

# Use of Single-piece “ Sutureless Scleral Suspension IOL” in a Post-traumatic Aphakia Case

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### ABSTRACT

The damage of capsular bag and zonular fibers can be complication of cataract surgery or ocular trauma. There are several options for surgical management of Aphakia conditions when the capsular support is inadequate or absent. This condition can be addressed in the primary or secondary surgery (1). The traditional secondary IOL implantation techniques are different, including the Anterior Chamber IOL implantation which showed during the time different complications including endothelial decompensation, uveitis, secondary glaucoma (2), and cystoid macular oedema; traditional scleral fixation with sutures which turns out to be one of the most used techniques also in complex cases (3), the anterior or posterior (retropupillary) iris-claw IOL implantation which is considered a safe and effective technique for aphakic eye rehabilitation (4), the “Glued Iol” technique that does not require scleral sutures, and represents a valid alternative to the previous techniques (5). Scleral Fixation without scleral sutures described by Gabor include the installation of a 3-piece IOL with externalization of the loops and their affixing within intrascleral tunnel (6). Recently have been developed variations of the “sutureless” technique, not well supported yet by scientific literature; among them the use of single-piece sutureless scleral suspension (SSS) IOL, implanted with “handshake” technique (7). This technique is easier and faster to perform and has several advantages compared to all the previous techniques because with less risk of complications such as decentralization / tilting of the plate IOL, pupillary capture of the IOL, erosion and degeneration of the IOL loops, cystoid macular oedema; hypotonus and endophthalmitis are reported in the same way also in the sutureless technique (8).

### Description of the Case:

We report the case of a 42 year old man, came to our observation with a diagnosis of aphakia in the left eye as result of perforating corneal trauma undergone surgery for corneal wound suture, removal of traumatic cataract and posterior vitrectomy for emovitreo (Figure 1) . The patient had corneal sutures and aphakia with the absence of adequate capsular support and he has undrgone to single-piece sutureless scleral suspension IOL implantation with handshake technique.

### Surgical Technique:

Evaluation of corneal diameter, 23G infusion cannula, conjunctival peritomy and creation of partial thickness scleral flaps, hinged at the limbus at 0-180 °, sclerotomies with 23G needle to 1.5 mm from the limbus, corneal incision and tunnel, implant of the single-piece IOL in A/C and bimanual extraction of the trans-scleral distal plug of the IOL through sclerotomy at 0° with 23G crocodile-

tips forceps; extraction of the trans scleral proximal plug through sclerotomy at 180° with 23G crocodile-tips forceps. The IOL appeared centred so that surgical maneuvers for centering it are not needed. Suturing of the scleral flaps with 3 nylon 10/0 sutures and suturing of the conjunctiva with Vicryl 8/0; suture of the corneal tunnel with Nylon 10/0, hydrosuture of the corneal incisions (Figure 2). **IOL: SOLEKO FIL SSF Carlevale Lens.** This single-piece acrylic foldable IOL, 25% H<sub>2</sub>O and UV filters has a 6.5 mm optical diameter, a total diameter of 13.2 mm and has two trans scleral plugs at the ends that like harpoons ensure anchoring to scleral tissue without the application of stitches. (Figure 4) There is also a toric version of this IOL with the cylinder axis set in the laboratory at the time of construction and which must be positioned at 0°-180°.

### **Results:**

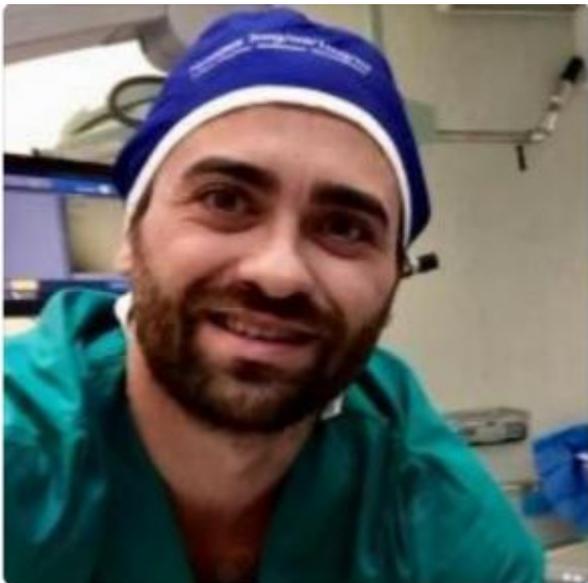
On the first post-operative day the eye appeared calm, with well-centred IOL, without any inflammatory reaction of the anterior and posterior segment (Figure 3); the tone found was 12 mmHg; after one week the corrected visual acuity BCVA was 20/50, it can not be improved and clearly affected by the high astigmatism induced by corneal scar with the corneal sutures from the previous perforating corneal trauma; there were no complications in the follow-up, the lens has remained well centered, absence of pathological changes in IOP and absence of inflammatory reactions.

### **Discussion & Conclusion:**

Nowadays there are many valid techniques for the Aphakic eyes with no capsular support; the technique used in this case with the single-piece sutureless scleral suspension IOL implantation appears to be in our opinion simple to perform, with low postoperative complication rate than other techniques. No complications were observed as anterior uveitis, pupillary distortion, iris depigmentation, IOL dislocation, ocular hypertension, cystoid macular edema and retinal detachment.

Despite the overall diameter of the IOL is 13.2 mm thanks to the special design of the lens with the corneal flexible scleral plugs at the ends, it is possible to adapt the single-piece IOL even in patients with high corneal diameters (WTW).

In conclusion, in our opinion this technique appears safe and effective for the correction of aphakia with little or no capsular support even in complex cases. They are certainly warranted further study and longer follow up.



**Dott Michele Bellino**