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CORRESPONDENCE

Long-term refractive results of posterior iris-claw fixation implants in aphakic eyes after complicated cataract surgery

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To the Editor:

To date, there is no agreement regarding the gold standard for surgical management of aphakia caused by complicated cataract surgery. Different techniques, with their advantages and disadvantages, are available [1–3].

The purpose of this study is to investigate the safety and efficacy of posterior iris-fixated (PIF) intraocular lens (IOL) implant in eyes with complicated cataract surgery (CCS) that did not allow concomitant IOL implant, with particular attention to refractive results.

In this retrospective study, 64 eyes of 64 patients were included (mean age: 72.73 ± 12.42 years). They underwent Verysise VRSA54 (Ophtec BV, Groningen, The Netherlands) implant after CCS with posterior capsular damage with or without nucleus dislocation in the vitreous cavity without IOL implant. Eyes previously characterized by other conditions that could affect the visual recovery were excluded. All procedures were performed in our unit by one well-trained surgeon (MDC) from January 2005 to July 2018 with previously described technique (Fig. 1) [4]. The power of the IOL was calculated using IOLMasters and SRK/T formula targeting emmetropia. Manufacturer's advice for these IOLs is to use an A-constant of 115.5 but in this study, a 116.5 value was adopted, as suggested for retro-pupillary implants [3]. PIF insertion was performed after a mean of 7.23 ± 2.67 days from the first surgery. At every follow up, a complete eye visit with subjective and objective refraction check and endothelial cells count (ECC) was performed for each patient.

At 1-month follow up, a mean best corrected visual acuity (BCVA), reported as LogMAR of 0.14 ± 0.21, with a significant ($p < 0.01$) increase compared to preoperative one (Table 1) was observed. At the last follow up (mean: 28.12 ± 6.3 months; ranging from 14 to 39 months), a mean refraction of 0.35 ± 1.04 D was observed with 42 (65%) and 57 (89%) eyes falling in a refraction range of ±0.5 D and ±1 D, respectively (Table 1). IOP and ECC variations are reported in Table 1. Complications recorded within the first month were IOP spikes (2) and wound leak (1), no hyphema, hypotony, or pupil distortion was observed. Long-term complications (after 1 year) included one retinal tear treated with peripheral retinal laser photocoagulation.

Iris-fixated IOL provides quick vision restoration and a low complication rate, moreover, PIF offers the advantage of a better positioning with a lower risk of corneal decompensation compared to those with anterior fixation [5]. The actual efficacy of this technique has not been deeply investigated because, in the previously published studies, eyes that underwent traumas or with other co-morbidities were included [3–5]. The selection of the eyes of this study provides a more accurate evaluation of the efficacy of PIF IOL in visual restoration and refraction predictability.

The data observed show the efficacy and safety of PIF implant as well as the predictability of this technique in targeting refraction after CCS. This is a key factor nowadays, when patients are always very high demanding and, potentially, even more, when a surgical complication occurs.

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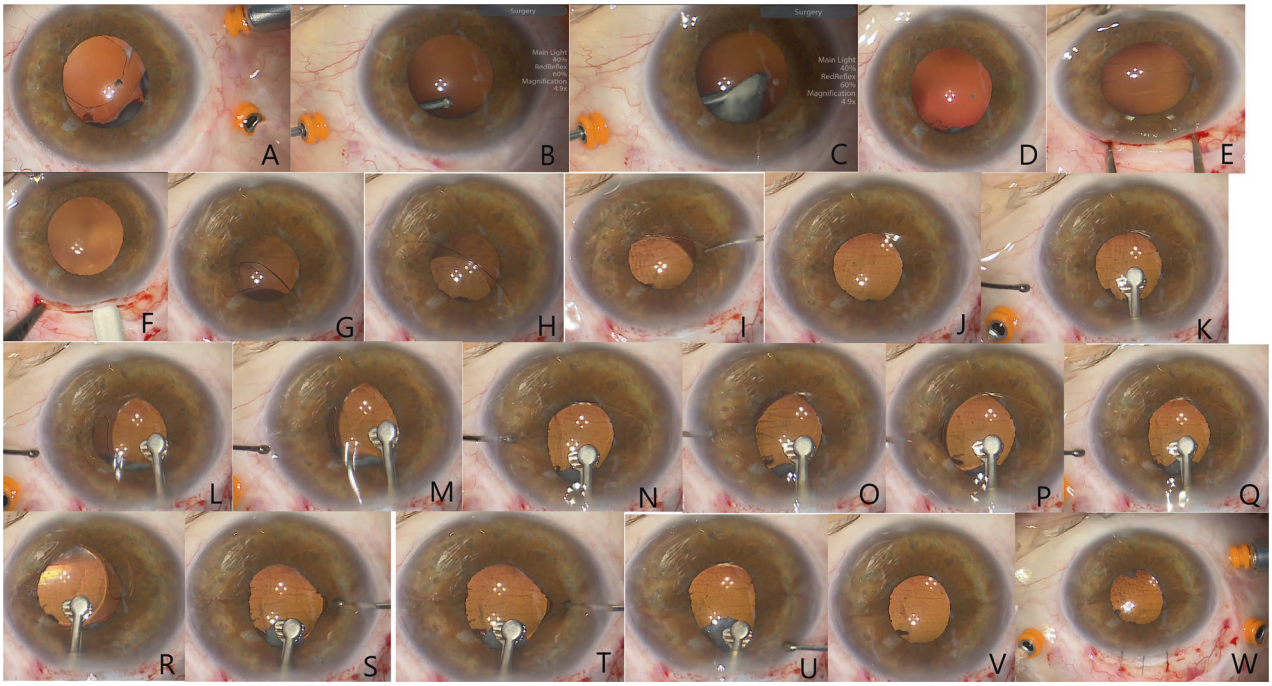

