Case Report

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Iris Prolapse in Pediatric Corneal Trauma: Emphasizing the Role of Emergency Recognition and Rapid Referral

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Abstract

Pediatric ocular trauma represents a significant cause of preventable blindness worldwide and constitutes an important proportion of emergency department visits. Among these injuries, corneal perforation accompanied by iris prolapse is particularly vision-threatening, as it can rapidly lead to infection, anterior chamber instability, and permanent visual impairment if not promptly managed. The aim of this report is to highlight the clinical importance of iris prolapse in children and emphasize the critical role of early recognition and rapid surgical intervention. An 8-year-old boy presented to the emergency department with acute pain, redness, and decreased vision in the left eye following blunt ocular trauma caused by a stone. Ophthalmic examination revealed a full-thickness corneal perforation at the 3 o'clock limbal position, complicated by iris prolapse and fibrin reaction in the anterior chamber. The patient underwent urgent surgical intervention under general anesthesia. Using viscoelastic-assisted techniques, the prolapsed iris was gently repositioned into the anterior chamber, followed by meticulous corneal suturing and conjunctival closure. Postoperative recovery was uneventful, with restoration of anterior chamber depth, stable wound healing, and preservation of viable iris tissue. This case highlights the rarity and clinical significance of iris prolapse in pediatric ocular trauma. Rapid diagnosis, emergency referral, and modern tissue-preserving surgical techniques such as viscoelastic-assisted iris repositioning can successfully restore globe integrity and minimize long-term sequelae. Effective collaboration between emergency physicians and ophthalmologists is essential to prevent irreversible visual loss in this vulnerable population.

Keywords: Corneal perforation, emergency recognition, iris prolapse, pediatric ocular trauma, rapid referral

Introduction

Pediatric ocular trauma is a major cause of preventable visual loss, representing up to 30% of eye injuries seen in emergency departments worldwide (1,2). Blunt objects such as stones and sticks are common causative agents, particularly in rural settings (3,4).

Corneal perforation with iris prolapse is a rare but vision-threatening complication that requires urgent recognition. Delays in diagnosis and referral from the emergency department (ED) are strongly associated with poor outcomes, including infection, synechiae, and glaucoma (5–7).

While traditional management often required excision of prolapsed iris, recent techniques such as viscoelastic-assisted repositioning allow tissue preservation and improved functional results (8,9). This case highlights the crucial role of ED physicians in rapid recognition and stabilization, enabling timely surgical intervention and favorable visual prognosis.

Case Report

An 8-year-old boy presented to the emergency department with acute ocular pain, redness, and reduced vision in the left eye following blunt trauma by a stone. His past medical history was unremarkable. On admission, he was alert and cooperative, vital parameters were stable, and laboratory investigations were within normal limits.

Ocular examination revealed markedly reduced visual acuity in the left eye. Slit-lamp biomicroscopy demonstrated a limbal corneal laceration at the 3 o'clock meridian with iris prolapse, shallow anterior chamber, and fibrinous anterior chamber reaction. A positive Seidel test confirmed aqueous leakage. Orbital computed tomography revealed corneal perforation with iris prolapse and excluded the presence of intraocular or intraorbital foreign bodies.

The patient was managed with immediate protective eye shielding and intravenous broad-spectrum antibiotics, followed by urgent referral to the ophthalmology service.

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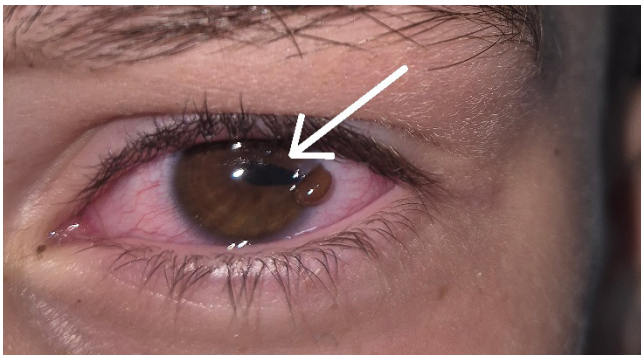

Figure 1. Clinical photograph of the patient at initial presentation to the emergency department, demonstrating corneal perforation at the limbus with evident iris prolapse through the wound. Written informed consent was obtained from the patient's legal guardian for publication of this image

