What you learn after performing 10,000 cataracts

BY RAYMOND RADFORD

What do you do when the anterior chamber shallows, or the zonules give way? How do you handle the stubborn epinuclear plate? *Raymond Radford* shares the benefit of his experience when dealing with tricky cataract surgery.

Firstly, you realise you can still have difficult cases, things can and do go wrong, both intraoperatively and postoperatively. You can't control everything about the course of surgery or the recovery. Some anatomy is just too fragile, meaning despite your best and most delicate and dextrous efforts capsule still tear, zones give way and intraocular lenses dislocate. You have no idea what happens when your patient goes home in terms of activity, eye rubbing, trauma or, indeed, what they do with their drops.

The second thing worth stating is anyone can do a routine cataract phacoemulsification routinely. By definition it was routine. Case selection as a trainee can easily lead to the early delusion that "I am the best, most natural cataract surgeon ever" syndrome developing, having had a good run in your first 50 cases. Not that confidence is not important. A good surgeon has to believe he or she IS a good surgeon. It becomes dangerous if and when complications do occur surgeons don't resort to blaming the machine, the hand piece, the scrub nurse, shouting in frustration at the nearest unfortunate person or inanimate object.

You were operating when things became unplanned, so you the responsibility, reflect and try and learn how not to make that error again. It is also worth reflecting on not only the technical detail but how you spoke with the patient during and after the operation, aiming to learn how your behaviour affected them, what did they hear and sense, did you measure them, have you allayed their future uncertainty, have you left them with a clear plan of action to resolve the complication or managed their expectation of a poor outcome?

All that said, modern small incision cataract surgery is a delight to perform and has superb results. Audited outcomes typically show 85% unaided driving vision with complications <2% for consultant level surgeons and less than 1% for those with more years of experience.

Raymond Radford

Practise makes perfect. Manners maketh man... Reflection should make you wiser...

So I suppose you want specifics, as Tyrion Lannister says during his confession to Lysa in *Game of Thrones*. Let's look at some specific things I have learnt through reflection on my own surgery. When learning cataract surgery, and especially as a consultant becoming exposed to more challenging cases, it is easy and natural to find yourself focusing very intently on the task at hand, such as initially cracking that hard nucleus, or completing a continuous curvilinear capsulorrhexis (CCC) on a white lens. Such is your intense focus, it can deter you from realising that things are already becoming unstable, such as the anterior chamber shallowing, or the zonules giving way. It may be that you haven't yet realised it's the next part that is more crucial, and perhaps doing that first might help.

For example, really struggling to chop a hard nucleus, especially the last quadrant or piece, means the typically large floppy capsular bag it's in can collapse and you phaco or chop a big hole in it. Having done this several times I sat and reflected. Having almost removed a dense cataract to find yourself cursing and asking for the vitrectomy cutter is frustrating for you as the surgeon but potentially blinding for the unfortunate patient. So what is the solution? Put the intraocular lens implant in at the

first opportunity you feel you can. Fill the capsular bag under the hard nucleus with viscoelastic and place the IOL in the bag. There is often little or no soft lens matter to remove at the end of a hard mature cataract removal so placing the IOL early won't hinder you.

Whilst we are on hard nuclear cataract surgery, the other big concern (apart from, can I get this out?) is, will the cornea look like a frosted bathroom window after a hard frost in January as you step out of a hot steamy shower? Keep focused on the surgery now...

Yes that's want the patient wants. Focus, clarity. Only our VR colleagues count perception of light (PL) and a flat retina as 100% success (joking!); 100% success is of course when the patient doesn't come back! Or want to ever see you again. Ouch. I really am joking. Seeing happy visually restored patients is a delight and reward. It is what makes being an eye surgeon so rewarding.

Back to keeping corneas clear. It is the same principle as before – don't get so focused on the hard nucleus phacoemulisification removal and forget the corneal window until suddenly you can't see through it no matter how much viscoelastic you now spread on and under it.

Too late. Has the penny dropped? You should keep injecting your viscoelastic regularly after every crack, phaco removal of a piece, or maneuover. You might stop and inject five to eight times. Using a dispersive agent under the cornea and cohesive beneath that and around the nucleus as required. A little and often is better than one big dollop at the start. You can't use too much. As you operate, viscoelastic will leak from the wound, and up your phaco instrument.

Next learning point is how to handle the stubborn epinuclear plate. Following hydrodissection you will often find you have also hydrodelineated, so you have a separate nucleus and epinuclear plate. Often you may see the golden ring reflex. Don't be tempted to invert the phaco bevil and simply aspirate the plate up. Yes it can work, and yes I did that as an over confident young registrar, until I twice made a hole straight through the posterior capsule, once while my consultant trainer was watching. Humble pie was had, I never did it again. Simply and safely continue to gently hydrodissect again causing the epinuclear plate to collapse forward into the anterior chamber. You can then safely aspirate with the phaco tip (put more viscoelastic if desired or indicated as in shallow chambers).

Additional hydrodissection with a good hydrodissection cannula is your friend. Stubborn epinuclear plate hydrodissect, stubborn soft lens material (SLM) hydrodissect, nucleus not rotating hydrodissect, posterior capsular plaque – careful, gentle, aimed hydrodissect! I have before used a roughened aspiration tip and gently polished straight through the posterior capsule and I aspirated on calcific stubborn SLM only to watch the zones give up. The reflective learning is quite clear and somewhat repetitive – hydrodissect more! You really can't do a lot wrong with a gentle squirt of balance salt solution (BSS). Mind you be careful and always make sure the cannula is screwed onto the syringe properly to avoid firing it off.

My next tip is regarding the placement of modern flexible pliable one piece IOLS. It is galling to perform a beautiful lens removal, gaze upon the pristine clear bag and bright red reflex and then push in an IOL, only to see it sink or displace the bag. Most of the lenses have a subtle way of placing optimally. Most importantly, they don't require rotating.

They also don't need to be forced into the bag in one movement. The haptic / optic junctions are very flexible. Gentle downward pressure at the junction with the viscoelastic cannula or with the aspiration tip will allow you to ballot the haptic into the bag. You can see the haptic edge sweep down past the CCC edge into the capsular bag, gently and easily. With this technique you can avoid the aforementioned issues.

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