OZIL IP to Extract a White Cataract

Even with a white cataract, Intelligent Phaco prevents the phaco tip from clogging.

To watch a video of this case, visit CRSTodayEurope.com and enter the keyword "RTBCrema" in the search bar.

BY ARMANDO CREMA, MD

I have used OZil IP torsional ultrasound technology on the INFINITI Vision System (Alcon Laboratories, Inc., Fort Worth, Texas) for almost 3 years. Previously, I used the INFINITI Vision System with longitudinal ultrasound and NeoSoniX technology. I switched to the torsional platform because I was impressed by how little the OZil technology caused nuclear fragments to chatter at the phaco tip.

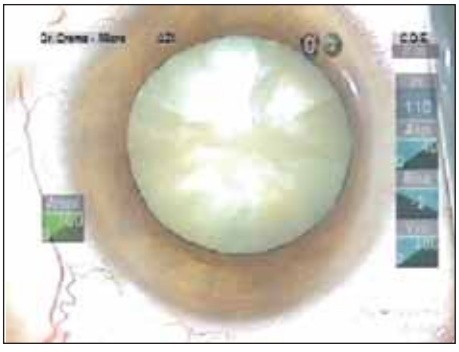

Figure 1. The patient presented with a white cataract in the left eye.

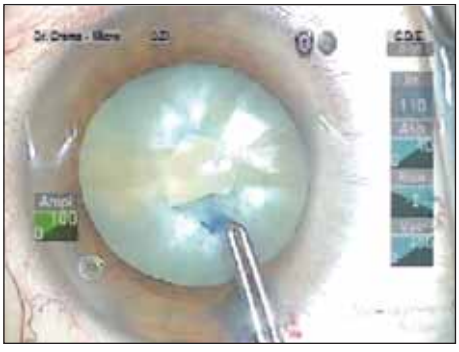

Figure 2. The author has instilled DisCoVisc OVD and creates a curvilinear capsulorhexis.

The OZil torsional ultrasound technology improved my surgery by enabling me to use lower vacuum and aspiration settings than I could with longitudinal phacoemulsification, but with greater efficiency. Because of the absence of chatter at the OZil phaco tip, I have found that low aspiration settings with OZil torsional ultrasound work more efficiently than the high settings I used with longitudinal ultrasound. These lower aspiration settings in turn reduce intraocular turbulence during surgery. With OZil IP torsional ultrasound, I routinely perform microcoaxial surgery and see a greater number of clear corneas on the first postoperative day.

TECHNIQUE ADJUSTMENTS IMPROVED PERFORMANCE

When I first adopted the OZil torsional technology and began using the KELMAN Mini Flared 30º phaco tip (Alcon Laboratories, Inc.), I had difficulty with the tip occluding. Therefore, I combined torsional with longitudinal ultrasound in most of my initial surgeries. When I switched to a 45º KELMAN Mini Flared phaco tip, I experienced almost no clogging, and I subsequently began using 100% torsional ultrasound in every case. I learned that if I used less aspiration, torsional ultrasound became more effective, so I lowered all my aspiration settings.

My standard cataract technique is microcoaxial phacoemulsification through a 2.2-mm incision and a vertical chop disassembly technique using the 45º KELMAN Mini Flared tip. Again, it is important to use low aspiration settings with OZil torsional ultrasound so that the OZil tip's shearing motion has ample room to cleave fragments off of the nucleus. The OZil tip works most efficiently when it has some room to oscillate. In contrast to longitudinal ultrasound, when torsional ultrasound is operating at between 0 and 20%, the surgeon cannot hear any sound. Therefore, it is important to set the system's sound to foot position 3 in order to avoid complications when using low torsional energy during surgery.

