Case Reports in Clinical Medicine, 2026, 15(3), 87-92
https://www.scirp.org/journal/crcm
ISSN Online: 2325-7083
ISSN Print: 2325-7075

Seeing Eye to Eye with Traumatic Hyphema: Case Report and Management Guidelines

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How to cite this paper: Roberge, J., Schwanz, K. and Senk, A. (2026) Seeing Eye to Eye with Traumatic Hyphema: Case Report and Management Guidelines. *Case Reports in Clinical Medicine*, **15**, 87-92.
https://doi.org/10.4236/crcm.2026.153012

Received: August 25, 2025
Accepted: March 6, 2026
Published: March 9, 2026

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Abstract

Background: Traumatic hyphema, the presence of blood in the anterior chamber of the eye, is a complication of blunt or penetrating injury to the eye, particularly in ball and disc sports. It may be associated with injury to adjacent intraocular and orbital structures. This diagnosis warrants urgent evaluation and further workup by an ophthalmologist. *Aim*: This report serves to examine a sporting injury that resulted in a traumatic hyphema with subsequent discussion of this type of ophthalmic injury and its management guidelines based on current literature. *Case Report*: We present a 16-year-old ultimate frisbee player who was struck in the face with a frisbee from arm's length which resulted in the development of blurry vision and eye pain in the left eye. With further evaluation the player was found to have a grade 0 - 1 traumatic hyphema due to the presence of scant blood in the anterior chamber of the left eye. He was removed from play and initially managed conservatively with a clear eye shield, remaining in an upright posture, and applying no pressure to the left eye. He was then referred to a nearby level 1 trauma center for urgent ophthalmologic evaluation and treatment. *Discussion*: While most traumatic hyphemas are managed conservatively with bed rest, eye shields, bed elevation, and removal from sports play if applicable, medical treatments that are considered include antifibrinolytics (aminocaproic acid and tranexamic acid), antiglaucoma medications, corticosteroids, and cycloplegics. The discussion of analgesia is important as aspirin/NSAIDs should not be used or should be discontinued due to the risk of secondary hemorrhage. Instead, acetaminophen or codeine has been suggested in previous literature. Although uncommon, severe hyphemas could warrant surgical intervention and may result in

vision loss or permanent ocular sequelae.

Keywords

Traumatic Hyphema, Ophthalmology, Disc Sports, Ocular Injury

1. Introduction

During an international elite level ultimate frisbee tournament, an otherwise healthy Caucasian 16-year-old male athlete presented with sudden onset blurry vision and left eye pain after being hit in the face with a disc thrown at an arm's length away. While he was managed conservatively, our objective was to elucidate all available treatment options for traumatic hyphema. While medical management is available, it could be considered controversial as there is no standardized approach [1] [2]. Further, surgical management depends on factors such as the degree of hyphema, how long it remains present, various other criteria such a corneal blood staining and elevated intraocular pressure, and the patient's lack of response to medical management [2] [3].

2. Case Report

After being hit in the face by the disk, the athlete was removed from play, and focused neurologic and ophthalmologic assessments were performed. He was coherent and conversive. He denied loss of consciousness and his immediate sideline neurologic examination was unremarkable. The athlete reported his primary concerns of an acute change in his visual perception accompanied by photophobia and pain. He shared that he does not use corrective eye wear at baseline; and he was not wearing recreational sunglasses, protective eye wear, or contact lenses at the time of injury. On examination, there was no asymmetry or tenderness to palpation of the periorbital facial structures. Swelling, ecchymosis, abrasions and lacerations to the surrounding skin and left eyelid were absent. The visual fields were intact to confrontation and visual acuity measured with a Rosenbaum Pocket Vision Screener was 20/20 in right eye and 20/200 in left eye. Extraocular motility was full and non-painful. Conjunctival injection without frank subconjunctival hemorrhage was present; and his pupils were round, symmetric, and reactive with left sided eye pain with direct and consensual left pupillary light response. On direct inspection without the use of an ophthalmoscope, the athlete's left eye appeared to have a round, convex appearance congruent with the contralateral side. No extrusion of fluid or tissue was visible; however, a scant amount of blood was visualized in his anterior chamber. He was subsequently diagnosed with a grade 0 to 1 traumatic hyphema (**Figure 1**). Some important injuries to consider when assessing patients with acute blunt eye trauma include globe rupture, corneal tears, ciliary body detachment, lens subluxation, optic nerve injury, vitreous hemorrhage, retinal detachment, scleral damage, and iridodialysis, though this list is

