

Clinical & Refractive Optometry is pleased to present this continuing education (CE) article by Dr. Ron Melton and Dr. Randall Thomas entitled **Traumatic Hyphema**. In order to obtain a 1-hour Council of Optometric Practitioner Education (COPE) approved CE credit, please refer to page 319 for complete instructions.

Traumatic Hyphema

Ron Melton, OD; Randall Thomas, OD

SUBJECTIVE

A 52-year-old-white male was clearing a lot by bulldozing through several trees when a good-sized branch flew back and hit him in the face with such force that it knocked him off the bulldozer. Initially he thought he had his left eye put out, and his vision was reported to be very blurry. He presented four hours post-trauma.

OBJECTIVE

- Visual acuity (VA) pinhole was 6/9 (20/30) OS
- Corneal epithelium was intact (probably because his blink reflex was quicker than the branch velocity)
- EOMs were full and there was no point tenderness or crepitation upon orbital rim palpation
- There was grade II generalized conjunctival hyperemia
- The anterior chamber was deep with 3+ cellular debris (both red and white cells)
- There was a 20% hyphema (Fig. 1)
- Applanation tonometry was 17 mmHg OD and 13 mmHg OS
- Binocular indirect ophthalmoscopy (BIO) was normal

ASSESSMENT

- Traumatic hyphema with iridocyclitis

PLAN

- Rimexolone (Vexol) q.1h. while awake and 5% homatropine t.i.d.
- Sleep with head elevated about 30° for the next 5 days
- Be as immobile as possible for the next 5 days — bathroom privileges only
- No reading, can watch TV at a distance
- The patient was thoroughly educated about the potential seriousness of his condition; this was underscored by telling him that many patients are admitted to hospital to assure compliance with therapy.

R. Melton, R. Thomas — Adjunct faculty members at the Pennsylvania, Pacific University and SUNY Colleges of Optometry; Consultants to the American Optometric Association and Fellows of the American Academy of Optometry; both are in clinical practice in North Carolina. Recipients of the Glaucoma Educators of the Year Award presented by the American Academy of Optometry.

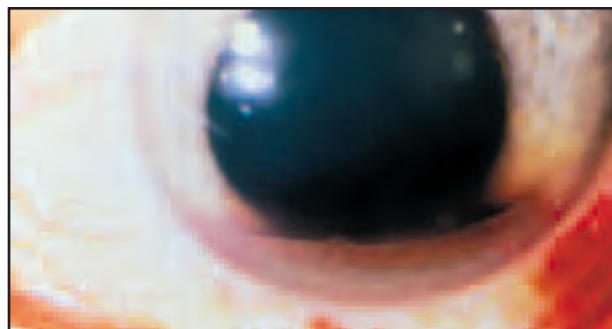


Fig. 1 Blunt trauma of sufficient force to cause a tear in the face of the ciliary body commonly results in hyphema.

Upon his assurance of compliance, he was sent home. He is to be seen again in two days

FIRST FOLLOW-UP VISIT

Subjective

- At his first follow-up visit, he felt he was doing better. Soft tissue bruises had developed where he was struck

Objective

- VA pinhole to 6/7.5 (20/25)
- Hyphema is now at 15%
- Anterior chamber reaction was 2+
- Applanation tonometry is 15 mmHg OS

Assessment

- Resolving traumatic hyphema

Plan

- Continue rimexolone q.1h.
- Continue homatropine t.i.d.
- Continue sedate life
- Patient was again admonished to comply with prescribed therapy without deviation
- Recheck in 2 days

SECOND FOLLOW-UP VISIT

Subjective

- Now 4 days out, he continues to do well



Fig. 2 Following a brisk fist injury, this teenage male developed a traumatic hyphema. This is his initial (same day) presentation. The following sequence of daily follow-up photos show the hemolysis and resolution pattern commonly seen.



Fig. 3 Day 2 — the haze in the anterior chamber has cleared and the hyphema has taken on a uniform appearance as the blood settles inferiorly.

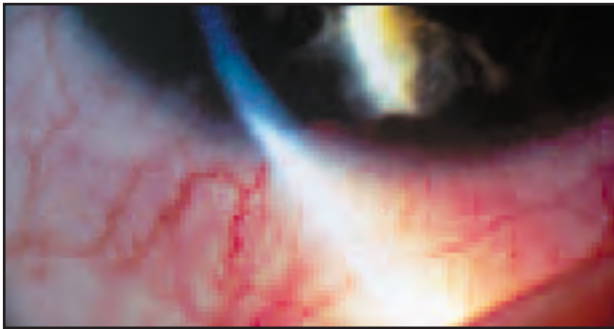


Fig. 4 Day 3 — slowly the hyphema is becoming smaller as the patient is complying with the recommendation of bed rest.

