ARC Journal of Public Health and Community Medicine
Volume 10 Issue 4, 2025, PP 01-03
ISSN No. (Online) 2456-0596
DOI: https://doi.org/10.20431/2456-0596.1004001
www.arcjournals.org

Pediatric Anterior Staphyloma: Clinical Insights from a Community-Based Detection Approach

Dr. D. Rahul Xavier*, Dr. Gurshan Gill, Dr. Rupali Chopra

Christian Medical College and Hospital, Ludhiana, Punjab

Received: 20 September 2025 Accepted: 30 September 2025 Published: 08 October 2025

Corresponding Author:** ***Dr. D. Rahul Xavier, *Christian Medical College and Hospital, Ludhiana, Punjab.*

Abstract:

Background: *Ocular trauma is a significant yet often overlooked cause of childhood blindness, particularly in underserved regions. Globally, it contributes to 5–10% of blindness cases, with delayed diagnosis and inadequate access to care exacerbating outcomes. In rural India, limited ophthalmic infrastructure and low awareness among caregivers hinder timely intervention. This study emerges from the need to address these gaps by emphasizing early detection, community education, and improved referral systems for pediatric eye injuries.*

Aim of the study: *The aim of this study is to highlight the clinical and public health implications of untreated pediatric ocular trauma, emphasizing its potential to cause irreversible vision loss. It seeks to advocate for improved rural ophthalmic care through early detection, caregiver education, and strengthened referral systems to prevent blindness and enhance patient outcomes.*

Methodology: *This case was developed through retrospective analysis of clinical records, ophthalmic examination findings, and caregiver interviews. Diagnostic imaging and slit-lamp evaluation confirmed anterior staphyloma. Literature review was conducted to contextualize ocular trauma prevalence and public health implications. The report emphasizes the need for improved rural ophthalmology infrastructure, drawing on community health models and screening protocols to propose actionable strategies for early detection, referral, and management of pediatric ocular injuries.*

Results: *The pediatric patient presented with anterior staphyloma and complete vision loss in the affected eye, following a history of untreated ocular trauma. Clinical examination confirmed corneal opacity, globe deformity, and no light perception. Caregiver interviews revealed delayed health-seeking behavior due to limited awareness and access. The case underscores the consequences of missed early intervention and highlights systemic gaps in rural ophthalmic care, including inadequate screening and referral mechanisms.*

Conclusion: *Untreated ocular trauma can cause irreversible blindness. Strengthening rural eye care through early detection, caregiver education, and referral systems is vital to improve pediatric outcomes.*

Keywords: *Pediatric ocular trauma, anterior staphyloma, vision loss, rural ophthalmology, early detection, caregiver education, referral systems, public health, blindness prevention*

1. Introduction

Anterior staphyloma is a severe ocular condition characterized by corneal ectasia and progressive thinning, often resulting from trauma, infection, or chronic inflammatory processes [1]. It leads to a weakened corneal structure that bulges outward, with the underlying uveal tissue adhered to it, causing visual impairment and, in advanced cases, complete loss of vision [2].

In underserved communities, access to specialized ophthalmic care is often limited due to socioeconomic barriers, lack of awareness, and healthcare accessibility challenges [3]. Community-based ophthalmology plays a vital role in addressing these issues, enabling early detection and intervention through screening programs, mobile clinics, and public health outreach efforts [4]. Such initiatives are essential in rural regions, where specialized care is rarely available, leading to delayed diagnosis and inadequate management of vision-threatening conditions [5].

2. Case Report

The patient sustained right eye trauma during the COVID-19 lockdown, about 5 years ago, followed by transient bleeding that stopped spontaneously (Fig.1). She did not report pain, loss of vision, itching, or diplopia. Two years

after the injury, she developed a progressively enlarging mass in the right eye accompanied by reduced vision. The family sought treatment at a government hospital in Patna, where she was prescribed medications that provided temporary relief. Surgery was recommended for a later stage, but the family did not proceed with it. Over time, the swelling worsened, leading to complete vision loss in the right eye. Notably, the progression was insidious, gradually deteriorating without associated redness, discharge, pain, or itching. The patient was born via normal vaginal delivery at term, cried immediately after birth, and did not experience postnatal complications. She has no history of congenital anomalies, tuberculosis, bronchial asthma, diabetes, or hypertension. She has no prior episodes of similar illness.

