Automated capsulotomy device provides safe, consistent results

Pulse technology does not require change, modifications to normal surgical regimen

By ***Cheryl Guttman Krader;*** *Reviewed by Gabriel Quesada, MD*

A DISPOSABLE DEVICE using precision pulse technology (Zepto, Mynosys Cellular Devices) provides a safe and reliable technique for automated anterior capsulotomy in eyes undergoing cataract surgery, according to the findings of a prospective investigation.

Dr. Quesada

The size, consistency, and clinical strength of the capsulotomy created with the device was evaluated in a series of 38 cases performed by three experienced cataract surgeons—Gabriel Quesada, MD, Kevin Waltz, MD, OD, and Vance Thompson, MD—at Clinica Quesada, San Salvador, El Salvador.

DIVING DEEPER

The procedures were performed under topical anesthesia with monitored anesthesia care, and patients were scheduled to return for follow-up at day 1, month 1, month 3, and month 6 after surgery.

A 360° free-floating capsulotomy with a diameter ranging from 5.1 to 5.3 mm was created in all eyes, and the capsulotomies were consistently round and well centered.

No cases of anterior capsular tear occurred during phacoemulsification. Postoperative follow-up showed all capsulotomies remained intact, well centered, and free from phimosis.

"Anterior capsulotomy is a critical step for successful cataract surgery," said Dr. Quesada, medical director, Clinica Quesada. "Our experience—which represents the initial clinical evaluation of precision pulse capsulotomy—indicates that the device provides excellent results, including in challenging cases with very hard or white cataracts, small pupils, and zonular dialysis."

take-home

- **A disposable device for automated anterior capsulotomy that uses precision pulse technology (Zepto, Mynosys Cellular Devices) demonstrated excellent performance in a series of 38 eyes.**

DEVICE FEATURES

The automated capsulotomy device received FDA approval in June 2017. It features a control panel and disposable handpiece that introduces a soft, clear silicone suction cup and nitinol capsulotomy ring. The handpiece tip is passed through a clear corneal incision (≥2.2 mm) into the viscoelastic-filled anterior chamber.

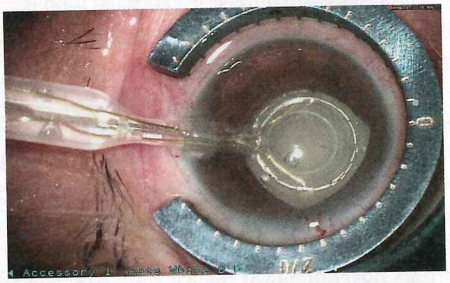
After the capsulotomy ring unfolds, it is centered on top of the capsule or potentially on the visual axis if the surgeon desires. Suction is applied to remove viscoelastic from between the capsulotomy ring and the capsule, bringing the ring and capsule into direct apposition without creating any tension on the lens or zonules. Then, electrical energy is applied and the capsule is cut through water phase transition.

"A complete 360° capsulotomy is created instantaneously using a minimal amount of energy with application of a 4-millisecond pulse train," Dr. Quesada said. "After reversing the suction, viscoelastic is reintroduced to release the device from the capsule, and then it is removed.

"This device is easy to use, and it has no effect on patient flow because it requires no change in the usual surgical routine," he added.

The patients included in the first clinical evaluation of the automated capsulotomy device ranged in age from 49 to 86 years. Twelve of the 38 eyes had a grade 4 (LOCS II) cataract with best-corrected visual acuity of 20/200 or worse. Two eyes had significant pterygium that limited capsulotomy path visualization, three eyes had poor pupil dilation (≤4 mm), and one eye had 6 clock hours of zonular dialysis. ■

RELIABLE CAPSULOTOMY



VIDEO Watch a disposable precision pulse system create a free-floating capsulotomy. *(Video courtesy of Gabriel Quesada, MD)*
Go to **OphthalmologyTimes.com/Capsulotomy**

OT OphthalmologyTimes.com *Online Exclusive*

+ POSITIVE RESULTS FOR SUSTAINED-RELEASE INSERT

A dexamethasone insert met its primary endpoints in a trial investigating its efficacy and safety for treating inflammation and pain after cataract surgery.
Go to OphthalmologyTimes.com/Dexamethasone

+ CATARACT SURGERY WITH SMALL PUPILS

Boris D. Malyugin, MD, PhD, demonstrated the use of techniques for addressing insufficient pupil dilation, including intracameral mydriatic medications.
Go to OphthalmologyTimes.com/SmallPupils

+ PREMIUM IOLS IN CORNEAL DISEASE

Patients with concurrent corneal disease may be candidates for premium IOLs to correct presbyopia and/or astigmatism, but often these individuals need corneal surgery before or after the cataract procedure.
Go to OphthalmologyTimes.com/IOLCornealDisease

GABRIEL QUESADA, MD
E: *gabriel.quesadalarez@gmail.com*

This article was adapted from Dr. Quesada's presentation at the 2017 meeting of the American Society of Cataract and Refractive Surgery. Additional details about the device and the clinical evaluation can be found in a paper published in May 2017 [Waltz K, et al. J Cataract Refract Surg. 2017;43:606-614]. Dr. Quesada has received research support from Mynosys Cellular Devices, and Dr. Waltz and Dr. Thompson are consultants to Mynosys.