not exhaustive [4]. The patient was initially managed with a clear protective eye shield, removed from competition, and advised to remain upright and avoid applying pressure over his eye. He was referred to a nearby level 1 trauma center for urgent ophthalmologic evaluation and treatment. While concurrent injuries including concussion were determined to be unlikely given his otherwise reassuring assessment and lack of reported observable signs of concussion (*i.e.* lying motionless, ataxia, gross motor incoordination, confusion) by bystanders, he was counseled regarding associated signs and symptoms and advised to return to the event's medical tent for further evaluation as needed.

Figure 1. Traumatic hyphema, grade 0 - 1.

3. Discussion

Hyphema is to be suspected following periorbital trauma and is associated with photophobia, decreased visual acuity, and anisocoria [5]. These injuries are graded from 0 (microhyphema) to IV (~100% filling of anterior chamber). Severe injuries may result in elevated intraocular pressure (up to 1/3 of patients), and vision loss [3] [6]. The recovery of visual acuity is worse with a total hyphema and is thought to be due to the injury involved, not the hyphema itself; such as a frisbee in this case [3]. Other complications include peripheral anterior synechiae (adhesion between the iris and cornea), secondary hemorrhage, corneal staining, optic atrophy, and amblyopia [1]-[3]. Peripheral anterior synechiae formation is associated with hyphemas that remain for longer periods of time, reported as greater than one week [3]. Secondary hemorrhage or rebleeding is problematic as it can cause the previously listed symptoms and delay recovery. Important considerations include any history of bleeding disorder as well as signs of concurrent open globe injury (common) and orbital compartment syndrome (rare). An important class of patients to consider when treating hyphema are those with sickle cell disease or trait. The sickling of cells may lead to worsened occlusion of the trabecular meshwork causing higher intraocular pressures for the same grade of hyphema in those without sickle cell disease [2] [3].

Diagnosis is clinical and initial management includes protection with clear eye shield, activity limitation, and pain control. Eye patches and other compressive dressings should be avoided in case there is a concomitant open globe injury which are present in approximately 62% of traumatic hyphema cases in the military population [7]. Urgent evaluation by an ophthalmologist is warranted for further assessment of the concern for traumatic hyphema as well as additional ocular injuries. Furthermore, the consulting ophthalmology team will determine severity and provide definitive treatment. Important information to consider sharing with the consulting team or first responders is concussion or other neurologic symptoms, degree of hemorrhage into the anterior chamber, visual acuity, painful eye movements, pain with palpation of the orbit, and deformation of the bony structures of the orbit. The criteria for returning to competition depend on the severity of the hyphema, with a suggested waiting period of at least 10 - 14 days as new bleeds are most likely within 5 - 10 days. Additionally, avoiding contact sports until hemorrhage has resolved and considering the use of polycarbonate shatterproof protective eye wear is recommended [5].

While most hyphemas are managed conservatively with bedrest, bed elevation (between 30˚ - 45˚), and eye shields, consideration of other treatment options involves medical or surgical [1] [3]. These further options are explored depending on the severity of the hyphema and associated conditions, such as sickle cell disease. While there are many different methods that physicians may follow from conservative to surgical management, it has been documented that treatment is not standardized and so-called "correct management" is considered controversial at this time [1] [2]. The main medications classes discussed with medical treatment are antifibrinolytics (aminocaproic acid or tranexamic acid), antiglaucoma medications, corticosteroids, and cycloplegics [1]-[3] [8]. Woreta *et al.* reviewed 30 studies with a total of 2969 participants assessing the listed medical treatments and others and found that there was no evidence of these treatments having an effect on visual acuity at any time period [8]. Bansal *et al.* agree with these findings in their discussion of the treatment of hyphema [2]. However, while Woreta *et al.* report that there is no evidence to support the use of corticosteroids or cycloplegics at all, Bansal *et al.* and Chen *et al.* report the utility of these medications. They detail that corticosteroids are used for the prevention of secondary hemorrhage and synechiae and cycloplegics are used for the prevention for the formation of peripheral anterior synechiae [1] [2]. It is worth stating that these discussions are about the use of topical corticosteroids and not oral, the use of later remaining controversial [2]. Antifibrinolytic medications such as aminocaproic acid or tranexamic acid are useful in the prevention of rebleeding through the stabilization of the clot [1]-[3]. Aminocaproic acid achieves this action through inhibiting the conversion of plasminogen to plasmin and inhibiting the binding of plasmin to the fibrin clot. Tranexamic acid is thought to work in a similar mechanism to aminocaproic acid, acting through lysine binding sites [2] [3]. The use of antifibrinolytic agents may delay the resolution of hyphema [2]. Antiglaucoma medica-