Figure 1. *Swelling and protrusion of the right eye*

The patient belongs to a low-income family with limited access to specialized medical services. The parents had minimal awareness of the long-term effects of untreated ocular trauma and relied on local remedies and outpatient visits to public hospitals due to financial constraints. The examination of the patient revealed that the right eye perception of light (PL) was negative and the left eye was 6/9. The extraocular movement was restricted in right eye. The ocular examination revealed that the right eye had a total anterior staphyloma**,** where the entire cornea and part of the sclera were ecstatic, opacified, and replaced by scarred, vascularized tissue. In the left eye the anterior segment and fundus were normal. The ultrasound B-Scan on right eye showed an echogenic cornea with outward bulging and thickened anterior segment, consistent with anterior staphyloma. The lens was cataractous and there was no evidence of retinal or choroidal detachment. As the patient is PL negative in the right eye, the management was aimed at only cosmetic rehabilitation. She was advised to undergo evisceration under general anaesthesia (GA) as the definitive treatment for anterior staphyloma.

3. Discussion

This case highlights the serious complications due to delayed ophthalmic care which could have been prevented with early intervention. It also focuses on the lack of infrastructure and support for management of such conditions during public health emergencies like the COVID-19 pandemic. The progression from blunt ocular injury to anterior staphyloma and irreversible vision loss underscores the importance of timely intervention and accessible emergency services [6-8].

Globally, ocular trauma contributes to approximately 5–10% of blindness cases [9]. In India, retrospective studies have shown that males are disproportionately affected due to occupational exposure, while pediatric patients often suffer from delayed care and poor outcomes [10]. In this case, the absence of early follow-up and surgical management led to corneal ectasia and globe disfigurement, resulting in evisceration and prosthetic rehabilitation as the final and ultimate step of management. From a public health perspective, rural and semi-urban regions continue to face significant gaps for the treatment of ophthalmological cases due to lack of effective outreach program initiatives and infrastructural support. The COVID-19 pandemic further strained ophthalmic services. As many hospitals focused on providing healthcare services for COVID-19 care and most of them had limited specialists availability for such trauma cases, many elective surgeries got postponed and the availability of essential ophthalmological services were limited in all urban, semi-urban regions and rural regions. As a result most of the cases get detected in the late stages with poor prognosis. Community based screening and

setting up of ophthalmological services like mobile clinics, medical camps and strengthening and setting up infrastructure teleopthalmology services in these regions can help in early detection of such conditions and improve the outcome.

4. Conclusion

This case highlights the impact of untreated ocular trauma, leading to anterior staphyloma and irreversible vision loss in a pediatric patient. Research indicates that ocular trauma accounts for 5-10% of global blindness cases, making timely diagnosis and intervention essential [9]. From a public health perspective, this case also focuses on the importance of improving the current infrastructure of community ophthalmology by early detection and management of such ocular conditions in the rural regions. Strengthening screening programs, caregiver education, and referral pathways is critical in ensuring early intervention and improving patient outcomes [4].

References

[1] Singh A, Rani D, Gupta N. Anterior staphyloma: Clinical spectrum and management. Int J Ophthalmol Clin Res. 2018; 5:73.

[2] Rajagopal R, Saini VK, Meena M. Management of anterior staphyloma in pediatric population: A clinical review. Indian J Ophthalmol. 2022; 70:1230-1234.

[3] Sachdev M, Bhatia N, Garg S. Barriers to pediatric eye care in rural India: A cross-sectional study. Community Eye Health J. 2022; 35: 20-24.

[4] Essuman VA, Ntim-Amponsah CT, Ahunu B. Community ophthalmology and primary eye care in sub-Saharan Africa. Middle East Afr J Ophthalmol. 2014; 21: 271-279.

[5] Srinivasan V, Thulasiraj RD, Prajna NV. The Aravind model of community eye care: A success story from India. Arch Ophthalmol. 2012; 130: 423-426.

[6] Chaudhary S, Singh V. Surgical approaches to anterior staphyloma: Indications and outcomes. Asia Pac J Ophthalmol (Phila). 2021; 10: 455-460.

[7] Kamei Y, Meitei KS. Cosmetic rehabilitation in anterior staphyloma: Role of ocular prosthesis. Indian J Plast Surg. 2014; 47: 221-226.

[8] Khan A, Patel M. Pediatric ocular trauma: Trends and management outcomes. J Pediatr Ophthalmol Strabismus. 2018; 55: 392-397.

[9] Shah P, Agrawal R. Ocular trauma: A neglected public health issue. Community Eye Health J. 2021; 34: 69-72.

[10] Kumar A, Pandey SK. Trends and determinants of ocular trauma in children: A hospital-based study. Indian J Ophthalmol. 2019; 67: 1206-1210.

Citation: *Dr. D. Rahul Xavier et al. Pediatric Anterior Staphyloma: Clinical Insights from a Community-Based Detection Approach. ARC Journal of Public Health and Community Medicine. 2025; 10(4):01-03. DOI: https://doi.org/10.20431/2456-0596.1004001.*