

## Commentary on the Efficacy of Lens Removal Plus IOL Implantation for the Treatment of Spherophakia with Secondary Glaucoma

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### Abstract

Glaucoma is the most important cause of permanent visual loss in spherophakia. Determining an appropriate procedure for the management of glaucoma in spherophakia is difficult. Lens removal plus intraocular lens (IOL) implantation, offering a feasible approach for thoroughly relieving the crowding anterior chamber, is effective in both controlling intraocular pressure (IOP) and correcting lenticular myopia.

**Keywords:** Spherophakia; Lens removal

### Commentary

Spherophakia is an anomaly ocular condition in which the crystalline lens assumes a spherical shape with an increased anteroposterior diameter and reduced equatorial diameter [1,2]. In cases of spherophakia with reduced equatorial diameter, the term microspherophakia applies [1,2]. Spherophakia may present in isolation or with systemic diseases, such as Weil-Marchesani syndrome, Mafan syndrome, Alport's syndrome, and so on [3].

Visual loss in patients with spherophakia can result from high myopia or secondary glaucoma, while the most important cause of permanent visual loss is glaucoma [4]. Mechanisms of glaucoma occurrence are pupillary block and peripheral anterior synechiae in spherophakia [5]. A cune angle-closure can result from pupil block caused by the lens displacement due to extreme lens curvature and/or weak zonules, while chronic angle-closure due to recurrent attacks of pupillary block resulting in synechial closure of the angle. In cases with a long course, subsequent peripheral anterior synechiae further aggravate the intraocular pressure increase. Accordingly, though the primary morphologic abnormality is lenticular, interventions for spherophakia, to some extent, address the secondary glaucoma.

There have been reported various surgical modalities to manage glaucoma in spherophakia, including lensectomy, goniosynechiolysis, trabeculectomy, drainage implants or a combination of these procedures [6]. With our experience, only lens surgery offering a feasible approach for thoroughly resolving pupil block. It also can have good effects on high myopia correction and visual rehabilitation, which glaucoma surgery cannot achieved. Many studies have been reported that removal of lens plus intraocular lens (IOL) implantation can managed both subluxation and glaucoma and gave excellent optical results [7]. In our study, we found that implantation of a conventional posterior chamber (PC) IOL is a challenge to clinicians posed by the combined effects of a smaller capsular bag and a weakened zonule, for which a help has been enlisted from iris hooks

and capsular tension ring (CTR) [8]. However, CTR does not work well in the setting of the seriously impaired zonule in spherophakia while the sclera-fixated IOL is an optimal alternative [8,9]. Of course, during follow-up of our patients, intraocular pressure (IOP) lowering treatment, such as eye drops or ex-press implantation can also be combined with lens surgery [8].

In conclusion, lens surgery can relieve the crowding anterior chamber, which is very effective in the treatment of secondary glaucoma in spherophakia. Though there are no universal guidelines for the management, a thorough understanding of the challenges inherent in spherophakia will ensure that surgeons achieve the best possible surgical results.

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