

## In-the-bag dislocation of polyfocal full-optics accommodative intraocular lens: A case report

*You Hyun Lee, Yu Cheol Kim*

Herein, we report a case of in-the-bag dislocation of a WIOL-CF<sup>®</sup> polyfocal full-optics intraocular lens (IOL), without a history of trauma. A 56-year-old man was referred to our hospital with the chief complaint of sudden-onset visual disturbance in his left eye. He had undergone uneventful phacoemulsification with WIOL-CF<sup>®</sup> IOL implantation in the left eye at the local clinic 7 years prior. In fundus examination, IOL-capsular bag complex dislocated into the posterior vitreous was observed. We believe this is the first report of in-the-bag dislocation of a WIOL-CF<sup>®</sup> IOL that has been subluxated or dislocated in a characteristic pattern, not an in-the-bag pattern.

**Key words:** Capsular bag complex, intra ocular lens dislocation, polyfocal full-optics intraocular lens, WIOL-CF<sup>®</sup>

The WIOL-CF<sup>®</sup> (Gelmed International, Kamenne Zehrovice, Czech Republic) is a hydrogel (WiGEL) polyfocal full-optics intraocular lens (IOL) that is suitable for cataract patients who want good far, intermediate, and near vision after surgery.<sup>[1]</sup> It has a relatively large optic size (9 mm) without haptic. The unique design of WIOL-CF<sup>®</sup> IOL may result in positional instability, and dislocation of them has been described in recent reports.<sup>[2,3]</sup> Notably, the positional instability of WIOL-CF<sup>®</sup> IOLs has been reported to exhibit a unique pattern, with a preceding tilt of the IOL, and a stretched capsular bag, followed by posterior capsule rupture. Herein, we describe a case of WIOL-CF<sup>®</sup> IOL-capsular bag complex dislocation without trauma that differed from the previously reported pattern, and review the relevant literature.

## Case Report

A 56-year-old man was referred to our hospital with the chief complaint of sudden-onset visual disturbance in his left eye without trauma. He had undergone uneventful phacoemulsification with WIOL-CF<sup>®</sup> IOL implantation in the left eye at the local ophthalmic clinic 7 years prior. At that time, the preoperative uncorrected visual acuity (UCVA) at far distance was 20/60 (OS, oculus sinister) by Snellen chart and manifest refraction (MR) was not assessed due to crystalline lens opacity. Implantation of WIOL-CF<sup>®</sup> IOL was performed with 3-mm sized temporal clear corneal incision and without any intra-operative complication. The postoperative UCVA at far distance was 20/20 (OS), and remained stable until the event of a sudden visual loss. At the time of current admission, the UCVA at far distance was 20/20 (OD, oculus dexter) and 20/1000 (OS, read 20/200 at 1-meter distance) by Snellen chart, and intraocular pressure (IOP) by applanation tonometry was 20 mmHg (OD) and 27 mmHg (OS). He had a MR of + 16.25 diopter (D) Sph/-1.00 D Cyl × 95 (OS), and corrected vision was 20/200 (OS). Axial length was 21.78 mm (OD) and 21.77 mm (OS). In the left eye, neither the lens capsule nor the IOL were visible via front-view slit lamp examination [Fig. 1a], and a IOL-capsular bag complex was dislocated into posterior vitreous in a fundus examination [Fig. 1b]. The right eye yielded no abnormal findings. The patient underwent 25-gauge pars plana vitrectomy and removal of the dislocated WIOL-CF<sup>®</sup> IOL-capsular bag complex through 8-mm sized superior scleral tunnel incision. Scleral fixation of a foldable acrylic single-piece IOL (Rayner Superflex 620H; Rayner Intraocular Lenses Limited, Hove, East Sussex, UK), was performed using the ab-externo technique at the 2 o' clock and 8 o' clock positions, and the scleral incision site was sutured using 10-0 nylon. At the time of surgery, the dislocated IOL-capsular bag complex did not exhibit severe anterior capsular contraction or IOL surface modification [Fig. 2]. One week later, the UCVA was 20/20 (OS) with a MR of +0.75 D Sph/-1.00 D Cyl × 84, and IOP was 18 mmHg.

## Discussion

The incidence of late in-the-bag spontaneous IOL dislocation is increasing, and it is usually diagnosed 6 to 9 years after uneventful cataract surgery.<sup>[4,5]</sup> While potential mechanisms associated with these dislocations are not widely agreed upon,

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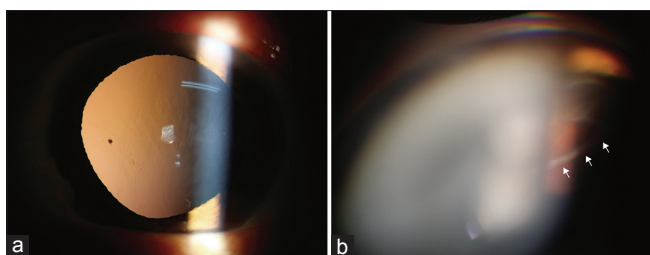
**Cite this article as:** Lee YH, Kim YC. In-the-bag dislocation of polyfocal full-optics accommodative intraocular lens: A case report. Indian J Ophthalmol 2019;67:1200-2.

