viewed at [youtube.com/watch?v=jb0yXVVpajM](https://www.youtube.com/watch?v=jb0yXVVpajM). Postoperatively, the patient achieved 20/20 and N5 UCVA in her left eye.

### TECHNIQUES FOR POSTURAL DISORDERS

#### No. 1. Face-to-Face Position

Ang et al<sup>1</sup> positioned a patient 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, operated at nearly arm's length. Topical anesthesia without sedation was used, which, according to the investigators, 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



Figure 4. Patient seated on a plastic chair with legs extended; note the head support (A). Patient seated on a chair, after prep and drape (B). Phaco surgery in progress, surgeon standing and the patient sitting (C). After successful surgery, a happy patient and team (D).

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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 and Al-Dairy<sup>2</sup> described a standing phaco 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 the reverse-Trendelenburg position. This position may help lower posterior venous pressure by reducing central venous pressure. Morbidly obese patients face a variety of potential health complications, including increased risks of cataracts and elevated IOP.

### No. 3. Sidesaddle Position

The sidesaddle position is an alternative to standing when using the operating microscope.<sup>3</sup> 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 foot pedals 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 sidesaddle with thighs parallel to the long axis of the operating table and faces the head of the bed. The globe is tilted slightly more superotemporally than usual to optimize visualization of the red reflex, and an inferotemporal surgical approach is used.

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, which allows 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 sidesaddle 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 al<sup>4</sup> altered a common waiting room chair by 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 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. The surgeon used the standing position in managing both cases where it was difficult to focus the operating microscope and control the foot pedal of the phaco machine. Another suitable method is to use a tall chair and keep the microscope foot switch and phaco foot pedal on a box so the surgeon can use both feet while performing phacoemulsification in these challenging cases. ■

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