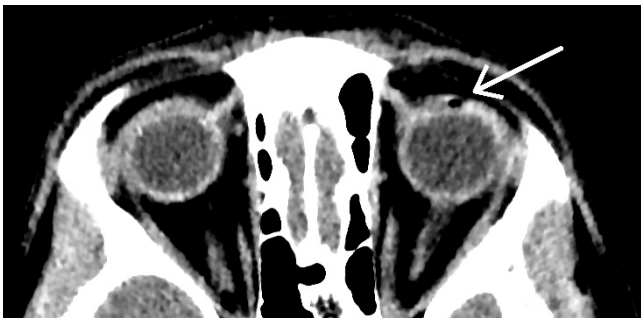

Figure 2. Axial section of orbital computed tomography (CT) showing the corneal perforation site with associated iris prolapse (arrow). Written informed consent was obtained from the patient's legal guardian for publication of this image

The patient underwent emergency surgical repair under general anesthesia. The corneal wound edges were first regularized, and the prolapsed iris was gently reposited into the anterior chamber with the aid of viscoelastic. The corneal margins were meticulously closed with interrupted 10-0 nylon sutures, thus ensuring anterior chamber reformation and watertight closure. The procedure was completed without complications.

The postoperative course was uneventful. The patient received topical antibiotics, corticosteroids, cycloplegic agents, and systemic antibiotic prophylaxis. At the one-month follow-up, the corneal wound had healed, the iris remained anatomically preserved, and visual acuity improved to 0.8 without signs of infection, glaucoma, or other complications.

Discussion

Pediatric ocular trauma constitutes a major challenge in emergency medicine, with corneal perforation and iris prolapse representing one of the most vision-threatening presentations. Previous large pediatric series have reported corneal perforation rates ranging from 3–5% among ocular traumas, with iris prolapse being an uncommon but critical finding (3,4).

In our case, the diagnosis of corneal perforation with iris prolapse was promptly recognized in the emergency department. This is noteworthy because delayed recognition remains a key predictor of poor outcomes. Shah et al. emphasized that inappropriate initial interventions—such as ocular manipulation, tonometry, or delayed shielding—can worsen the prognosis dramatically (5). In contrast, our patient benefited from strict adherence to protective measures, early systemic antibiotics, and expedited referral, which together established the foundation for a favorable prognosis.

Traditional surgical approaches were often associated with excision of prolapsed iris, which resulted in irreversible structural changes and long-term functional impairment (6). More recent series highlight the success of viscoelastic-assisted repositioning, which allows tissue preservation and improved functional outcomes (8). Our case aligns with these newer findings and demonstrates that even in the pediatric population, iris-preserving repair is both feasible and effective when performed in a timely manner.

Compared with prior pediatric case reports, our patient's favorable recovery without infection, glaucoma, or synechiae underscores the critical contribution of the emergency department. Specifically, the combination of immediate recognition, protective shielding, systemic prophylaxis, and rapid ophthalmology consultation provided the prerequisites for successful surgical repair. This sequence illustrates how the emergency physician's role is not only diagnostic but also prognostic, as it directly influences the long-term functional outcome (2,7,10).

Thus, the novelty of this report lies in its emphasis on the synergistic value of ED-based early management and modern surgical techniques. While previous literature has focused primarily on surgical strategies, our case demonstrates that optimal results can only be achieved when the emergency physician initiates appropriate measures without delay.

Conclusion

Pediatric corneal perforation with iris prolapse is a rare but vision-threatening condition. Prompt diagnosis and timely referral from the emergency department play a decisive role in safeguarding ocular integrity and optimizing functional recovery. Timely surgical repair with tissue-preserving techniques further improves visual prognosis, highlighting that favorable outcomes in pediatric ocular trauma ultimately depend on accurate and prompt emergency care.

Clinical Message: Corneal perforation with iris prolapse in children is a rare but vision-threatening emergency. Emergency physicians should avoid ocular manipulation, apply protective eye shielding, initiate systemic antibiotic prophylaxis, and arrange immediate ophthalmology

consultation. Early recognition and rapid referral are decisive factors in preserving globe integrity and visual function.

Ethics Statement/Informed Consent: Written informed consent was obtained from the patient's legal guardian for publication of this case report and accompanying images. In accordance with institutional policy, formal ethical committee approval was not required for single case reports.

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