

## Traumatic dislocation of phakic anterior chamber iris-claw intraocular lens: A case report

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### Abstract

We are presenting a traumatic dislocation of a Phakic intraocular lens (PIOL) secondary to a blunt trauma to the right eye. The patient presented with a sudden blurring of vision with no other associated injury. His slit lamp examination showed disenclavation of the temporal clip and pre-operatively his best spectacle-corrected visual acuity (BSCVA) was 6/36. The patient was brought to the operating room where his lens was repositioned and re-enclaved. He had a complete restoration of vision with a BSCVA of 6/9 and an endothelial cell count of 2786/mm<sup>2</sup>. We conclude that a traumatic dislocation of an iris-claw PIOL can be successfully corrected without immediate postoperative complications and endothelial cell count loss.

**Keywords:** Ophthalmology, Phakic, Intraocular lens, Trauma.

### Introduction

Myopia is one of the most common eye conditions occurring in approximately 1406 million people, globally.<sup>1</sup> It is categorized into three types based on its severity: Low (<3.00 D), moderate (3.00D-6.00D), and high myopia (>6.00 D). Currently, it is being treated successfully with refractive surgeries like laser in situ keratomileusis (LASIK), for low to moderate myopia,<sup>2</sup> and photorefractive keratectomy (PRK), Phakic intraocular lens (PIOL) implantation or refractive lens exchange (RLE) for those with moderate to high myopia.<sup>3</sup>

Despite the latest approaches utilizing modern technologies, LASIK has its own limitations like irreversibility and an impact on optical performance.<sup>4</sup> As far as clear lens exchange is concerned, it can be offered to presbyopic patients but is not appropriate for younger patients due to their intact accommodation reflex. Additionally, an increased risk of retinal detachment exists in younger, high myopic patients.<sup>4</sup>

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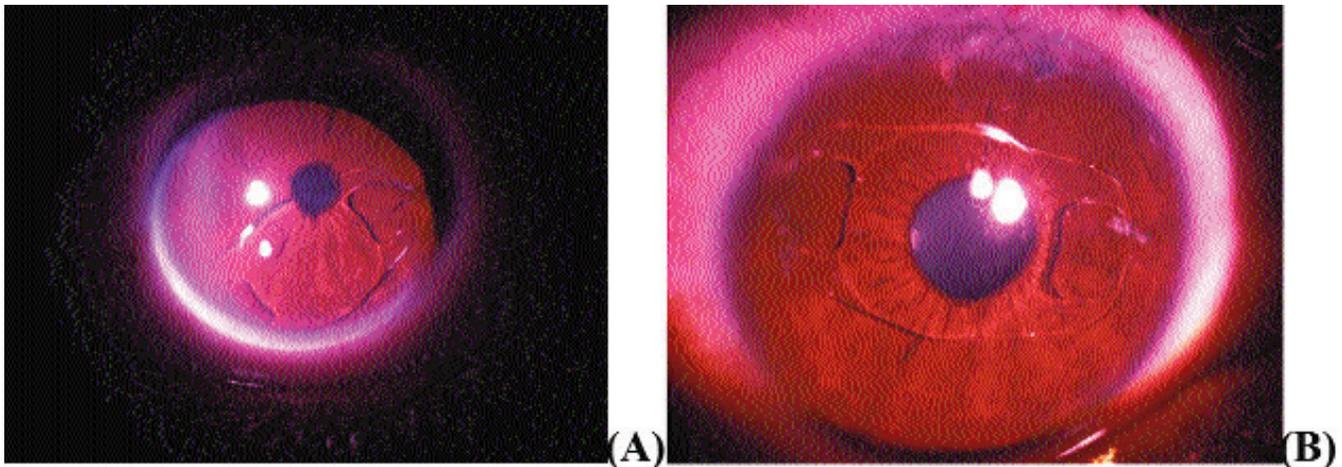
PIOLs are effective in managing high myopias as they keep corneal architecture intact, offer better vision, rapid recovery and can be explanted if needed. These lenses are known to improve vision by one to two lines of best corrected visual acuity (BSCVA). They cost twice as much as LASIK, however, and are associated with significant vision-threatening complications.<sup>3</sup> These are placed in front of the natural lens and come in three variants: Angle supported, iris fixated and, posterior chamber.<sup>3,5</sup>

We found three reports on the traumatic dislocation of an iris-claw PIOL in the medical literature,<sup>6-8</sup> but none of these were reported from Pakistan. Also, none of these reported the endothelial count after re-enclavation of the lens. Therefore, we are presenting a case of a traumatic dislocation of an anterior segment iris fixated Phakic IOL in a young male from this country with a comparison of the pre and post-op endothelial cell count. We took consent from the patient prior to writing this manuscript and this was approved by the ethics committee of Hashmanis Hospital.