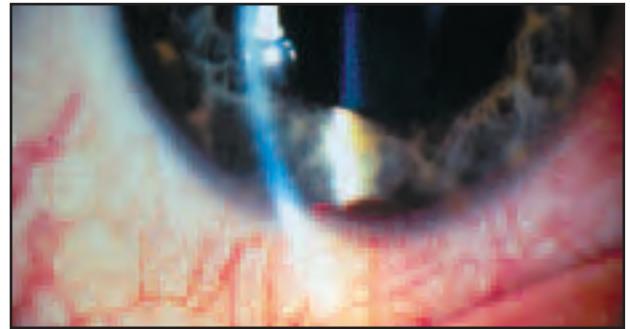


Fig. 5 Day 4 — the blood in the inferior anterior chamber is over 50% resolved.



Fig. 6 Day 5 — only a trace of blood remains.

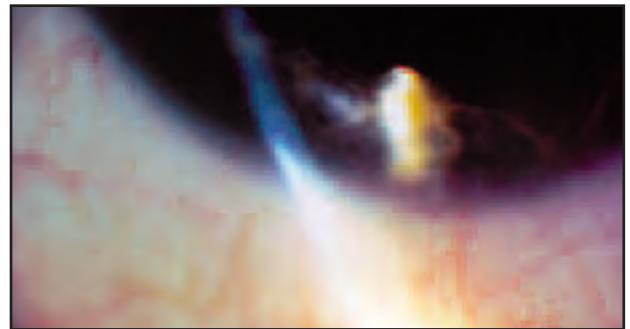


Fig. 7 Day 6 — the hyphema is resolved.

Objective

- VA now 6/7.5 (20/25) uncorrected or with pinhole
- Hyphema now less than 10%
- Anterior chamber only has rare cells
- Applanation tonometry is 15 mmHg
- Repeat BIO remains normal

Assessment

- Continued normal resolution

Plan

- Decrease rimexolone to q.2h.

- Stop homatropine
- Continue sedate life
- Admonish as before
- Recheck in 2 days

THIRD FOLLOW-UP VISIT

Subjective

- The third follow-up visit is 6 days post-trauma

Objective

- VA is 6/7.5+ (20/25+)

- Hyphema barely seen
- Anterior chamber clear
- Applanation tonometry is 16 mmHg

Assessment

- Rapidly resolving hyphema, renormalization of tissues

Plan

- Decrease rimexolone to q.i.d.
- Light household duties; regular sleeping
- Recheck in 4 days

FOURTH FOLLOW-UP VISIT

Subjective

- Fourth follow-up visit finds a continually relieved and happy patient (and doctor) who is now 10 days post-trauma

Objective

- VA is 6/7.5 (20/25+)
- No hyphema is seen
- Anterior chamber is clear
- Applanation tonometry is 16 mmHg

Assessment

- Resolved hyphema

Plan

- Rimexolone b.i.d. x 4 days, then stop
- Recheck in 3 weeks for comprehensive examination to include gonioscopy

Comments: It is generally recommended to see hyphema patients daily. However, because this man lived a considerable distance from the office and I had confidence in his compliance, I opted to see him every other day. These decisions rest on the doctor's experience and his/her knowledge of the patient's ability and/or willingness to be compliant.

The vast majority of compliant patients do very well. The key, in large part, is not to rock the boat for 5 days, during which time physiologic healing occurs (Figs. 2-7). Medical therapy is aimed at reducing associated inflammation.

GENERAL OBSERVATIONS

- History of high-velocity blunt trauma results in a tear of iris and/or ciliary body with rupture of blood vessels
- Corneal abrasion may or may not be present; traumatic iridocyclitis is common
- 75% male incidence
- Clot remains an average of 3 to 4 days
- Rebleed rate varies considerably — an average incidence is 5% to 15%
- Incidence of rebleed is highest on days 3 and 4

- Children are less likely to rebleed than adults
- Caucasians rebleed less than African-Americans
- Angle recession is common (gonioscopy should be done in 3 to 4 weeks to assess the angle anatomy)
- Late glaucoma is rare
- Vast majority recover 6/9 (20/30) or better vision

