



BY ALAN S.
CRANDALL, MD

DOUBLE CAPSULOTOMY CAPTURE

Evidence of safety and efficacy is needed for this helpful technique.

In cataract surgery, it is routine to maintain the capsular bag complex, despite knowing that a significant number of patients will later require Nd:YAG laser posterior capsulotomy. Although the posterior capsule itself does not opacify, it acts as a scaffold that allows the migration of lens epithelial cells, leading to what we call *posterior capsular opacification*.

In addition, however, there can be problems with a standard IOL placed in the bag, such as negative dysphotopsia and spontaneous late dislocation of the IOL-bag complex, especially in patients with pseudoexfoliation (PEX) syndrome. There are also patients with medical problems that prevent the use of Nd:YAG laser, such as neurologic conditions or nystagmus.

In pediatric cataract surgery, in order to avoid these and other problems, it is routine to perform a manual posterior capsulorhexis, either alone or combined with anterior vitrectomy. The question today is whether posterior capsulorhexis

should also be routinely performed in adult cataract surgery.

In 1990, both Blumenthal and colleagues¹ and Gimbel² suggested that a posterior continuous circular capsulotomy could and should be performed in patients with a posterior capsular rent during surgery, in patients with a dense plaque on the capsule that cannot be removed, and, of course, in pediatric patients.

Since our publication reporting spontaneous late dislocation of the capsular bag in PEX patients in 2001,³ there have been many publications on this topic describing different techniques to successfully reposition the complex.⁴⁻⁷ However, we have not been able to stem the tide of these dislocations. Multiple techniques can be used to decrease zonular stress, such as performing tangential irrigation and aspiration, gentle phacoemulsification, or

lens epithelial cell removal or using a capsular tension ring.⁸

These may be helpful, but a posterior capsulorhexis followed by bicapsular lens capture with the haptics in the sulcus—also known as *double capsulotomy capture*, or DCC—may also be part of the solution. With the IOL thus placed in Berger space, there should be no dysphotopsia, and the safety of the posterior rhexis has been well established.^{9,10}

**“THE QUESTION TODAY
IS WHETHER POSTERIOR
CAPSULORHEXIS SHOULD ALSO
BE ROUTINELY PERFORMED IN
ADULT CATARACT SURGERY.”**

ONGOING STUDIES

At present, we are looking at this issue prospectively and retrospectively. We are evaluating results in patients who needed posterior rhexis due to unexpected cataract complications, and also prospectively in patients with PEX, to evaluate the potential for early complications. We are using OCT to look for cystoid macular edema and macular thickness changes in patients after DCC.

Of course, it will take years to determine whether the eye is more stable after DCC regarding the issue of late spontaneous dislocation of the IOL-bag complex. If the zonules degrade due to PEX, but the sulcus position of the haptics is stable, we should see

a significant decrease in late subluxations. In the meantime, studies of DCC should continue, and surgeons should learn the technique of DCC. This issue of *CRST* is brimming with good advice from other authors on how to perform and adopt this helpful technique. ■

1. Blumenthal M, Assia E, Neuman D. The round capsulorhexis capsulotomy and the rationale for 11.0 mm diameter IOL. *European Journal of Implant and Refractive Surgery*. 1990;2:15-19.
2. Gimbel HW. Posterior capsule tears using phaco-emulsification: causes, prevention and management. *European Journal of Implant and Refractive Surgery*. 1990;2:63-69.
3. Jehan FS, Marmalis N, Crandall AS. Spontaneous late dislocation of intraocular lens within the capsular bag in pseudoexfoliation patients. *Ophthalmology*. 2001;108:1727-1731.
4. Chan CC, Crandall AS, Ahmed IK. Ab-externo scleral suture loop fixation for posterior chamber intraocular lens decentration: clinical results. *J Cataract Refract Surg*. 2006;32:121-128.
5. Smiddy WE. Dislocated posterior chamber intraocular lens; a new technique of management. *Arch Ophthalmol* 1989;107:1678-1680.
6. Kokame GT, Yamamoto I, Mandel H. Scleral fixation of dislocated posterior chamber intraocular lenses; temporary haptic externalization through a clear

- corneal incision. *J Cataract Refract Surg*. 2004;30:1049-1056.
7. Dorey MW, Condon GP. Management of dislocated lenses. In: Beardsley TL, Colvard M, eds. *Focal Points: Clinical Modules for Ophthalmologists*. American Academy of Ophthalmology. 2009;22(9):910.
8. Crandall AS. Exfoliation syndrome and cataract surgery. *J Glaucoma*. 2018;27(7):S102-104.
9. Galand A, Van Cauwenberge F, Moosavi J. Posterior capsulorhexis in adult eyes with intact and clear capsules. *J Cataract Refract Surg*. 1996;22(4):458-461.
10. Tassignon MJ, De Groot V, Smets RM, et al. Secondary closure of posterior continuous curvilinear capsulorhexis. *J Cataract Refract Surg*. 1996;22:1200-1205.

ALAN S. CRANDALL, MD

- John A. Moran Presidential Professor; John E. and Marva M. Warnock Presidential Endowed Chair; Senior Vice Chair; Director of Glaucoma and Cataract; and Senior Medical Director, Moran Global Outreach Division, John A. Moran Eye Center, University of Utah, Salt Lake City
- alan.crandall@hsc.utah.edu
- Financial disclosure: None acknowledged