

Commentary: Decision-making in the management of surgical aphakia

According to the 2015–2019 survey by the National Programme for Control of Blindness and Visual Impairment, uncorrected aphakia accounts for 1.7% of blindness and vision impairment in adults aged >50 years in India.^[1] Anisometropia, aniseikonia, prismatic distortion of images (jack-in-the-box phenomenon) and the weight of high hyperopic spectacles demands rehabilitation in surgical aphakia with an intraocular lens (IOL) implantation. IOLs provide a better field of vision and less image disparity, and are more acceptable cosmetically. The standard of care of in-the-bag implantation of an IOL, may not be feasible in circumstances where there is a lack of posterior capsular support. Such instances are not uncommon in a regular cataract surgeon's practice. Further recourse depends on the presence

or absence of sulcus support. While, in the presence of an adequate sulcus support, a foldable 3-piece or a rigid polymethyl methacrylate (PMMA) IOL is preferred, in its absence, the choice of IOL fixation depends on the surgeon's expertise.

We congratulate the authors for summarizing the desired options for aphakia management by the anterior and posterior segment surgeons, in their study "Preferred practice patterns in Aphakia management in adults in India - A Survey".^[2] Although this study elaborates on the preferred site of IOL fixation being the iris and scleral-fixated IOLs by anterior and posterior segment surgeons, respectively, the results cannot be extrapolated to a larger population, considering the minimal response rate (4.8%). The primary indication for secondary IOL, age of the patient at surgery, associated ocular and systemic conditions, level of training of surgeons, and the availability of different types of IOLs should also be considered when such a survey is being conducted.

Optical correction is a critical component of visual rehabilitation in aphakia. There are pros and cons to each of the modalities of IOL fixation. Owing to the higher risk of hyphema, secondary glaucoma and corneal endothelium decompensation, either scleral-fixed or iris-fixed IOLs are being preferred over the use of angle-fixed anterior chamber IOLs nowadays.^[3] The decision to use iris-fixed or scleral-fixed IOLs depends on the expertise of the surgeon.^[4,5] The visual outcome in both types of IOL fixation are comparable at variable follow-up periods, although long-term prospective studies are required to confirm the same.^[5-8] Each of these methods have inherent complications associated with them. Iris-fixed IOLs, either anteriorly or posteriorly, are associated with iris erosion, pigment dispersion, corectopia, hyphema, IOL subluxation, cystoid macular edema, chronic uveitis and secondary glaucoma.^[5,8] In addition to the aforementioned complications, scleral-fixed IOLs, either sutured or suture-less, are associated with vitreous hemorrhage, haptic exposure, retinal detachment, scleral thinning and IOL tilting and/or dislocation.^[5,9] As opposed to the in-the-bag IOL and angle-fixed anterior chamber IOL (ACIOL), the procedure for iris-fixed and scleral-fixed IOLs is technically challenging, has a steep learning curve and needs expertise. The long-term stability of these IOLs as well as complications are yet to be studied prospectively.

Nevertheless, these results cannot be extrapolated to the pediatric aphakic population. Age, size of the eyeball, corneal diameter, primary indication of aphakia, eye growth, systemic associations, and high prediction errors are factors to be considered while planning IOL implantation in children. Primary IOL implantation is usually discouraged in children with small eyes (short axial length/microcornea) and those with associated anterior and posterior segment pathologies. When children reach the appropriate age, and their eyes are of the adequate size with open angles on gonioscopy and have no contraindications, a secondary three-piece IOL or a PMMA IOL in-the-sulcus/in-the-bag can be planned.^[10] When sulcus examination becomes difficult clinically, ultrasound biomicroscopy of the anterior segment can be done. This provides the surgeon with information on the status of ciliary sulcus and its surrounding tissue preoperatively.^[10] The vigilance on the postoperative course in children should be high as they are at a risk of excessive postoperative inflammation and rise in intraocular pressure. In specific cases such as ectopia lentis caused by Marfan syndrome, it is preferable to leave the children aphakic and rehabilitate them with contact lenses or spectacles.

