

Viscoadaptive Devices and Modified Phaco Parameters in IFIS: an Update

Complicated cases can be simplified by adding OVDs to existing techniques.

BY DOUGLAS D. KOCH, MD

Several excellent concepts and surgical approaches have been devised for managing intraoperative floppy iris syndrome (IFIS) in patients who are taking or have taken tamsulosin (Flomax; Boehringer Ingelheim Pharmaceuticals, Inc., Ridgefield, CT) for benign prostatic hypertrophy. I have operated on approximately 20 eyes with IFIS in the past year and have developed a modified technique that safely supports the iris during phacoemulsification without iris hooks. I combine a “moderate motion” phaco technique with the use of ophthalmic viscosurgical devices (OVDs) such as Healon 5 (Advanced Medical Optics, Inc., Santa Ana, CA) and Duovisc (Provisc and Viscoat; Alcon Laboratories, Inc., Fort Worth, TX). My approach is an extension of the wonderful low-flow concept that Robert Osher, MD, of Cincinnati introduced many years ago. I use higher settings than Dr. Osher originally proposed, however, and thus may move through the procedure more efficiently and quickly and use less phaco power than I might need with lower settings.

TECHNIQUE

I begin every case by injecting a topical intracameral anesthetic, making the incision, and then injecting the OVD into the anterior chamber. If the pupil's size is

normal, I begin with a soft shell technique using a combination of Viscoat and Provisc (as Duovisc). For small pupils, I inject Healon 5. This OVD does an excellent job of dilating pupils affected by IFIS, because the iris tissue has little resistance to the mechanical force that Healon 5 exerts. Equally valuable is the way in which it tamponades the iris. The iris acts much more normally during phacoemulsification once this OVD is in place.

When operating on eyes into which I initially injected Duovisc, I first evaluate the iris' behavior during the capsulorhexis and hydrodissection. If I do not see any signs of IFIS, I continue with the soft shell approach.

If I observe signs of IFIS such as a floppy iris or pupillary constriction, however, I inject Healon 5 centrally and over the surface of the iris. The OVD dilates the pupil and enables me to proceed with phacoemulsification. At this stage in the procedure, it is essential to use settings that are low enough to retain the Healon 5 in the eye. I have found that, if I keep my flow rate at approximately 20mL/min and my vacuum level below 350mmHg, the Healon 5 almost always remains in the eye.

Managing IFIS cases with Healon 5 requires modifying one's phaco technique. For a surgeon who relies upon vacuum to pull forward and extract nuclear material, the

operation can be more tedious. I happen to be comfortable using a modified stop-and-chop technique that relies on mechanical nuclear disassembly. After splitting the nucleus, I mechanically break off pieces using little or no vacuum. I do so by placing the horizontal chopper peripheral to the equator of the lens, positioning the phaco tip deep against the wall of the heminucleus to provide counter pressure, and then simply cleaving off fragments mechanically. I find it useful to leave the chopper in the split to hold adjacent nuclear material away as I use vacuum and phacoemulsification to extract the first nuclear fragment.

In most cases, enough of the OVD remains in the eye to control the iris during emulsification. However, if the pupil starts to constrict, I simply re-inject Healon 5 to redilate the pupil.

Because Healon 5 is quickly aspirated from the eye by higher flow and vacuum, I sometimes inject the Viscoat component of Duovisc into the angle of the anterior chamber before beginning I/A. This precaution tamponades the peripheral iris and minimizes or eliminates the iris' tendency to prolapse toward the incisions. Viscoat usually does not prevent the pupil from constricting, but that does not present a problem. Because I use a bimanual technique in eyes with IFIS, I can comfortably work through a pupil as small as 3mm to remove the cortical material.

At this point in the procedure, I redilate the pupil and inflate the capsular bag by injecting more Healon 5. I then insert the IOL and place the coaxial or bimanual aspirating tip beneath it in order to remove the OVD entirely.

It is during those last moments of I/A and occasionally during the final removal of the Healon 5 that the floppy iris may billow. Keeping the bottle's height at a reasonable level and moving expeditiously will avoid problems.

INCORPORATING OVDs INTO CATARACT SURGERY

I recommend that surgeons new to using a viscoadaptive OVD begin by employing it in routine cases in order to become acquainted with its intraoperative characteristics. Some tips for using Healon 5 during phacoemulsification follow.

Capsulorhexis

Because of the resistance created by the remarkable viscosity of Healon 5, I forego my usual technique of creating the capsulorhexis with a bent needle. Specifically, I find that Healon 5 makes it harder to fold the capsule over and control it using a bent needle. For

that reason, I typically start the capsulorhexis with a bent needle and then complete it with a forceps.

Hydrodissection

During hydrodissection, one must ensure that there is a path for outflow of the injected fluid from the eye. Healon 5 can block fluid egress, theoretically increasing the risk of blowing out the posterior capsule. As I enter the anterior chamber with my cannula, I move it around a bit to create a path for the fluid to escape. I inject the balanced salt solution more slowly and in smaller quantities than normal and ensure that there is not any unusual distension of the anterior chamber itself.

OVD's Removal

I can easily visualize the Healon 5 and thus ensure its complete removal. Moreover, the OVD has great followability at high flow and vacuum rates. Occasionally, a fragment of the OVD is chopped off or becomes isolated. More typically, however, one can extract all of the Healon 5 at once upon initiating its removal.

The critical point is to remove all the Healon 5 from beneath the IOL. Actually, regardless of what OVD I use, I always place my aspiration tip beneath the IOL at the end of the case to ensure that I do not leave any viscoelastic in the capsular bag.

CLOSING THOUGHTS

In complicated cases of IFIS, I have found that the combination of Healon 5, Viscoat, modified phaco parameters, and bimanual I/A enables me to remove cataracts safely and comfortably and to prevent injury to the iris. New OVDs such as Discovisc (Alcon Laboratories, Inc.) may also prove useful in these cases. It is easy to learn these techniques through practice in everyday cases. I routinely teach them to my residents so that they can effectively manage eyes with IFIS. The availability of OVDs with different characteristics greatly enhances our ability to handle these difficult cases. ■

This article is an update of a piece by Dr. Koch that originally appeared in the November/December 2005 issue.

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