tions assist with lowering intraocular pressure, but care needs to be taken in selecting the correct medications. For example, acetazolamide lowers plasma pH more than other medications in this class and would be a poor option for patients with sickle cell disease/trait as this lower pH promotes sickling of the erythrocytes [2]. Surgical management of hyphema is only indicated for a small subset of hyphema patients (5% to 7.2%) [2]. There are varying criteria physicians will use to determine the need for surgery and they relate to the degree of hyphema and how long they remain present [2]. Some of these criteria include the corneal blood staining and dangerously elevated intraocular pressure that is not responding to the above medical therapies [3]. The surgical procedures that may be considered include anterior chamber washout, trabeculectomy, peripheral iridectomy, and anterior chamber paracentesis [1] [3].

The topic of analgesia is an important consideration because NSAIDs and aspirin should not be used in a patient who has sustained a hyphema as they are postulated to increase the risk of secondary hemorrhage [3]. The risk of rebleed with aspirin versus Tylenol has seen conflicting evidence but the recommendation still stands [1] [3]. Consideration of risks of secondary bleeding should be undertaken when a patient taking anticoagulants, antiplatelets, and analgesics sustains a traumatic hyphema [1].

Given the fact that ocular injuries are common during sport and few physicians have robust training in ophthalmology, it is imperative that the understanding of management of traumatic hyphemas be enhanced due to their potential severity and associated loss of vision [3]. Since this management can be seen as controversial in nature, it could be considered best practice to ensure that patients experiencing these types of injuries be followed with physicians who have past experience in the treatment of hyphemas, in a collaborative fashion with ophthalmology.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

[1] Chen, E.J. and Fasiuddin, A. (2021) Management of Traumatic Hyphema and Prevention of Its Complications. *Cureus*, **13**, e15771. https://doi.org/10.7759/cureus.15771

[2] Bansal, S., Gunasekeran, D.V., Ang, B., Lee, J., Khandelwal, R., Sullivan, P., *et al.* (2016) Controversies in the Pathophysiology and Management of Hyphema. *Survey of Ophthalmology*, **61**, 297-308. https://doi.org/10.1016/j.survophthal.2015.11.005

[3] Walton, W., Von Hagen, S., Grigorian, R. and Zarbin, M. (2002) Management of Traumatic Hyphema. *Survey of Ophthalmology*, **47**, 297-334. https://doi.org/10.1016/s0039-6257(02)00317-x

[4] Mohseni, M., Blair, K., Gurnani, B., *et al.* (2025) Blunt Eye Trauma. StatPearls Publishing. https://www-ncbi-nlm-nih-gov.ezproxylr.med.und.edu/books/NBK470379/

[5] Gerstenblith, A.T. and Rabinowitiz, M.P. (2012) The Wills Eye Manual: Office and Emergency Room Diagnosis and Treatment of Eye Disease. 6th Edition, Lippincott

Williams & Wilkins.

[6] Haring, R.S., Sheffield, I.D., Canner, J.K. and Schneider, E.B. (2016) Epidemiology of Sports-Related Eye Injuries in the United States. *JAMA Ophthalmology*, **134**, 1382-1390. https://doi.org/10.1001/jamaophthalmol.2016.4253

[7] Miller, N.R., Justin, G.A., Kim, W.I., Brooks, D.I., Ryan, D.S., Weichel, E.D., *et al.* (2019) Hyphema in Open-Globe versus Closed-Globe Injuries in Operation Iraqi Freedom and Enduring Freedom: 2001-2011. *Military Medicine*, **185**, e768-e773. https://doi.org/10.1093/milmed/usz405

[8] Woreta, F.A., Lindsley, K.B., Gharaibeh, A., Ng, S.M., Scherer, R.W. and Goldberg, M.F. (2023) Medical Interventions for Traumatic Hyphema. *Cochrane Database of Systematic Reviews*, **2023**, CD005431. https://doi.org/10.1002/14651858.cd005431.pub5