Thus, for a customized approach to manage a case of aphakia, weighing the risks and benefits of the procedure is encouraged. Various factors to be considered are age, indications, contraindications, site of IOL fixation, IOL POWER calculation formula, IOL material/designs and expertise in the procedure.

The historic Latin phrase, *Primum non nocere*, meaning, "First, do no harm," should be respected, and selected cases should be left aphakic and rehabilitated with contact lenses or spectacles, rather than implant an IOL and cause irreversible damage due to glaucoma, corneal decompensation and retinal detachment.

Goura Chattannavar, Ramesh Kekunnaya

Child Sight Institute, Jasti V Ramanamma Children's Eye Care Centre, Kallam Anji Reddy Campus, L V Prasad Eye Institute, Hyderabad, Telangana State, India

Correspondence to: Dr. Ramesh Kekunnaya, Director, Child Sight Institute, Jasti V Ramanamma Children's Eye Care Centre, Kallam Anji Reddy Campus, L. V. Prasad Eye Institute, Hyderabad - 500 034, Telangana State, India.
E-mail: rameshak@lvpei.org

References

1. National blindness and vision impairment survey India, 2015-2019, National programme for control of blindness and visual impairment. Available from: <https://npcbvi.gov.in/writereaddata/mainlinkfile/file341.pdf>. [Last Accessed on 2202 Apr 29].
2. Kelkar AS, Kelkar J, Bhende P, Narayanan R, Maiti A, Bolisetty M, *et al.* Preferred practice patterns in aphakia management in adults in India: A survey. *Indian J Ophthalmol* 2022;70:2855-60.
3. Walters RF, McGill JJ, Batterbury M, Williams JD. Complications of anterior chamber lens implants and their effects on the endothelium. *Eye (Lond)* 1989;3:690-5.
4. Wagoner MD, Cox TA, Ariyasu RG, Jacobs DS, Karp CL, American Academy of Ophthalmology. Intraocular lens implantation in the absence of capsular support: A report by the American Academy of Ophthalmology. *Ophthalmology* 2003;110:840-59.
5. Shen JF, Deng S, Hammersmith KM, Kuo AN, Li JY, Weikert MP, *et al.* Intraocular lens implantation in the absence of zonular support: An outcomes and safety update: A report by the American Academy of Ophthalmology. *Ophthalmology* 2020;127:1234-58.
6. Nehme J, Sahyoun M, Saad M, Slim E, Farhat R, Azar G, *et al.* Secondary intraocular lens implantation with absence of capsular support: Scleral versus iris fixation. *J Fr Ophtalmol* 2018;41:630-6.
7. Zhang H, Zhao J, Zhang LJ, Liu J, Liu Y, Song W, *et al.* Comparison of iris-fixed foldable lens and scleral-fixed foldable lens implantation in eyes with insufficient capsular support. *Int J Ophthalmol* 2016;9:1608-13.
8. Choi EY, Lee CH, Kang HG, Han JY, Byeon SH, Kim SS, *et al.* Long-term surgical outcomes of primary retropupillary iris claw intraocular lens implantation for the treatment of intraocular lens dislocation. *Sci Rep* 2021;11:726.
9. Vote BJ, Tranos P, Bunce C, Charteris DG, Da Cruz L. Long-term outcome of combined pars plana vitrectomy and scleral fixated sutured posterior chamber intraocular lens implantation. *Am J Ophthalmol* 2006;141:308-12.
10. Lalwani S, Kekunnaya R. Secondary intraocular lens implantation (IOL) children- What, why, when, and how? *Semin Ophthalmology* 2022 (Accepted for publication).

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

Access this article online	
Quick Response Code:	Website: www.ijo.in
	DOI: 10.4103/ijo.IJO_1026_22

Cite this article as: Chattannavar G, Kekunnaya R. Commentary: Decision-making in the management of surgical aphakia. *Indian J Ophthalmol* 2022;70:2860-1.