Bimanual microincisional surgery affords benefits in diverse situations

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BIMANUAL microincisional phacoemulsification instrumentation and techniques are proving valuable in the management of a variety of challenging situations, according to I. Howard Fine, MD.

Dr. Fine will demonstrate how a bimanual microincision approach enabled completion of cases complicated by zonular weakness or diastasis and recurrent microphthisis in a presentation at the XXII Congress of the ESCRS.

He will also discuss using bimanual microincision phaco as a tool for optimizing the safety of lens removal in eyes undergoing refractive lens exchange.

"Bimanual microincision surgery offers improved fluidics along with enhanced chamber stability and it greatly minimizes intraincision outflow so that it approaches the ideal scenario of operating in a completely closed system..." said Dr. Fine, clinical associate professor of ophthalmology, Casey Eye Institute, Oregon Health Sciences University, Eugene.

In any eye where there is zonular weakness, capsulorhexis creation can be performed more safely, and accurately using the microincision capsulorhexis forceps designed for placement through a 0.5-mm incision.

Since no viscoelastic leaves the eye, there are no fluctuations in the anterior chamber.

Consequently, the capsular opening can be made very precisely without contorting the lens and causing stress on the remaining zonular fibers.

"There is a learning curve for this technique because the surgeon has to use the fingers instead of the wrist. However, the fact is the fingers are much more skilled, and I have been amazed at how precise and round the capsulorhexis is when made using this approach," Dr. Fine said.

Two microincision capsulorhexis forceps are available on the market— the Fine-Hofmann forceps (Microsurgical Technology, and the Fine-Keefe forceps (ASCRS).

Cataract removal has also been facilitated in eyes with zonular diastasis using bimanual microincision techniques and technology, Dr. Fine said.

He illustrated that point with two cases, the first featuring a subluxed, posteriorly prolapsed lens associated with torn zonules in all but the inferior quadrants.

In that eye, Dr. Fine first used viscoelastic to elevate the lens and capsule into the anterior chamber by placing the Vivascan cannula through one microincision and an irrigating handpiece through the other. He then slightly relaxed the pupil and performed bimanual phacoemulsification to remove the cataract.

Next, he performed vitrectomy using a microincision high-speed vitrector, and introduced a foldable IOL through a 2.5-mm incision created between the two bimanual microincisions.

To implant the lens, he placed the haptic through the pupil and sutured it to the iris while leaving the optic in the anterior chamber. He then gently nudged the optic behind the pupil.

In another case of a patient who had suffered traumatic zonular dialysis superiorly, the versatility and control afforded by bimanual microincision phaco enabled Dr. Fine to pull the anterior chamber structures toward, versus away from, the area of diastasis in order to minimize stress on the residual zonular fibers. In that case, the zonular diastasis was located to the left and would have been stressed when working temporarily with his right hand holding the phaco tip and the aspirator held in his left to resolve that situation, Dr. Fine shed simplified instruments between his two hands.

"As in all cases of zonular weakness, I began by performing a capsulorhexis using a microincision technique, and then in this case I placed a capsular tension ring and hydro-expressed the lens out of the bag, however, as I began phaco and as soon as the aspiration came on, all of the intracapsular contents would be pulled toward the phaco tip in my right hand. Faced with the potential for unloading the attached zonules that were located toward the left, I instead used the phaco tip in my left hand and aspirator in my right so the intracapsular contents would move in the direction of the zonular diastasis and allow them to remain relaxed," he explained.

He could identify its sites of origin and use was field conserved to achieve haemostasis.

Dr. Fine also cited the efficiency and safety of bimanual microincision surgery for refractive lens exchange in eyes with a very soft nucleus. In that situation, his technique involved creation of two microincisions that are almost at a right angle to each other—the left microincision is made almost horizontally and the microincision throughout the entire procedure further enhances safety since it minimizes the risk of transtoming the vitreous face and causing cystoid macular edema.

"While it may seem counterintuitive, it actually more difficult to perform coaxial phacoemulsification on a soft nucleus compared with a 3 or 4 nuclear sclerosis cataract because the soft nucleus cannot be chopped and does not believe predictably," he said.