letters

Etiology of Capsular Block Syndrome

In the April 2001 issue, Durak et al.[1] review the clinical characteristics, natural course, and treatment of 13 cases of early postoperative capsular block syndrome (CBS). They conclude that the etiology is unknown, but that viscoelastic material plays a major role. However, I would propose that the mechanism is iatrogenic and therefore preventable. I am certain that others have reached this same conclusion based on intraoperative observations similar to mine.

Following final removal of a viscoelastic agent, the anterior chamber frequently shallows upon withdrawal of the irrigation/aspiration instrument. Forward movement of the intraocular lens (IOL) optic may cause 360 degrees of apposition with the capsulorhexis. The resulting "capsulo-pseudophakos" block is usually broken when the anterior chamber is reformed because the haptic angulation displaces the optic away from the capsulorhexis posteriorly. However, if the optic remains sealed against the entire capsulorhexis circumference while the chamber is reformed, the capsulo-pseudophakos block may persist. This is more likely if there is a significant amount of retained viscoelastic material behind the optic. This mechanical block creates the 2 anatomic hallmarks of CBS. First, the optic will remain in a more anterior position than intended, with a resultant myopic shift. Second, fluid and viscoelastic material are unable to escape past this hermetic seal and will remain trapped in the capsular bag behind the optic. Given this etiology, I agree with the authors that "CBS is independent of IOL design and material."

Being aware of this mechanism allows us to observe a temporary state of CBS during the chamber reformation step. Intraoperative reversal and prevention of this unwanted anatomy is straightforward. While reforming the shallow chamber with balanced salt solution (BSS®) injected through a 45-degree #30 cannula, one can nudge and displace the IOL optic posteriorly with the cannula tip. This breaks the capsulorhexis/optic seal and allows the IOL optic to fall back into its intended posterior position. Similar to many others, I first experienced this complication soon after adopting the capsulorhexis technique.[2] Since recognizing the mechanism and learning to prevent it, I have not had a single case of CBS in more than 7000 cases.

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References

1. Durak I, Özbek Z, Ferliel S, et al. Early postoperative capsular block syndrome. J Cataract Refract Surg 2001; 27:555–559
2. Davison JA. Capsular bag distension after endophacoemulsification and posterior chamber intraocular lens implantation. J Cataract Refract Surg 1990; 16:99–108

Reply: We appreciate Dr. Chang's letter. I do agree with Dr. Chang that CBS is iatrogenic and therefore preventable. But I do not agree with the mechanism of CBS proposed by him.

We have seen viscoelastic-like material in the capsular bag on the first postoperative day in all cases. After our article was submitted, Sugiura et al.,[1] using high-performance liquid chromatography, demonstrated in 3 cases with CBS that the main ingredient of the liquid in the capsular bags was sodium hyaluronate. So CBS probably does not occur without retained viscoelastic material in the capsular bag. I wonder whether Dr. Chang has seen a case of CBS without viscoelastic-like material in the capsular bag postoperatively. Otherwise, it is not possible to claim that the etiology of CBS is not retained viscoelastic material. Dr. Chang's success is probably due to meticulous aspiration of all viscoelastic material behind the IOL, not to the manipulations he describes. —*İsmet Durak, MD*

Reference

1. Sugiura T, Miyauchi S, Eguchi S, et al. Analysis of liquid accumulated in the distended capsular bag in early postoperative capsular block syndrome. J Cataract Refract Surg 2000; 26:420–425

Phakonit—Lens Removal Through a 0.9 mm Incision

We congratulate Tsuneoka and coauthors[1] for their interesting article about ultrasound cataract surgery with a 1.4 mm incision. The authors used a 20-gauge sleeveless ultrasound (US) tip that was inserted into a 1.4 mm incision in a post-mortem porcine eye. The infusion was provided through a side port, and nuclear emulsification was performed with the US tip occluded. A hooked infusion cannula with 3 apertures