

## Commentary: Scheimpflug imaging for evaluation of posterior lens capsule in pediatric traumatic cataract

Scheimpflug imaging provides an objective way to document and quantify the capsule tear, to quantify the density of the associated traumatic cataract if any and monitor its progression. The study by Sen *et al.*<sup>[1]</sup> in the December 2021 issue of Indian Journal of Ophthalmology was done with a purpose to find the accuracy of Scheimpflug imaging for the

evaluation of posterior lens capsule and to assess the incidence of preexisting posterior capsular tear (PCT) in pediatric traumatic cataracts. In a prospective, nonrandomized, and interventional study, the authors did Scheimpflug imaging preoperatively to detect PCT in pediatric traumatic cataracts after blunt trauma. All patients underwent cataract extraction with intraocular lens implantation. Intraoperatively, the posterior capsule status was noted and compared with the preoperative Scheimpflug images. *Fortyseven eyes of 47 children having traumatic cataracts following closedglobe injury* were included. There were 32 males and 15 females with a mean age of  $10.91 \pm 2.75$  years. The mean duration of performing

the Scheimpflug imaging from injury was  $41.7 \pm 7.78$  days. Preoperative Scheimpflug imaging showed intact posterior lens capsule in 36 eyes and PCT in 11 eyes. Intraoperative, 37 eyes had an intact posterior lens capsule and 10 eyes had PCT. The Scheimpflug imaging did not detect the PCT in three eyes (falsenegative), and in four eyes, PCT was detected falsely on Scheimpflug imaging (falsepositive). The sensitivity and specificity of the Scheimpflug imaging were 70 and 89.18%, respectively. The accuracy of the technique was 85.11%. The authors concluded that Scheimpflug imaging is a useful modality for the detection of PCT preoperatively in cases with doubtful posterior lens capsule integrity.

This study by Sen and associates<sup>[1]</sup> showed that the Scheimpflug imaging is a useful modality for the detection of posterior lens capsule rupture preoperatively in doubtful cases of capsular integrity. By employing this imaging technique, the surgeon will be ready to manage potential complications during cataract surgeries. This report highlights the use of Scheimpflug imaging in visualizing and quantifying the PCT. While slit-lamp examination does illustrate the defect, the primary advantage of the rotating Scheimpflug camera is that it allows accurate and objective quantification of the PCT. Additionally changes in the dimensions of the tear may be followed in cases where the surgeon decides to delay the surgery. The centration and tilt of the IOL can also be objectively documented following surgery. Using similar advanced imaging techniques could better help elucidate the pathogenesis of such injuries.

The current study by the authors<sup>[1]</sup> broadens the knowledge of the use of Scheimpflug imaging for the evaluation of the posterior capsule in pediatric traumatic cataracts. The authors used a large sample size and inclusion of children with closedglobe injury only, and this is the first largest published case series in the pediatric age group demonstrating the role of Scheimpflug imaging in traumatic cataracts. The comparison of the location and size of PCT detected by the Scheimpflug imaging with intraoperative findings should also be noted in the future studies.

Few cases are reported in the literature using the Scheimpflug imaging for evaluation of posterior lens capsule in pediatric traumatic cataract. In case of pediatric traumatic cataract reported by the Grewal *et al.*,<sup>[2]</sup> the fact that the vitreous face was intact, there was no lens matter in the vitreous and the edges of the PCT were fibrosed allowed the surgeon to proceed with phacoemulsification. The size and shape of the PCT allowed the surgeon to assess that a posterior chamber (PC) IOL could be implanted. Additionally, the absence of any vitreous prolapse was a good prognostic indicator. Por and Chee<sup>[3]</sup> suggested that blunt trauma-induced blowout PCT in children occurs due to a combination of forces: equatorial stretching pulls on the zonule and stretches the capsule, and this anterior-posterior force tends to push it back thereby increasing the probability of the posterior capsule giving way. It usually occurs in young children where the lens matter is soft and elastic and the zonules are strong. The vitreous face maintains its integrity and the lens matter bulging through this tear in the posterior capsule gives an erroneous clinical profile of posterior lenticonus, a term suggested as posterior pseudo-lenticonus by Grewal *et al.*<sup>[2]</sup> Previously, such cases have been managed by a pars plana lensectomy. Management of traumatic cataract cases using a clear corneal incision, phacoaspiration, and PC IOL

implantation in the capsular bag has also been well established now as reported by published reports.<sup>[4-9]</sup>

**Suresh K Pandey, Vidushi Sharma**

SuVi Eye Institute and Lasik Laser Center, Kota, Rajasthan, India

**Correspondence to:** Dr. Suresh K Pandey,  
Director, SuVi Eye Institute and Lasik Laser Center,  
C 13 Talwandi, Kota - 324 005, Rajasthan, India.  
E-mail: suresh.pandey@gmail.com

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Access this article online	
<b>Quick Response Code:</b>	<b>Website:</b> www.ijo.in
	<b>DOI:</b> 10.4103/ijo.IJO_2846_21

**Cite this article as:** Pandey SK, Sharma V. Commentary: Scheimpflug imaging for evaluation of posterior lens capsule in pediatric traumatic cataract. *Indian J Ophthalmol* 2021;69:3524-5.