HYPHEMA MANAGEMENT

- Perform complete eye and adnexal tissue examination
- Rule out posterior segment involvement and any fracture of orbital rim
- Cycloplegic: 5.0% homatropine or 0.25% scopolamine t.i.d. x 5 days
- Prednisolone acetate 1.0% (Pred Forte), rimexolone (Vexol), or loteprednol etabonate 0.5% (Lotemax): frequent administration initially, then taper according to the anterior chamber reaction
- Bed rest — quiet life for at least 5 days
- Sleep with head elevated
- No reading, can watch TV at a distance
- Acetaminophen (Tylenol) for pain — no ASA or alcohol
- Since African-American adults have the highest rebleed rates, this group, epidemiologically, may have the greatest indication for using aminocaproic acid (Amicar). This is a systemic antifibrinolytic agent that can stabilize the clotted hyphema, hopefully buying time for the damaged vascular tissues to heal prior to clot dissolution. In a patient with high risk to bleed, physiologic hemolysis could occur before the underlying vascular damage is sufficiently healed. Aminocaproic acid holds the hemolysis process in abeyance to provide time for underlying damaged vascular tissue to heal
- Recommended dosage of aminocaproic acid: 50 mg/kg body weight q.4h. po x 5 days
- Aminocaproic acid is expensive. Nausea is the most common systemic side effect. It is contraindicated in patients with sickle cell disease or trait. Therefore, laboratory blood studies must be performed prior to institution of therapy. Fortunately, such systemic therapy is seldom needed. A topical aminocaproic gel has been studied extensively and may soon be available, providing comparable efficacy with considerably fewer potential side effects than the oral form.

Disclaimer: Not every detail of every case is discussed, rather the key clinical findings are described. For example, if nothing is said about the corneal status, you should assume that the cornea is normal, etc. When vision is recorded, it should be assumed to be best corrected or pinholed. Regarding therapy, we show how we treated the particular case. Given that medicine is an art, as well as a science, therapy will — and often does — vary with each unique patient presentation depending on severity, known drug allergies, prior treatment, response to therapy, etc.



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- Fill in the identification section and answer the 10 multiple choice questions in this CE credit application form
- Prepare a cheque for \$25.00 made out to Medicconcept
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Your answers will be sent for marking to the School of Optometry, University of Montreal, Quebec. If you score 70% or more, a COPE-approved CE Credit Certificate will be issued by the University of Montreal and *Clinical & Refractive Optometry* for your records and display in your office.

IDENTIFICATION

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QUESTIONNAIRE

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1. Which of the following statements about traumatic hyphema is **TRUE**?
 - The objective of medical therapy is to reduce inflammation
 - Ideally, the patient is seen every day for follow-up
 - Successful resolution is in part dependant on patient compliance
 - All of the above
2. In this case, the patient initially presented with which of the following signs and symptoms?
 - Grade II generalized conjunctival hyperemia
 - 20% hyphema
 - Visual acuity pinhole 6/9 (20/30) OS
 - All of the above
3. Which of the following statements about follow-up #1 is **FALSE**?
 - Rimexolone (Vexol) q. 1h. while awake and 5% homatropine t.i.d. were continued
 - The patient was dissatisfied with his progress
 - Hyphema was 15%
 - The patient was advised to continue sedate life
4. Which of the following statements does **NOT** describe the second follow-up visit?
 - The patient was advised to return to normal daily activity
 - Repeat BIO remained normal
 - Applanation tonometry was 15 mmHg
 - Homatropine was stopped

5. Which of the following statements about traumatic hyphema is **FALSE**?
- 75% male incidence
 - Vast majority recover 6/9 (20/30) or better vision
 - Corneal abrasion is always present
 - Average rebleed rate is 5% to 15%
6. Which of the following statements does **NOT** describe traumatic hyphema and its management?
- Posterior segment involvement is a possibility
 - Sleep with head elevated
 - Acetaminophen (Tylenol) for pain
 - ASA for pain and inflammation
7. Which of the following general observations about traumatic hyphema is **FALSE**?
- Clot remains an average of 2 to 3 days
 - Incidence of rebleed is highest on day 5
 - Caucasians rebleed more than African-Americans
 - All of the above
8. Which of the following statements about traumatic hyphema is **TRUE**?
- Crepitation upon orbital rim palpation is not always present
 - Binocular indirect ophthalmoscopy (BIO) is not always affected
 - History of high-velocity blunt trauma results in a tear of iris and/or ciliary body with rupture of blood vessels
 - All of the above
9. All of the following statements are **TRUE, EXCEPT**:
- At Day 4, the blood in the inferior anterior chamber was over 80% resolved
 - On Day 6, the hyphema was resolved
 - In hyphema management, fracture of the orbital rim must be ruled out
 - Traumatic iridocyclitis is common in cases of hyphema
10. Which of the following does **NOT** describe the fourth follow-up visit?
- VA was 6/7 (20/25+)
 - Rimexolone t.i.d. x 4 days was prescribed; then stopped
 - Anterior chamber was clear
 - Applanation tonometry was 16 mmHg