

# Shallow Anterior Chamber

A surgeon describes his method of managing this anatomic obstacle.

BY RICHARD J. MACKOOL, MD

**M**any eyes with a shallow anterior chamber also have zonular laxity, which permits the lens to shift forward and complicates phacoemulsification. Surgeons should therefore anticipate such laxity in these eyes, especially if the axial length is not unusually short. Additional evidence includes a convex anterior capsule (ie, zonular laxity permits the lens to become more spherical).

Potential intraocular issues/problems are extensions of the capsulorhexis and increase the possibility of endothelial damage. The latter is more likely to occur as nuclear density increases.

In many eyes, the anterior chamber will deepen with the injection of a viscoelastic. Of dubious benefit, in my experience, are methods such as intravenous osmotic agents and compression of the globe. I have found neither measure to be effective, although the latter is harmless. Osmotic agents, however, can induce an electrolytic imbalance.

This article describes my method of managing a shallow chamber during cataract surgery.

## TECHNIQUE

If the anterior chamber does not deepen adequately for phacoemulsification after the injection of a viscoelastic, I perform a limited pars plana vitrectomy procedure as follows. In the inferotemporal quadrant, at a distance of 3.5 mm from the surgical limbus, I make an incision that will accommodate the vitrector tip (20, 23, or 25 gauge). I strongly prefer to perform the vitrectomy without the delivery of infusion. If infusion is delivered into the anterior chamber and it does not deepen during the vitrectomy, the surgeon has no way of knowing whether the problem is simply misdirected infusion (ie, balanced salt solution flowing through the zonule and into the posterior segment) or the development of

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a subchoroidal hemorrhage. Certainly, a large subchoroidal hemorrhage is obvious, but a small one may not be visible.

During the vitrectomy, I palpate the globe with my index finger to test for softness. Next, I withdraw the vitrector tip, gently expand the anterior chamber with additional viscoelastic, and close the pars plana incision. I then perform phacoemulsification and implant the IOL.

If the nucleus is so dense that I cannot visualize instruments within the vitreous cavity, I score the vitrector tip at a distance of 10 mm from its distal end using an instrument such as a serrated clamp. I then insert the vitrector through the pars plana until the mark on it is level with the scleral incision. I direct the tip toward the posterior pole of the eye to ensure that it is positioned within the center of the vitreous cavity prior to performing the vitrectomy, which requires 10 to 20 seconds to complete.

I have used this technique on more than 1,000 eyes over the past 25 years. In every instance, it has permitted me to obtain the desired anterior chamber depth prior to phacoemulsification. ■

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