CLINICAL PRACTICE GUIDELINE: Emergency Department

Hyphaema

See also: Blunt trauma, Immediate management of penetrating eye injury (PEI) and ruptured globe

Description:

Hyphaema is the presence of blood within the anterior chamber. A macrohyphaema refers to a layer of blood forming in the anterior chamber; a microhyphaema refers to blood cells suspended in the anterior chamber without a visible layer.

Red Flags:

- History of significant trauma. A hyphaema may occur in the presence of a globe rupture, penetrating eye injury (PEI) or a retrobulbar haemorrhage.
- Patients with sickle cell anaemia are at increased risk of high intraocular pressures, re-bleeding, and may require surgical intervention at lower intraocular pressure (IOP) thresholds. Hyperosmolar agents and carbonic anhydrase inhibitors may be contraindicated to control IOP.

How to Assess:

History:

- History of trauma – exclude head injury
  - Mechanism will guide your index of suspicion for globe rupture and PEI
- Systemic anticoagulant use
- Known blood dyscrasias e.g. sickle cell anaemia

Examination:

- Exclude head or orbital injury
- Exclude globe rupture or penetrating injury
- Complete slit lamp examination, including IOP and dilated retinal examination
  - Document extent of hyphaema
    - Microhyphaema: 1 to 4 + red blood cells (SUN classification)
    - Macrohyphaema: measure vertical height either in mid corneal or highest position

Investigations:

- B-scan if no retinal view and open globe injury excluded
- Consider CT brain and orbits only if significant trauma and other injuries to be excluded
- Anticoagulation profile if indicated
- Consider investigation for sickle cell anaemia if of African descent

Acute Management:

- Topical medications:
    - Cyclopentolate 1% eye drops TDS
        - Immobilises iris and potentially stabilises clot
    - Prednefrin Forte® eye drops QID
        - Reduces trauma associated inflammation
- Limit physical activity:
    - A reduction in physical activity reduces the risk of re-bleed. Most re-bleeds occur within 3-5 days.
    - Quiet ambulation around home for 1 to 2 weeks
    - No strenuous activity
    - Children should be kept home from school and may require admission to achieve "quiet ambulation"
- Sleep at 30 degrees: encourages hyphaema to settle
- Eye shield at night until hyphaema settles
- Avoid aspirin and non-steroidal anti-inflammatory drugs for pain
- If patient on systemic anticoagulant, ensure its indication is reviewed

Follow up:

- Frequency of follow up should be determined by extent of hyphaema and whether IOP increased
- Review at 24-72 hours watching for elevated IOP
- Consider surgical intervention if:
    - Corneal blood staining
    - Uncontrollable IOP
    - Patients with sickle cell anemia may need surgical intervention at lower IOP thresholds
- Gonioscopy after 4 – 6 weeks to check for angle recession. If angle recession present, inform patient of increased risk of future glaucoma and need for lifelong annual IOP review (optometrist or ophthalmologist).

Discharge instructions:

- Patients should be advised to re-present if they develop significant pain, or increased blurred vision, which may indicate a re-bleed

Additional notes:

- Give patient copy of Hyphaema Patient Information

Evidence Table

Author(s)	Title	Source	Level of Evidence (I – VII)
	Wills Eye Manual		
William Walton, Stanley Von Hagen, Ruben Grigorian, Marco Zarbin	Management of Traumatic Hyphaema	Survey Of Ophthalmology 2002 47(3):297-334	I
Prithvi Sankar, Teresa Chen, Cynthia Grosskreutz, Louis Pasquale	Traumatic Hyphaema	International Ophthalmology Clinics 2002 42(3):57-68	1

The Hierarchy of Evidence

The Hierarchy of evidence is based on summaries from the National Health and Medical Research Council (2009), the Oxford Centre for Evidence-based Medicine Levels of Evidence (2011) and Melynk and Fineout-Overholt (2011).

I) Evidence obtained from a systematic review of all relevant randomised control trials.

II) Evidence obtained from at least one well designed randomised control trial.

III) Evidence obtained from well-designed controlled trials without randomisation.

IV) Evidence obtained from well-designed cohort studies, case control studies, interrupted time series with a control group, historically controlled studies, interrupted time series without a control group or with case series.

V) Evidence obtained from systematic reviews of descriptive and qualitative studies.

VI) Evidence obtained from single descriptive and qualitative studies.

VII) Expert opinion from clinician, authorities and/or reports of expert committees or based on physiology.

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