TABLE 1. OZIL IP PARAMETERS

Procedure Step	Chop	Fragment Removal
Vacuum Threshold % of Vacuum Limit	-	95
Phaco Pulse On Time Ms	-	20
Longitudinal/ Torsional Ratio	-	0.7

TABLE 2. CASE PARAMETERS

Procedure Step	Chop	Fragment Removal
Bottle Height cm H_2O	110	110
Energy Amplitude %	Torsional, Linear Continuous 30/80	Torsional, Linear Continuous 40/80
Vacuum mm Hg	Linear 0 to 400	Linear 0 to 220
Aspiration cc/min	Linear 0 to 40	Linear 0 to 30
Dynamic Rise	-2	+2
OZil IP	Off	On

Figure 3. The author begins fragmenting the nucleus using a vertical chop technique and 100% torsional ultrasound.

Figure 4. The IP feature (top left overlay) activated only a few times with this dense cataract.

OZIL IP

I have used the Intelligent Phaco (IP) technology with OZil torsional ultrasound since August 2009. I keep it turned on during all steps of nuclear emulsification at a setting of 95% of vacuum limit, a phaco pulse On time of 20 ms, and a longitudinal/torsional ratio of 0.7 (Table 1). With OZil IP, I can emulsify most nuclear fragments using 250 mm Hg of vacuum and a flow rate of 25 cc/min (rise time in +2), and a bottle height set at 90 cm. OZil IP gives me the confidence to use microcoaxial phacoemulsfication even in very hard cataracts.

CASE EXAMPLE: WHITE CATARACT

Presentation

The corresponding video shows a case of a white cataract extracted with OZil IP torsional ultrasound. A 68-year-old female was referred to me for cataract surgery. She presented with light perception OS (Figure 1). I planned to remove the cataract using OZil IP torsional ultrasound and to implant an aspheric AcrySof IQ IOL (SN60WF; Alcon Laboratories, Inc.).

Initial Steps

After making a sideport incision, I created a 2.2-mm temporal clear corneal incision and stained the anterior capsule with trypan blue. Next, I performed a two-step capsulorhexis. First, I instilled DisCoVisc OVD (Alcon Laboratories, Inc.), which I find is perfect for pushing the anterior capsule backward in order to lessen the risk of a peripheral tear. Then, I made a small opening in the anterior capsule and continuously enlarged it in a "snail" shape to approximately 5 mm (Figure 2).

Emulsification

After performing hydrodissection, I was able to completely rotate the nucleus. Then, I commenced disassembling the nucleus with a vertical chop technique, using the 45° Mini Flared KELMAN phaco tip and 100% continuous, linear torsional ultrasound (Figure 3). My aspiration flow rate was 0 to 30 cc/min linear (rise time -2), and my vacuum was 0 to 400 mm Hg linear for chopping. For fragment removal, I changed the rise time to +2 and turned on the OZil IP feature to activate at 95% vacuum limit (Table 2). After chopping the nucleus in many pieces using only linear torsional ultrasound, I was able to efficiently remove the fragments with OZil IP (Figure 4). The IP technology effectively prevented the phaco tip from clogging. Even with this hard cataract, my cumulative dispersed energy was only 18.01.

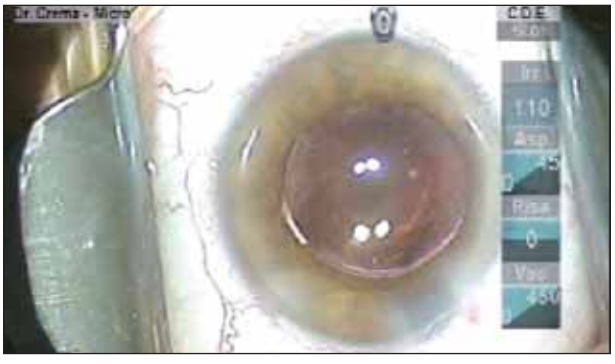

Figure 5. The author implants the AcrySof IQ IOL in the capsular bag at the end of the surgery.

CONCLUSION

After I finished extracting the nucleus and aspirating the cortical material, I instilled more DisCoVisc OVD before implanting the AcrySof IQ IOL in the capsular bag using the D cartridge (Alcon Laboratories, Inc.; Figure 5). On the first postoperative day, the patient's cornea was clear, and the eye's UCVA was 20/25-.

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