The Annual ACES/SEE Caribbean Eye Meeting delves into hot topics for anterior segment surgeons and health care professionals.

From February 2 to 5, 2024, the upcoming Caribbean Eye Meeting promises to be as engaging as previous years. This one-of-a-kind meeting, held at the Kempinski Hotel Cancun, will gather well-known leaders in ophthalmology to discuss important topics in eye care. The American College of Eye Surgeons (ACES) and the American Board of Eye Surgery (ABES) were started in 1989, with ACES as the educational arm. Together, ACES, ABES, and SEE share a commitment to the belief that the primary focus for today's ophthalmologist must and should be to promote, encourage, and enhance quality ophthalmic surgical care for the benefit of all patients.

ENHANCING SURGICAL PRECISION WITH POLYPROPYLENE SOLUTIONS | Strategic applications for complex cases.

By Cathleen M. McCabe, MD

Precision is paramount in ocular surgery. Fortunately, innovative techniques and tools continuously emerge to address challenging cases. A recent advancement is the application of polypropylene solutions to reduce the invasiveness of surgery in intricate surgical scenarios like zonulopathy.

ADVANCING TECHNIQUES

The pioneering work by Yamane[1] uncovered the advantages of polypropylene solutions for complex cases. The groundbreaking work of Canabrava in 2018, however, first spotlighted the application of capsular tension segments (CTSs) for managing zonulopathy.[2] Canabrava's original technique involved the use of 5-0 polypropylene sutures. The technique has since evolved, revolutionizing the field and offering newfound avenues for surgical success.

A recent case highlights the usefulness of polypropylene sutures. A woman with a traumatic injury to the eye presented for cataract surgery. Using advanced imaging techniques including anterior segment OCT, the extent of the zonulopathy was assessed before surgery. A flange was created with low temperature cautery in a segment of 5-0 polypropylene suture that was subsequently threaded through a CTS. Notably, these steps were completed before nucleus and cortex extraction to ensure optimal support throughout surgery.

The area of maximal zonulopathy was marked and a bent 27-gauge needle was inserted through conjunctiva and sclera 2 mm posterior to the limbus and then into the sulcus. The free end of the polypropylene suture was then threaded into the lumen of the needle with microforceps. It was strategically placed early in the procedure to enhance surgical stability, minimize the need for multiple capsular hooks, and ensure optimal lens support throughout the procedure. Although CTSs are typically introduced later in the procedure, earlier integration can redefine procedural dynamics and streamline surgery. This new development warrants a reevaluation of procedural norms.

The patient's poorly supported lens received a remarkable transformation, emphasizing the technique's efficacy in tackling challenging cases.

A COMPREHENSIVE APPROACH

The multifaceted nature of zonulopathy often necessitates a comprehensive surgical approach. Prioritizing anterior removal of vitreous and using an anterior chamber maintainer sets the stage for a successful procedure.

When vitreous is present in the anterior chamber, meticulous management is crucial. Polypropylene sutures and CTSs can be used to add a layer of precision. A notable innovation in this situation involves externalizing the needle through a paracentesis, which enables simplified suture loading and enhances intraoperative stability.

Achieving a delicate balance between tension adjustment and stabilization of the IOL/capsular bag complex is crucial. It is important to slowly externalize suture on one side and then the other a small amount at a time, watching for tilt and decentration, with the endpoint when the IOL is planar and just behind the iris. The introduction of polypropylene solutions early in the procedure streamlines surgery and simplifies otherwise intricate steps, making a difficult case more predictable and straightforward.

CONCLUSION

Polypropylene solutions have emerged as game-changers in complex cataract surgery in the presence of zonulopathy. The case presented here illustrates two innovations in this technique. First, strategic integration of CTS implantation early in the procedure provides added zonular support and takes the place of capsular hooks in the quadrant supported by the CTS. It also sets the stage for the permanent fixation of the lens early in the procedure when the view and surgeon's energy are optimal. Second, the externalization of a long needle allows stabilization of the globe during this portion of the procedure and provides easier access to the needle lumen when introducing the polypropylene suture. These innovations serve as a testament to the constant evolution of ophthalmic techniques and underline the potential for enhancing safety, minimizing invasiveness, and achieving remarkable success in the most intricate cases. ■

1. Yamane S. Transconjunctival intrascleral IOL fixation with double-needle technique. Video presented at: ASCRS/ASOA Annual Meeting; May 6-10, 2016; New Orleans.
2. Canabrava S, Andrade N Jr, Henriques PR. Scleral fixation of a 4-eyelet foldable intraocular lens in patients with aphakia using a 4-flanged technique. *J Cataract Refract Surg.* 2021;47(2):265-269.

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