EyeWorld
The News Magazine of the American Society of Cataract & Refractive Surgery

CATARACT / IOL

Perspectives in Lens & IOL Surgery
Surgeons report—a new small pupil syndrome caused by Flomax

by David F. Chang M.D. and John R. Campbell M.D.

This special edition of Perspectives in Lens & IOL Surgery brings you news only available in EyeWorld. I am confident that when you read this column, you will find it offers pearls that will help you and your colleagues better confront the challenge of intra-operative floppy irides during cataract surgery.

The idea for this column developed a few months ago when John R. Campbell (M.D., San Rafael, Calif.) observed me in surgery.

The first two cases he observed were characterized by extremely intractable small pupils associated with intra-operative floppiness. Dr. Campbell commented that he suspected that both of these male patients took the prescription drug Flomax (tamsulosin

Consider this scenario: As you begin cataract surgery, you notice that the patient's pupil is poorly dilated.

You perform your usual method of mechanical pupil stretching, perhaps adding partial thickness sphincterotomies. This affords a large enough pupil to perform a capsulorhexis.

However, as phaco commences, you notice a fluttering and billowing of the iris, which surprisingly starts to prolapse toward the phaco and side-port incisions. The pupil progressively constricts until you are now attempting to complete phaco through a 2–3 mm pupil. Visibility is poor, and the risk for posterior capsule rupture is increased.

Our suspicion is that you have probably encountered such a case.

Having found no such description in the peer-reviewed literature, we have named this condition the intra-operative floppy iris syndrome (IFIS). It is characterized by repeated incisional prolapse of a floppy iris, causing progressive intra-operative miosis that is not prevented by sphincterotomies and mechanical pupil stretching. The pupil often dilates poorly pre-operatively.

Commencing bimanual MICS in a Flomax patient with a well dilated pupil.

Pupil constriction accompanies iris billowing and prolapse to 1.2 mm phaco incision.

Progressive intraoperative miosis with prolapse to both 1.2 mm incisions.

Poor pre-operative dilation

Study particulars

We have just completed both a retrospective and a prospective study of IFIS, the results of which have been submitted for publication and will be reported at the next ASCRS•ASOA symposium and congress (April 15–20, 2005, Washington, D.C.).

In these two series of more than 1600 combined patients, we found overwhelming evidence that IFIS is caused by tamsulosin hydrochloride (Flomax, Boehringer Ingelheim GmbH, Germany), a systemic alpha-1 antagonist medication. This drug relaxes the smooth muscle in the bladder neck and

hydrochloride, Boehringer Ingelheim GmbH, Germany). I asked the patients and, indeed, each answered 'yes.'

Dr. Campbell indicated that a retrospective review in his surgery center discovered a link between this medication and intra-operative floppy irides during cataract surgery.

Subsequently, Dr. Campbell and David Chang (M.D., University of California, San Francisco) conducted a major study of this phenomenon. They generously agreed to share their findings with EyeWorld.

Dr. Chang, as most readers of this column know, is a leader in cataract surgery technology, techniques, and teaching. He is a terrific source of information and inspiration to practicing physicians and has recently been named to the Cataract Clinical Committee of the American Society of Cataract and Refractive Surgery.

When you read this, I'm certain you'll agree the research by Drs.

prostate, improving urinary flow in patients with symptomatic benign prostatic hypertrophy (BPH).

Flomax is highly selective for the alpha-1A receptor subtype that predominates in the prostate. It is therefore more uroselective compared with other alpha-1 blockers for BPH, such as Hytrin (terazosin hydrochloride, Abbott Laboratories, Abbott Park, Ill.) and Cardura (doxazosin mesylate, Pfizer, New York). For this reason, it is currently the most commonly prescribed medication for BPH. Interestingly, we did not find that Hytrin or Cardura caused IFIS.

Our review of the pharmacologic literature suggests that the same alpha-1A receptor subtype is also present in the iris dilator smooth muscle.

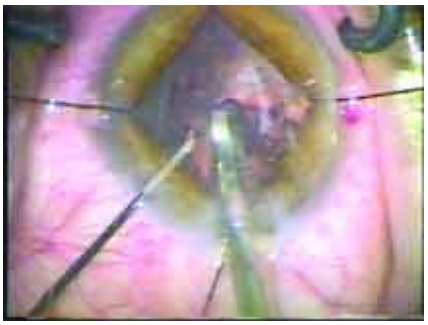
We postulate that prolonged pharmacologic blockade results in loss of normal iris dilator smooth muscle tone. This deficient tone produces the floppy iris behavior caused by normal intraocular fluid currents during surgery.

Clinical implications

There are several important clinical implications of this association. First, pre-operatively, male patients should be questioned about Flomax use, particularly if the pupil dilates poorly. Because of its long half-life, we advise temporarily stopping this medication for two weeks before cataract surgery. In our experience, we found that this improves but does not eliminate the floppy behavior of the iris. This suggests a more lasting effect of Flomax on the iris dilator smooth muscle.

With respect to surgical technique, one should pay particular attention to proper incision construction, and avoiding excessive injection of an ophthalmic visco-device or hydrodissection fluid.

despite discontinuing Flomax for 2 weeks.



Iris retractors maintain adequate pupil size. Diamond configuration improves sub-incisional access to epinucleus. Note iris prolapse to side port incision.

Following IOL insertion and retractor removal, pupil billows, prolapses, and constricts during removal of viscoelastic.

Strong tendency to prolapse despite stopping Flomax preoperatively and using iris hooks.

Source: David F. Chang, M.D.

Chang and Campbell provides a valuable contribution to cataract surgery.

I. Howard Fine, M.D.
Column Editor

We strongly recommend the use of iris hooks or an iris expansion ring to maintain an adequate surgical pupil diameter. In general, these measures are less commonly used for small pupil management because of the additional surgical time and cost involved.1 They are also difficult to insert without ensnaring the capsulorhexis once the latter has been completed. Therefore, anticipation of IFIS allows the surgeon to reconsider their usual methods of small pupil management in favor of self-retaining pupil expansion devices inserted prior to capsulorhexis initiation. If disposable iris retractors are used, we favor the diamond configuration recommended by Oetting and Omphroy.2 Finally, we have tried bimanual microincisional phaco in these IFIS eyes, expecting that the tighter incisions might prevent iris prolapse. If the pupil is reasonably well dilated, or if iris hooks are used, the ability to keep the irrigation flow more consistently anterior to the iris plane seems to reduce iris billowing and prolapse. However, if the pupil is small, we found that billowing and prolapse still occur, even through the tighter 1.2 mm micro-incisions.

In conclusion, IFIS is a newly described small-pupil syndrome caused by a medication that is commonly used in the elderly male population. Because of the higher risk for posterior capsule rupture and iris trauma associated with IFIS cases, we believe that recognizing and anticipating these cases will be important in enabling surgeons to reduce the complication rate.

Editors' note*: The authors have no financial interest in any products mentioned.*

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