The Use of Femtosecond Laser-Assisted Capsulotomy Is Challenging in Patients With Phacomorphic Glaucoma

To the Editor:

Acute phacomorphic glaucoma occurs secondarily to an increased anteroposterior lens thickness that narrows the iridocorneal angle. Optic neuropathy is preventable with early recognition and treatment of the disease, but a sudden rise in intraocular pressure (IOP) can lead to irreversible visual loss in the affected eye.\(^1\,^2\,^3\) We evaluated the efficacy of femtosecond laser–assisted cataract surgery (FLACS) technology using the LensAR laser system (LENSAR Inc., Orlando, FL) in the management of phacomorphic glaucoma in four patients. We used FLACS technology to avoid the risk of radial tear formation, a frequent complication of manual capsulorhexis due to the high intralenticular pressure that occurs in phacomorphic glaucoma.

Four eyes of four women (two 56 years and two 72 years old) who developed acute phacomorphic glaucoma with elevated IOP (60, 54, 51, and 35 mm Hg, respectively), a shallow anterior chamber (depth: 1.37, 2.49, 2.14, and 2.23 mm, respectively), corneal edema, and intumescent cataracts were studied. The diagnosis was confirmed by slit-lamp biomicroscopy or optical coherence tomography (Figures 1A-1B). The lens extraction by FLACS with the LensAR laser system was planned immediately after lowering the IOP by intensive medical glaucoma treatment, Nd:YAG laser peripheral iridotomy, and/or argon laser peripheral iridoplasty. However, although the LensAR laser system completed the suction and docking procedures and the amount of corneal clarity was sufficient, three of the four patients could not undergo FLACS because of the inability to focus the laser beams on the extremely forwardly displaced anterior capsule, which limited the capsulotomy. These three patients were successfully treated with manual capsulorhexis, phacoemulsification, and intraocular lens implantation. Consequently, FLACS could only be performed successfully without any complications in one 56-year-old patient who had the widest anterior chamber depth of 2.49 mm. In this case, a 4.8-mm capsulorhexis and lens fragmentation was performed with the femtosecond laser system, followed by phacoemulsification using the INFINITI Vision System (Alcon Laboratories, Inc., Fort Worth, TX) and posterior chamber intraocular lens implantation (Figure 1C).

A well-known relationship exists between biomicroscopy and phacomorphic glaucoma.\(^3\) Our findings indicate that FLACS could not be performed with the
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LensAR system when the anterior chamber depth was less than 2.49 mm. However, Kránitz et al. performed FLACS successfully by using a LenSx system in a phacomorphic glaucoma case that had an anterior chamber depth of 1.19 mm. The LensAR laser system we used is incapable of evaluating the anterior chamber depth parameter. The other laser systems also have maneuverability that the LensAR laser system lacks. We suggest that the inability to perform capsulotomy with the LensAR laser system could be overcome by changing some of the laser safety settings.

FLACS technology is effective in the management of patients with phacomorphic glaucoma who have adequate anterior chamber depth. Other than anterior chamber depth, other possible causes of FLACS failure include corneal edema, small pupillary size, and the inability of the instrument to focus initially on the posterior capsule when performing a capsulotomy for phacomorphic glaucoma.

REFERENCES


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