Intra-operative floppy iris syndrome for briefly browse

Burak Turgut*

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Intraoperative floppy iris syndrome (IFIS) has been described firstly in 2005 by Chang et al. as a triad of experienced signs associated with tamsulosin during cataract surgery including billowing/fluttering of a flaccid iris stroma in normal anterior camera irrigation current, the floppy iris tends to catch the phacoemulsification or irrigation-aspiration tip or to prolapse toward the phaco- and site-port incisions, and progressive pupil constriction [1]. IFIS has been classified as severe in which all signs of its triad are present, moderate in which billowing and pupillary constriction are observed, and mild in which only a fluttering iris is present [1-4].

IFIS is associated the use of systemic alpha-1 (α-1) adrenergic receptor (AR) antagonists, especially tamsulosin, and others such as alfuzosin, doxazosin, terazosin, naftopidil, silodosin, or labetalol. IFIS increases the risk of some intraoperative and postoperative complications such as iris trauma, zonulolysis, posterior capsule rupture, vitreous loss, intraocular pressure elevation and cystoid macular edema. Risk factors for IFIS are hypertension, male sex, rivastigmine, benzodiazepines, quetiapine, 5-alpha reductase inhibitors including dutasteride and finasteride, short axial length and antipsychotic drugs [3-6]. As α-1 AR antagonists are also prescribed for the female patients with lower urinary tract symptoms and arterial hypertension, IFIS can also occur in women. Recent studies reported that IFIS in patients started on tamsulosin often occurs in 9-36 months. However, IFIS may occur even with the usage of 2 days of associated drugs [3-6]. It has been reported that IFIS might occur even in the patients in which tamsulosin was ceased in two years prior to cataract surgery. The pathogenesis of IFIS has not been clearly understood. However, it is considered that the tone loss and disuse atrophy of dilator pupillary muscle due to constant α-1 AR blockade; a possible additional α-receptor, the 1L subtype which might mediate iris dilation affected by tamsulosin; the affection of other non-adrenergic receptors such as dopaminergic and serotonergic receptors; the drug-melanin interaction and dilator muscle atrophy due to chronic topical use of bunazosin which is a medication for the treatment of glaucoma might play role in the pathogenesis [1-8].

Following recommendations should be considered to reduce possible difficulties and complications due to IFIS and to make easy and secure, surgery in possibly IFIS cases [7-12]:

1. The surgeon should question the patient for the past and current medical history, the presence of benign prostate hyperplasia in males and the presence of the lower urinary tract symptoms and hypertension in both sexes.

2. The surgeon should predict the risk for the development of IFIS. If the amount of pupillary dilation following my driatic drop use is less than 6 mm, the development of severe IFIS is higher.

3. Although preoperative discontinuation for 2-8 weeks prior to surgery of the drugs associated with IFIS may result in a larger pupil size at the beginning of the operation, this cannot often prevent IFIS because the duration of the action or withdrawal period of especially tamsulosin is longer than estimated and it is an irreversible antagonist of α-1 ARs. Additionally, IFIS might occur even in the patients in which tamsulosin was ceased in two years prior to cataract surgery. Thus, the discontinuation of the drugs associated with IFIS is not recommended.

4. The surgeon should consider the use of the drop combination of cyclopentolate, phenylephrine, and a nonsteroid-anti-inflammatory drug for preoperative pupillary dilation in potential IFIS cases. Additionally, the use of atropine %1 drops three times per day may be started one-three days before surgery. However, it should be careful while the use in elderly patients because of the risk of urinary retention and cardiac side effects.

5. The surgeon should consider the usage of capsular staining for easy visualization of the anterior capsulorhexis boundaries.

6. The creation of a tri-planar, self-sealing corneal tunnel incision or a slightly longer clear corneal incision, or an additional clear corneal incision, and well-constructed corneal side-port incisions may be required in potential IFIS cases.

7. The surgeon may safely use a visco-adaptive vehicle or the soft-shell technique in all IFIS cases.

8. Intraoperative intracameral phenylephrine (0.5-0.6 cc from a dilution of 1:1,000 sulfite-free) or epinephrine without preservative (0.25-0.50 cc from dilution of 1:1000 epinephrine 0.3 to 0.5 cc from dilution of 1:2500 in balanced saline solution) may be administered under the iris.

9. Addition of epinephrine to the irrigation solution may be beneficial to continue enough pupillary dilatation.

10. The use of iris retractors or iris expansion rings/instruments may be beneficial if pupillary dilation at preoperative evaluation is less than 6mm. However, sphincterotomies should be avoided.

11. The fluidics parameters such as aspiration and irrigation levels on the phaco machines (for example, the height of the bottle may be decreased approximately 10 cm) should be decreased by %10-15 percent. This lesser irrigation and aspiration is critical because it has been reported that %95 of IFIS cases were successfully managed with a combination low fluidics with a visco-adaptive device.

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Department of Ophthalmology, Faculty of Medicine, Yuksek Ihtisas University, Ankara, Turkey

**Correspondence: Turgut B, Department of Ophthalmology, Yuksek Ihtisas University, 06520, Ankara, Turkey, Tel : 90 312 2803601; Fax: +90 3122803605; E-mail: burakturgut@yiu.edu.tr*

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