### Case Report

A 21 year old male presented to the outpatient department of Hashmanis Hospital, Karachi, Pakistan in October 2016 with the complaint of sudden blurring of vision in his right eye after being hit by someone's elbow. One year prior to this incident, he had been implanted with an Ophtec Artisan iris fixated anterior chamber PIOL (-18.00 diopters). He didn't develop any early or late complications postoperatively and had an endothelial cell count of 2777/mm<sup>2</sup> on his one month follow up.

On physical examination, he was vitally stable with his right pupil constricted and did not have any associated injuries like oedema, bruising or hyphema. He had a best corrected visual acuity (BSCVA) of 6/36. On slit lamp examination of the right eye, the PIOL was dislocated infero-temporally with a released right temporal clip. However, the nasal claw was intact and there was no damage to the natural lens. Figure 1 shows the patient's dislocated PIOL, preoperatively, and the postoperative re-enclaved PIOL.



**Figure-1:** Picture of Phakic Intraocular Lens (PIOL) (A) Pre-operative dislocated PIOL (B) Post-Operative re-enclaved PIOL.

The patient was taken to the operating room immediately and was put under general anaesthesia. His anterior chamber was filled with viscoelastic substance and the lens was brought into position and re-enclaved. Postoperatively, the right eye behaved well with a complete restoration of vision: He regained a best corrected visual acuity of 6/9 and had an endothelial cell count of 2786/mm<sup>2</sup>.

### Discussion

Phakic IOLs have changed the horizon of refractive surgery by providing exceptional outcomes with minimal complications.<sup>6</sup> Ophtec Artisan iris claw PIOL has a convexo-concave design and has two claws on opposite sides which enclave to the mid-periphery of the anterior surface of the iris. According to one study, endothelial cell loss is a major concern after implantation.<sup>9</sup> Other rare complications include pigment dispersion and chronic uveitis.<sup>9</sup> Traumatic dislocation of the iris-claw PIOL can result in variable outcomes, but it is an avoidable complication.

There have been three reports on the same topic as per our literature review. The first case was a middle-aged woman who suffered a blunt trauma by a roll of tape to the left eye.<sup>8</sup> The second was a 32 year old woman who was hit by a football.<sup>6</sup> The last was a 47 year old man who sustained repeated blunt traumas and presented with a brow laceration.<sup>7</sup>

None of the above reports have included a comparison of an endothelial cell count before and after fixation of the lens. Our patient had a minimal increase in endothelial cell count from 2777/mm<sup>2</sup>, before IOL implantation, to 2786/mm<sup>2</sup> after re-fixation. This increase can be explained by the error of specular microscopy which can be as high

as 5 percent.<sup>10</sup>

A previous study conducted on PIOLs indicated that a traumatic dislocation occurs in approximately 1 out of 662 cases. The same study reports that spontaneous dislocation occurs more frequently in about 4 out of 662 people implanted.<sup>11</sup> Also, 2 case reports have been reported on the latter.<sup>12,13</sup>

### Conclusion

A traumatic dislocation of an iris-claw Phakic IOL can be successfully corrected without immediate postoperative complications and endothelial cell loss. This is possible if specific instruments for re-attachment and a surgeon experienced with the procedure are available. However, there is scarce data regarding its long-term outcomes and therefore we recommend future studies on this topic. Additionally, there is a need to counsel patients about this complication prior to implantation and to schedule regular lifelong follow-up visits.

**Disclaimer:** None to declare.

**Conflict of Interest:** Dr. Sharif Hashmani is a co-author of this manuscript and has also signed the IRB statement.

**Funding Disclosure:** None to declare.

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