

Commentary: Approach and alternatives to position the intraocular lens in deficient support

Guest editorial on IOL-Sling technique: A safe approach for lens implantation in complicated cataract surgery and secondary intraocular lens implant

Implanting an IOL in deficient capsular or zonular support is undoubtedly the most challenging scenario for any cataract surgeon. It warrants the most appropriate technique with suitable IOL design and material, which largely remains a case-specific consideration complimented with surgeon's preference. Inadequate capsular or zonular support can be a result of ocular trauma, metabolic or inherited conditions such as Marfan's syndrome, pseudoexfoliation, or complicated cataract surgery. Surgical options for patients with inadequate capsular support include alternative placement in the anterior chamber (ACIOL), fixation to the iris or to the sclera.

The surgical techniques for each of these approaches have improved considerably over the last several decades resulting in improved visual outcomes. ACIOLs and Iris fixated IOLs have inherent complications in terms of corneal endothelial damage/secondary glaucoma and persistent inflammation, respectively. In addition, the scleral and sulcus fixated IOLs can be complicated by problems such as decentration, subluxation, or tilt resulting in a suboptimal visual outcome. However, it is generally agreed upon that the ciliary sulcus placement and scleral fixated IOLs provide the most acceptable physiological location with reference to refractive outcome.^[1,2]

IOLs can be fixated to the sclera using sutures or by tunneling the IOL haptics into the sclera without sutures.^[3] While the placement of sutured scleral fixated IOLs already have their haptics tied before insertion into the ciliary sulcus, tightening

the preplaced sutures through the scleral pockets provides desired centration and support to the IOL. This is usually not the case where IOLs are fixated to the iris or sclera without the use of sutures or even during placement in the ciliary sulcus in the presence of intact anterior capsular support.

In such situations, until the completion of the procedure, there remains a possibility of IOL slippage into the vitreous cavity,^[4] thus causing the entire case to move out of the hands of an anterior segment surgeon or the need of an elaborate and extra procedure as in pars-plana vitrectomy and retrieval of dislocated IOL.^[5]

Until now, no real safeguard had been described in the literature which would ensure prevention of IOL slippage before the completion of the procedure. Nath *et al.* have described an innovative approach of "IOL-Sling Technique" which employs a simple technique of using a nylon suture threaded through the dialing hole of the optic of IOL.^[6] This suture is tied into a loop, a part of which remains exteriorized until stable IOL placement is achieved. This serves as a rescue anchor, preventing the IOL drop into the vitreous cavity by pulling out the suture loop, should the IOL slip during the procedure. At the end of surgery, the suture loop is cut and withdrawn leaving the IOL in its position. This technique would prove useful, especially to the trainee/novice surgeons, who might experience a higher chance of haptic slippage during hesitant surgical maneuvers, thus preventing IOL dislocations in the vitreous cavity.

However, we opine that a slight modification of aforementioned technique would be more forgiving, with lesser chances of IOL drop. Leaving a free loop of suture exteriorized may provide a wider window of salvaging a slipped IOL but does not ensure its prevention fully. Instead, taking a suture bite through the conjunctiva or lower lip of the sclero-corneal tunnel, using 10-0 nylon or alternate suture material, before tying it into a loop would ensure that the IOL does not dislocate into the vitreous cavity even if the surgeon fails to notice the slippage of suture loop in time.

The IOL sling technique may work well in cases of single-piece or 3-piece rigid PMMA IOL (B3602 Aurolab, India), lens being fixated in sulcus during MSICS or even during iris-claw lens fixation. In the former, the suture loop is threaded through the dialing hole and in the latter case, through the claw of the IOL.

However, in an alternate scenario posterior, capsular rupture could happen at the end of phacoemulsification and the use of 3-piece foldable IOLs being placed in ciliary sulcus remains an appropriate alternative. Such type of IOLs are foldable and, hence, can be injected through a 2.8–3.0 mm incisions. However, certain popular brands frequently used in clinical practice (e.g., MA60AC Alcon Inc., ZA9003 AMO) do not have a dialing hole in the optic; precluding this, variety of frequently used IOLs from the ambit of sling technique as described by the authors. Furthermore, as it has been astutely observed and mentioned already by the authors that this technique will not be applicable while implanting foldable single piece IOLs although it is noteworthy that the latter will be an unlikely choice in case of deficient support.

There are certain precautions which ensure safe placement of IOLs in deficient capsular support such as using a bimanual technique with iris reposer andinsky hook, injecting an IOL into the anterior chamber first followed by careful dialing into the sulcus, and finally the accurate assessment of sulcus support and judicious use of OVD goes a long way toward a successful refixation.^[7,8]

Undeniably, placing an IOL in cases with deficient capsular support either as a primary or secondary procedure remains a challenge and the present technique can be a simple and effective approach toward increasing the window of safety. Without adding significantly to surgical time or expertise, this technique provides enhanced safety to a novice surgeon, especially in resource-limited settings where MSICS remains a popular choice for cataract surgery.

Bhavana Sharma, Samendra Karkhur, Deepak Soni

Department of Ophthalmology, All India Institute of Medical Sciences, Bhopal, Madhya Pradesh, India

Correspondence to: Dr. Bhavana Sharma,
Department of Ophthalmology,
All India Institute of Medical Sciences, Saket Nagar,
Bhopal - 462 020, Madhya Pradesh, India.
E-mail: head.ophtho@aiimsbhopal.edu.in

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