Rayner Centreflex Toric IOL shows stability in astigmatic eyes

Clive Peckar

Stefanie Petrou Binder MD
in London

HIGH patient satisfaction and no re-operations for axis change marked the initial experiences of a recent clinical evaluation of the Centreflex toric IOLs (Rayner), reported Clive Peckar MD at the XXIV Congress of the ESCRS.

"The initial results showed the Centreflex Toric and T-flex IOLs to be very stable with no major axis shifts after implantation. These toric IOLs are proven to be extremely useful for patients with astigmatism who are undergoing lens surgery," said Dr Peckar, Warrington and North Cheshire Hospitals, UK.

The Rayner Centreflex toric IOLs have optic diameters of 5.75 and 6.25mm. They have a square edge optic design with stable compressible haptics measuring 12-9.5mm, to fit myopes and hyperopes alike. The lens has a 9.5mm diameter when compressing maximally in the capsular bag. The lens power ranges from -7.00 D to +34.0 D.

Dr Peckar said that with over six years of experience with this lens, he had noted excellent centration and stability and had observed no noticeable IOL rotation, including cases of implantation in eyes with incomplete capsulorhexis rim or posterior capsule dehiscence.

In fact, in a prospective photographic study in which Dr Peckar investigated the rotational stability of Centreflex IOLs, he found it to be rotationally stable.

Dr Peckar implanted the hydrophilic acrylic toric Centreflex IOLs with toric cylinders from 2.00 – 6.00 D in 17 eyes, of 12 patients, requiring cataract surgery with pre-existing corneal astigmatism of 2.25 – 4.5 D. The patients underwent routine phacoemulsification surgery with implantation of Centreflex and T-flex IOLs through 3mm incisions. All the patients had pre-operative marking of their 6 and 9 o'clock corneal axes at the "slit-lamp". The mean patient age was 64 years, ranging from 52 to 86 years.

The picture above shows a slit-lamp photograph of a patient one month after surgery showing the 80 degree axis marks on the Toric IOL.

Best-corrected visual acuity was 6/9 in two eyes that had amblyopia, 6/6 in 10 eyes, and 6/5 in five eyes. Uncorrected VA was 6/9 (or N6) or better in 15/17 eyes

Ten out of the 12 patients, 15 out of 17 eyes, achieved uncorrected visual acuity of 6/9 or better (or N5 in their monovision eye). Out of these, seven eyes achieved 6/5 (or n5).

The remaining two patients achieved uncorrected visual acuities (UCVAs) of 6/24 and 6/18. due to undercorrected hypermetropia in one patient and a change in keratometric astigmatic axis in the other patient.

Centreflex Toric IOL at 80

Dr Peckar identified two unexpected problems with this lens. He discovered that due to noncongruity and parallax, he had difficulty in perfectly aligning the axis marks on the IOLs with the corneal axis marks. Also, changes occurred in the patients' corneal astigmatic axis postoperatively. All the patients expressed satisfaction with their results and none required re-operation for axis-change.

Despite a mean residual refractive cylinder of 0.95 D, 10/12 patients achieved 6/9 or better (or n6 for intermediate monovision). Ten out of 12 patients were completely happy with their unaided vision and did not require glasses for a stated 80 per cent of the time.

Dr Peckar observed apparent changes in IOL axis in several eyes: 2-3° in four eyes, 5° in three eyes, and 7° in one eye. These measurements may not have represented true rotation of the IOL in the bag alone as it is not possible to measure true changes in IOL axis without using a photographic quantification method, Dr Peckar explained. (All of these eyes had UCVA of 6/9 (or N6) or better).

Additionally, five of the study patients showed a postoperative change in keratometric axis in excess of 3°. Although Dr Peckar performed limbo-scleral incisions in the majority of cases (1.5mm behind the limbus), to reduce the risk of induced astigmatism, this did not help much, as he noted higher changes in keratometric axis in eyes with limbo-scleral incisions than in eyes that had corneal incisions.

Three unexpected problems that Dr Peckar identified were difficulty in aligning the axis marks on the IOLs with the corneal axis marks due to non-congruity and parallax (not a major problem), change in patients' corneal astigmatism postoperatively, and an undercorrection of spherical power in the three hyperopic eyes.

Patient ID: AH 4000015972 — Date of Birth: 21.08.1953

Pre-Op

	mm	Dioptre	Degrees
K1	7.76	43.50	
K2	7.32	46.10	90

	Sphere	Cylinder	Degrees
Spectacles Refraction	-8.75	2.25	90

Axial Length (mm)	25.72	(Optical)
Phakic lens thickness (mm)		
Phakic ACD (mm)	3.38	

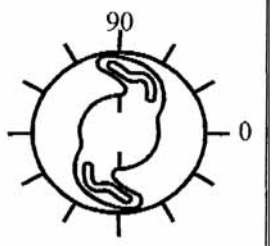
Uncorrected Visual Acuity	
Best Corrected Visual Acuity	6/5
Target spherical equivalent if required	

Proposals for standard production toric IOL's — *Section II : To be completed by Rayner*

Estimated target refraction			IOL			
Spherical Equivalent	Sphere	Cylinder	Sphere	Cylinder	No.	Price
0.3	0.5	-0.4	9.5	4.0	1	
-0.1	0.1	-0.4	10.0	4.0	2	
-0.5	-0.3	-0.4	10.5	4.0	3	

Proposals for premium production toric IOL's

Estimated target refraction			IOL			
Spherical Equivalent	Sphere	Cylinder	Sphere	Cylinder	No.	Price
0.5	0.5	0.0	9.5	3.50	4	
0.1	0.1	0.0	10.0	3.50	5	
-0.3	-0.3	0.0	10.5	3.50	6	



The axis marks indicate the IOL's lowest power meridian.

Toric order form

Courtesy of Clive Peckar MD

These Centreflex toric IOLs are available standard or custom made. Custom manufacture for any size cylinder takes about eight weeks, he said. The toric IOLs are ordered direct from Rayner who carry out the IOL calculation and provide a list of options together with a diagram illustrating the IOL orientation in the eye (pictured above).

All of the patients achieved BCVA of 6/6 (N5), with 10/12 patients achieving UCVA of 6/9 (N6) or better. All of the patients expressed satisfaction with their results and none required re-operation for IOL or keratometric axis change.

clivepeckar@yahoo.co.uk