Fig. 1 Surgery details. Illustrations of phases of retro-pupillary, iris fixated, IOL implant: after eventual posterior vitrectomy for removal of lens material dislocated in vitreous cavity (**a**), anterior vitrectomy was performed in order to remove lens cortex (**b**, **c**), a 5.4 mm sclera-corneal incision was performed at 12 o'clock (**d**–**f**) to allow gentle introduction of IOL (**g**, **h**) in the anterior chamber. The IOL is further oriented horizontally thanks to a Sinskey hook (**i**, **j**), then the IOL is firmly held by a special forceps (**k**) (J3009.1 Janach, Como, Italy) and left side is gently moved behind the iris (**l**, **m**) while a smooth micro spatula was introduced through 3 o'clock paracentesis and used to enclavate the left haptic behind the iris moving the IOL plate towards the iris (**n**–**q**), after obtaining the enclavation, micro spatula was removed from the anterior chamber. Furthermore, the surgeon changed hand to hold the IOL plate with the special forceps and repeated the previous procedure to slid the haptic behind the iris in the other side (**r**), the enclavation procedure was repeated introducing the smooth micro spatula by 9 o'clock paracentesis in the anterior chamber (**s**–**u**). After evaluating the centration of the IOL plate and the iris shape (**v**), three simple interrupted 10-0 nylon sutures were used to close the incision (**w**).

Table 1 Changes in uncorrected visual acuity (UCVA) and best corrected visual acuity (BCVA) measured as LogMAR, refraction (reported as spherical defect, cylinder one and spherical equivalent), intraocular pressure (IOP) and endothelial cell counts as mean ± standard deviation in the 64 eyes evaluated.

	Before surgery	1-month FU	3 months FU	6 months FU	1-year FU	Last FU
UCVA (LogMar)	1.51 ± 1.51	0.35 ± 1.23*	0.33 ± 1.22*	0.29 ± 0.89*	0.31 ± 1.1*	0.3 ± 0.95*
BCVA (LogMar)	0.29 ± 0.33	0.14 ± 0.21*	0.13 ± 0.18*	0.12 ± 0.22*	0.13 ± 0.14*	0.12 ± 0.17*
Spherical defect (D)	11.31 ± 3.91	−0.38 ± 0.68 *	0.22 ± 0.75*	0.25 ± 0.73*	0.27 ± 0.65*	0.22 ± 72*
Cylinder defect (D)	+0.22 ± 0.83	−0.26 ± 0.89*	0.25 ± 0.92*	0.26 ± 0.87*	0.28 ± 0.84*	0.26 ± 0.93*
Spherical equivalent (D)	11.42 ± 3.74	−0.51 ± 1.29*	0.33 ± 1.09*	0.38 ± 0.98*	0.41 ± 1.12*	0.35 ± 1.04*
IOP (mmHg)	13.53 ± 2.01	17.87 ± 1.57*	16.52 ± 1.85*	14.08 ± 1.28	13.76 ± 1.62	14.12 ± 1.36
Endothelial cell counts (cell/mm^2)	1823 ± 521	1746 ± 479	1721 ± 494	1684 ± 527	1708 ± 469	1657 ± 472

FU follow up.

An asterisk indicates a significant difference ($p < 0.01$) compared to the values before surgery.

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

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