



Handout

Course Title : Astigmatism Management with toric IOL

ESCRS online 2020

Level : Basic

Course leader : Jerome Bovet

Course duration : 90 min

Faculty :

Jerome Bovet

Fernando Soler-Fernandez

Warren Hill

Ehud Assia

Pavel Stodulska

Course objectives :

Attendees will learn the theory of astigmatism and how to manage a toric IOL

Attendees will be able to use, to adjust toric IOL & to use the different calculator for adjusting their lens.

Course description:

This course will review the state of the art for different toric IOL, calculation, IOL selection, surgical techniques to adjust the lens at the right degree, management of intra & postoperative complications, discussion to introduce the new multifocal toric IOL.



Course schedule:

To understand the astigmatism and to adjust the toric lens
15 min, Jerome Bovet

The pre-operative measurement of corneal astigmatism
15 min, Warren Hill

Optimizing Toric IOLs
15 min, Ehud Assia

Torics IPCLs
15 min, Pavel Stodulka

Goniotrans.com, how to precisely position your toric lens
15 min, Fernando L. Soler-Fernandez

This course was presented at the ESCRS 2019 in Paris

Single Company/Product Course (No) we have no financial interest in this course

Hand out

Introduction

Astigmatism as a refractive error is a visually disabling problem affecting the general population, most especially those afflicted with cataracts. Around 15% to 20% of cataract patients have at least 1.5 diopters (D) of corneal or refractive astigmatism.

With refractive cataract surgery and multifocal lenses, it is important to address corneal astigmatism at the time of the procedure. Clear corneal phaco incision at the steep meridian and limbal relaxing incisions is not anymore sufficient and accurate to correct even a small astigmatism.

Toric IOLs and Toric Multifocal IOL are the gold standard for cataract patients with corneal astigmatism. With the toric IOL properly aligned with the corneal astigmatism, the total astigmatism of the eye can be effectively reduced or even eliminated, resulting in better visual acuity for the patient without the need for glasses or contacts.

Today, toric pseudophakic intraocular lenses are finding an excellent environment for their use; as the refractive outcome of cataract surgery is becoming more and more important and the incision size has been decreased to 1.8 mm or by the TriMics corneoscleral incision

It is clear that without adequate control of the astigmatic outcome of cataract surgery, toric lenses is not good enough to compensate the induced astigmatism by the cataract surgery

Clinical exam and calculation of IOL power

For toric IOLs, the spherical dioptric power of the lens is determined in the same way as for nontoric IOLs because the IOL formulae use the average corneal power for the calculations.

To determine the amount and the axis of corneal astigmatism, using a manual keratometer is often best, with the corneal topographer used as confirmation.

A toric IOL that is misaligned will reduce the effectiveness of the cylinder reduction and may even induce distortion and a new axis of astigmatism, which the patient may find uncomfortable.

If the IOL is noted to be rotated or misaligned during the first few postoperative exams, it should be repositioned in a timely manner.

For every 10° of misalignment, the toric IOL loses about 33% of its effectiveness. It has essentially no ability to address the astigmatism if rotated by 30°, and further rotation induces oblique astigmatism at a new axis and spherical compensation

The clear corneal incision used during phacoemulsification has an effect on the corneal astigmatism, typically a flattening at the meridian of the incision of about 0.3 D to 0.5 D. This must be accounted for when implanting the toric IOL – placing the incision on the same axis of the astigmatism will enhance the effect of the toric IOL, whereas placing it 90° apart will reduce the effect.

We use the new TriMICS technique, which is neutral for the astigmatism and induce none astigmatism. This technique will describe during the course. To resume the technique the third incision is only to inject the lens with 1.8 mm corneoscleral incision at 2mm from the limbus.

Surgical Techniques and Mark

Because marking the cornea is difficult to properly aligning the toric IOL, and this should be done before surgery while the patient is sitting up. When the patient lies flat on the operating room bed, there can be cyclotorsion of the eye and a significant misalignment if the cornea has not been marked previously.

Marking the superior and inferior 90° meridians (12 and 6 o'clock positions) is a method before surgery, with other axes marked intraoperatively with a Mendez gauge.

Because all this methods are not accurate enough.

We use a macrophoto of the eye with the vessel of the conjunctiva for the mark, we position the toric lens with the mark from the photo and the vessel.

The toric IOL must stay in the correct orientation after the cataract surgery. This can be achieved by ensuring that the capsulorrhexis is smaller than the optic so that it securely holds the IOL in the capsular bag. Viscoelastic should be removed from behind the toric IOL. Bimanual Irrigation aspiration canula can be used to hold the IOL in position A light tapping motion will help to secure the IOL in position, and then incisions can be sealed.



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Conclusion

Toric IOLs can be an effective way to address corneal astigmatism at the time of cataract surgery. With current IOLs, we can address up to 6.0 D of corneal cylinder. We can address even more with the toric Rayner IOL.

To correct the full astigmatism is the first step to have an happy patient with his multifocale diffractive lens.



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References:

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- www.facoelche.com, Dr Fernando L. Soler Ferrandez