

# TRAUMATIC HYPHEMA



**Eye Learn**  
All about the Eye

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## TRAUMATIC HYPHEMA

1. Medical management of traumatic hyphema. Mention the indications of surgical intervention? JUN 2009
2. Management of traumatic hyphema with secondary glaucoma. Dec 2009
3. What is the treatment algorithm for hyphema indicating the role of hospitalization, medical treatment and surgery? 10 4+6 JUN 2011
4. Grading, investigations, complications and management of traumatic hyphema. (2+2+2+4) DEC 2014
5. Causes, investigations and management of hyphema. 3+3+4 Apr 2016
6. Evaluation and management of near total hyphema in a 10-year-old boy post injury with a ball presenting to you on the 2nd day. 5+5 December 2016
7. Causes and management of glaucoma associated with ocular trauma. 3+7 J 2017
8. Discuss post-traumatic glaucoma. (2002)

**Table 1. TRAUMATIC HYPHEMA CLASSIFICATION AND CHARACTERISTICS**

Grade	Volume of Hemorrhage in Anterior Chamber	Frequency (%)	Visual Prognosis of 20/50 or Better (%)
Microhyphema	Circulating RBCs only	6.5-27.8	75-90
I	<1/3	44.5-77	75-90
II	1/3-1/2	3-20	65-70
III	>1/2	1.6-14	25-50
IV	Total	1.3-8	25-50

Data from references 6-9,37,38,69.  
Abbreviation: RBCs, red blood cells.

**Table 2. MANAGEMENT HYPHEMA**

Treatment Modality	Indications/Rationale	Recommended Techniques
Supportive therapy	All patients <sup>4,5,16,25,69</sup>	Elevate head of bed 30°, eye patching, decreased activity <sup>4,5,16,25,69</sup>
Hospital admission	Grade III or IV hyphemas, intractable IOP, noncompliant patients or parents, suspected child abuse, extremes of age, positive sickle cell anemia or trait, intensive diagnostic regimens required <sup>4,6,13,22,25-29,43-65,68,72</sup>	Intravenous medications and sedation as needed <sup>5</sup>
Medical management	Topical cycloplegics	To increase patient comfort, facilitate posterior segment evaluation <sup>69,71</sup>
	Topical corticosteroids	Prevent rebleed, to decrease iritis <sup>26,43,69,72</sup>
	Systemic corticosteroids	Prevent rebleed, to decrease iritis <sup>26,43,73</sup>
	Topical antifibrinolytics	Prevent rebleed <sup>5,29,43</sup>
	Systemic antifibrinolytics	Prevent rebleed <sup>5,29,43</sup>
	Topical beta-blockers	Elevated IOP <sup>69</sup>
	Carbonic anhydrase inhibitors	Uncontrolled IOP <sup>5,69</sup>
	Osmotic agents	Uncontrolled IOP <sup>5</sup>
Surgical treatment	Uncontrolled IOP (50 mm Hg for 5+ days), early corneal staining, detected rebleeding hyphema >50% for >10 days <sup>5,69,80</sup>	Paracentesis and anterior chamber washout <sup>5,69,80</sup> Automated hyphectomy <sup>5,69,80</sup> Clot expression and limbal delivery <sup>5,69,80</sup> Clot irrigation and trabeculectomy <sup>5,69,80</sup>

- Severe, uncontrolled IOP (greater than 35 mm Hg) may require additional systemic medication.
- Mannitol, an osmotic agent, is administered intravenously, 1.5 mg/kg in a 10% solution over 45 minutes twice a day.<sup>5</sup> Systemic osmotics should be used cautiously because they can cause hemoconcentration.
- Thus, renal function should be monitored during prolonged use.
  
- **Indications for surgical intervention include**
  1. Uncontrolled, elevated IOP (50 mm Hg for 5 or more days),
  2. Early corneal blood staining,
  3. Hyphemas greater than 50% of more than 10-days duration,
  4. Patients with sickle cell trait or anemia with any size hyphema, IOPs greater than 35 mm Hg for more than 24 hours, and detection of active bleeding.
  5. Published data support surgical intervention on the fourth day for a total hyphema.
  
- **Multiple surgical approaches**
  1. Paracentesis and anterior chamber washout is a safe and effective surgical procedure, especially in the treatment of sickle cell trait or anemia patients.
  2. This technique removes erythrocytes that may be blocking the trabecular meshwork, thereby relieving elevated IOP.
  3. Automated hyphectomy for hyphema evacuation uses automated cutting and aspiration instruments to lower IOP.
  4. Clot expression and limbal delivery is another technique that is usually advocated 4 to 7 days after the initial injury, when clot consolidation and retraction is at its peak.
  5. Lastly, clot irrigation with trabeculectomy is reserved for total hyphemas.
  6. It allows for resolution of the hyphema while primarily controlling elevated IOP.
  7. This surgical technique is used when IOP cannot be controlled medically with antiglaucomatous medications.

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