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|  | <b>DOI:</b><br>10.4103/ijo.IJO_1552_18 |

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**Manuscript received:** 09.10.18; **Revision accepted:** 05.03.19



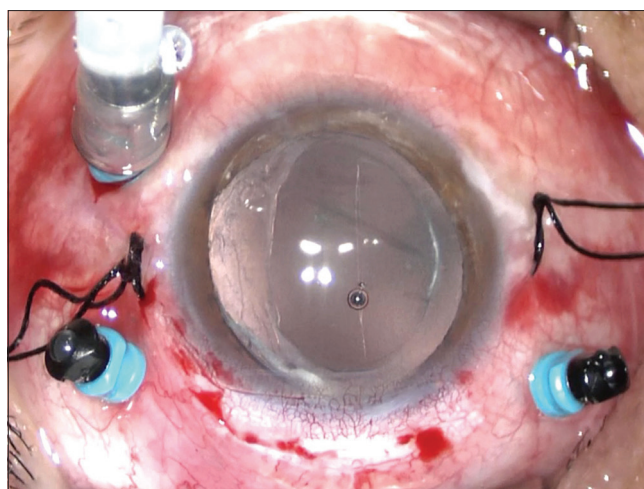
**Figure 1:** Slit lamp photograph and fundus examination at the time of admission. (a) Neither a lens capsule nor an intraocular lens is identifiable in a front view image. (b) A dislocated intraocular lens-capsular bag complex is detectable in the posterior vitreous (arrow) by a +90-diopter lens

zonular weakness secondary to capsular contraction is believed to be one of the most common causes.<sup>[6]</sup> WIOL-CF<sup>®</sup> IOLs have a high water content (42%), they exhibit high biocompatibility and permeability, and their negatively charged surface confers resistance to protein deposits, cell attachment, opacification of the posterior capsule, and adhesion to surrounding tissues.<sup>[7]</sup> In addition, capsular contraction is minimal because it has no haptic. Therefore, WIOL-CF<sup>®</sup> IOLs are thought to be unlikely to undergo in-the-bag dislocation.

It was recently reported that WIOL-CF<sup>®</sup> IOL dislocation has a consistent pattern.<sup>[2]</sup> The proposed process of WIOL-CF<sup>®</sup> IOL dislocation is that first the IOL tilts forward and downward, then the anterior surface of the IOL touches the superior iris (iris atrophy), and the posterior surface of the IOL stretches the inferior posterior capsule and zonules, then lastly, the inferior posterior capsule ruptures and the IOL dislocates into the posterior segment. In the current case however, iris atrophy was not apparent at the initial visit, and the dislocated IOL was well-centered in the capsular bag without any tilt. The reason for zonular dialysis in the present case was unclear, because there was no history of trauma, but the unilateral cataract in a patient of relatively young age suggests that the left eye may have been subjected to unrecognized or repeated minor trauma. In a study conducted in Japan,<sup>[8]</sup> the second most common potentially predisposing condition in late in-the-bag IOL dislocations was habitual eye rubbing or tapping. The patient was an oriental melon farmer; he usually bends forward and lifts heavy boxes. Consequently, such activities would have resulted in severe IOP fluctuations.<sup>[9]</sup> However, the relationship between late in-the-bag dislocation and the IOP fluctuations is uncertain and therefore, further studies are required. The present patient did not have any known conditions potentially predisposing him to IOL dislocation such as long axial length, pseudoexfoliation syndrome, or ocular allergy. One review article mentioned that only 90% of late IOL-capsular bag complex dislocation showed certain zonular weakness preoperatively.<sup>[6]</sup> It is possible that there was a degree of zonular weakness that was not detectable via slit-lamp examination, and that the comparatively heavy WIOL-CF<sup>®</sup> IOL exacerbated that weakness, ultimately resulting in in-the-bag dislocation. The dislocated WIOL-CF<sup>®</sup> IOL cannot be fixated to the sclera due to the absence of haptic and therefore, explantation and exchange with a foldable acrylic single-piece IOL are required.

## Conclusion

In conclusion, WIOL-CF<sup>®</sup> IOLs may undergo in-the-bag dislocation without trauma, like other types of IOLs.



**Figure 2:** Intraoperative photograph showing the dislocated intraocular lens repositioned on the iris for extraction. The lens is wrapped in the capsular bag, and an intact posterior capsule and clear continuous circular capsulorrhexis margin are evident

## Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

## Financial support and sponsorship

Nil.

## Conflicts of interest

There are no conflicts of interest.

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