

From Wounds to Wonders: Healing Traumatic Corectopia through Vitrectomy Cutter

Dr Karishma Dubey, Dr Nisha Ahuja, Dr Sanjana Shah

Sankara Eye Hospital, Anand, Gujarat, India

Abstract: Corectopia, characterized by the displacement of the pupil from its central position, can arise from congenital or acquired factors, including ocular trauma. This case report highlights a 70-year-old female with traumatic corectopia and associated aphakia following an injury. Using a minimally invasive sutureless technique, a 25-gauge vitrectomy cutter was employed to create a new central pupil, followed by the implantation of an iris-claw intraocular lens. The procedure demonstrated improved visual and cosmetic outcomes, showcasing the potential of this innovative method as an effective treatment for traumatic corectopia. This approach offers a promising alternative to traditional surgical methods with reduced complications and enhanced precision.

Keywords: corectopia, traumatic eye injury, pupilloplasty, iris-claw lens, vitrectomy cutter

1. Introduction

Corectopia refers to the displacement of the pupil from its typical central location. This term was initially introduced by Wilson⁽¹⁾. Corectopia can be either congenital or acquired, with the majority of congenital cases observed in pediatric patients presenting with other anterior chamber anomalies^(2, 3, 4). A wide range of ocular clinical pathologies are linked to pupil malposition. Corectopia serves as a significant, non-specific clinical biomarker indicative of various ocular conditions, which may or may not be associated with systemic involvement. Ocular trauma is recognized as a well-established etiology for corectopia.

2. Case Report

A 70-year-old female presented with diminished vision in her left eye for the past 7 years, following ocular trauma from a bamboo stick. She also reported reduced vision in her right eye since childhood, but details were unclear.

Ocular examination revealed best corrected visual acuity of 5/60 in the right eye and counting fingers at 1.5 meters in the left. Intraocular pressures were 12 mmHg in the right eye and 16 mmHg in the left. The right eye showed nebulomacular corneal opacity and a posterior chamber intraocular lens (PCIOL), while the left eye exhibited peripheral adherent leucoma, corectopia, and aphakia.



Figure 1: Showing preoperative anterior segment image of traumatic corectopia with an associated adherent leucoma

The right eye fundus examination was unremarkable, while the left eye fundus was not visible. B-scan ultrasonography was normal. Patient was advised Left eye secondary iris claw lens implantation with pupilloplasty.

3. Surgery Description

A 5.2 mm superotemporal incision was made, along with corneal paracentesis at the 11 and 4 o'clock positions. A 25-

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gauge vitreous cutter was introduced into the anterior chamber, set at 1000 cuts per minute and an aspiration pressure of 120 - 150 mmHg. A 4 mm central opening was created in the iris using the cutter, followed by thorough anterior vitrectomy. The iris - claw intraocular lens (IOL) was then inserted into the anterior chamber with iris claw forceps, positioned centrally over the pupil, with the haptics secured at the 10 and 5 o'clock positions.

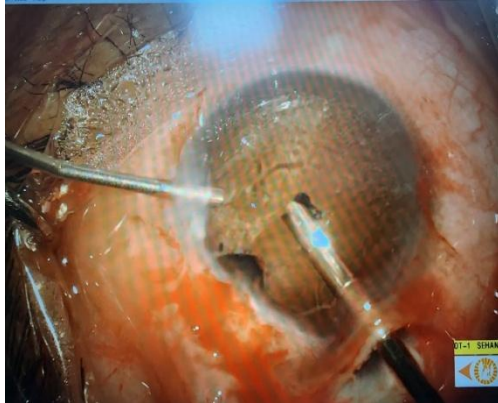


Figure 2

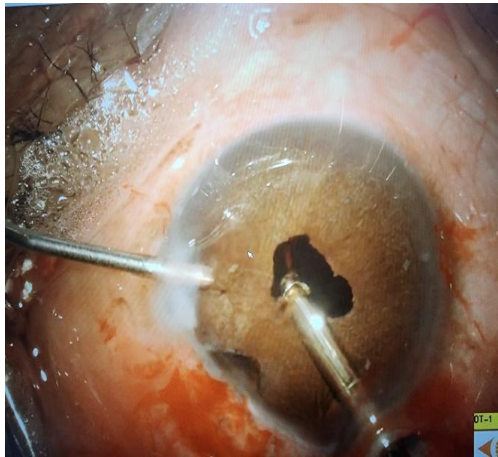


Figure 3

Figure 2, 3 showing the technique of pupilloplasty being performed using 25G vitrectomy cutter

On post operative day 1, the best corrected visual acuity in operated eye was 5/60.



Figure 4: Post operative image showing central newly created pupil

4. Discussion

Pupilloplasty in cases of traumatic corectopia presents significant challenges and is frequently associated with additional ocular comorbidities such as synechiae and aphakia. Various surgical approaches, both suture - based and sutureless, have been employed depending on the nature and severity of the corectopia. Here, we describe a sutureless pupilloplasty technique utilizing a 25 - gauge vitrectomy cutter. This method was found to be minimally traumatic, well - controlled, and reduced the incidence of excessive bleeding compared to traditional microscissors. In this case, a new pupil was constructed due to the loss of sphincter function in the original pupil, which had adhered to the cornea. This adhesion rendered it challenging to separate the pupil from the corneal surface.

In recent years, iris - claw intraocular lenses (IOLs) have become a common choice for managing aphakia due to their ease of insertion, suture - free fixation, reversibility, and minimal impact on corneal endothelial cells⁽⁵⁾. Shufang et al⁽⁶⁾ showed that combining iris repair with a Siepser slipknot and mattress suture during iris - claw IOL implantation is safe and effective. Lumi et al⁽⁷⁾ found that integrating iris cerclage pupilloplasty with posterior iris - claw lens fixation produces satisfactory outcomes.

To our knowledge, there have been no reported cases of traumatic corectopia correction using a 25 - gauge vitrectomy probe combined with retro - pupillary iris - claw lens insertion. This approach has proven effective in achieving both satisfactory visual and cosmetic results for the patient.

5. Conclusion

Management of corectopia remains challenging due to the lack of a definitive treatment. We addressed this by creating a new central pupil using a 25G vitrectomy cutter. Vision was subsequently restored through the implantation of an iris claw lens into the newly created pupil.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient (s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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