

Management of Traumatic Hyphaema

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Ocular trauma is a day to day occurrence which almost all ophthalmologists come across. It is ocular emergency to be attended without delay. Traumatic Hyphaema may be accompanied by complication that can ultimately impair vision. Thus timely systematic approach to the diagnosis and treatment of this condition is of paramount importance. Hyphaema commonly results from blunt trauma with presenting complaint of pain and decreasing vision.

DIAGNOSIS :

History

A careful history is always essential for effective diagnosis and to decide on the course of treatment. Answer to the following questions must be sought.

1. What were the circumstances of injury?

A detailed description of the circumstances of injury is essential. For example it is not adequate to know that the eye was hit by a ball. It is relevant to know what type of ball which hit the eye, from how far it was thrown and whether by an adult or child because then only one can estimate the force with which it hit the eye.

2. How quickly the vision was lost?

This is very relevant. An immediate loss of vision is indicative of a big Hyphaema and associated pathology like commotio retina or visual pathway injury. A delayed visual loss on the other hand is indicative of a secondary haemorrhage.

3. Is an Intraocular foreign body likely to be present?

Some type of injuries resulting in Hyphaema could be associated with intra-ocular foreign body. Since such an eventuality demands further investigations like skiagrams etc and different management it is essential to recognize its existence at the very beginning.

4. What was the patient's visual acuity to the injury?

To assess the visual loss on account of present injury it is but essential to know the vision prior to injury. If such record is not available and no other associated pathology like corneal opacity or associated history like squint causing amblyopia is present then one has to presume that the vision was normal prior to injury and diminution of vision is the result of injury.

5. Was the patient using any protective eye wear?

It is of importance. Also a piece of glass or plastic may be lodged in the eye if he was wearing any protective eye wear.

6. Has the Patient been recently on any antiplatelet medication?

Besides other such medications, Aspirin which is so commonly used inhibits platelet activity thereby increasing bleeding time and decreasing clotting ability. This effect may last for more than three days and increase the patient's risk of secondary haemorrhage.

7. Does the patient have a past history or family history of bleeding disorder specially sickle cell diseases?

Ocular Examination

After taking a detailed history it is essential to carry out detailed and thorough ocular examination to evaluate the hyphaema as well as other associated injuries that may be present. Hyphaema may mask some injuries like dialysis or rupture of iris, traumatic cataract and retinal detachment. Vitreous haemorrhage may be observed after the absorption or irrigation of anterior chamber. Following points are of considerable importance.

1. Examination of periocular region for any associated fracture or laceration. Skiagram may be indicated if fracture is suspected.
2. Direct and consensual pupil reaction.

Following blunt injury a traumatised pupil may be semidilated and reacting poorly to direct light stimulation. Abnormalities in pupil reaction such as an afferent pupillary defect may be indicative of posterior segment or visual pathway damage.

3. Corneal abrasion or laceration. Could be associated with hyphaema. It should be specially looked for and appropriately treated.
4. Examination of the lens position and its transparency. It is important, should the patient eventually need surgery or subsequently develop cataract.
5. Extensiveness of hyphaema. The height of level of blood should be checked and recorded 2-4 times a day to detect any secondary haemorrhage.
6. Examination of the Iris. Rupture of sphincter of iris and/or iridodialysis are not uncommon. They are indicative of severity of injury and could be the source of bleeding.
7. Foreign body or occult laceration. This possibility should always be borne in mind and if suspected skiagram should be taken for the suspected foreign body.
8. Retina and Vitreous. Detailed fundus examination should be performed and recorded if it can be viewed. This is essential since a secondary hyphaema or vitreous haemorrhage may obscure the viewing of retina at a later date. It is advisable not to perform scleral depression during retinal examination in fresh injuries.
9. Intra-ocular pressure and gonioscopy. Intra-ocular pressure should be measured every 6 to 12 hours until this stabilizes, then daily until the hyphaema is cleared. Ideally it should be recorded with an applanation tonometer. The importance of gonioscopy lies in the fact that angle recession is not uncommon in hyphaema patients and could be responsible for secondary glaucoma.

PATHOGENESIS

Large traumatic hyphaema may result from two types of haemorrhage

1. Primary haemorrhage: Usually due to rupture of an artery in the vicinity of Iris base or in the ciliary body and iridodialysis.
2. Secondary haemorrhage. Usually occurs between second and fifth day following trauma. It may be recurrent. Often responsible for visual loss.

Most of the hyphaemas are transient because.

- (a) Iris tissues tend to retract and consequently stops bleeding.
- (b) Intravascular pressure and intra-ocular pressure tend to reach equilibrium.
- (c) Hyphaema may get mixed with sufficient aqueous to prevent clotting. Hence, when bleeding stops the blood is haemolysed and absorbed.

COMPLICATIONS

1. Secondary glaucoma occurring shortly after injury. Due to obstruction of outflow of aqueous by accumulated debris from disintegrated erythrocytes and pigment from injured uveal tissue. The obstruction is subsequently increased by attracted macrophages.
2. Occurrence of organisation of blood. This may lead to occlusion of chamber angle by fibrous connective tissue.
3. Blood stain on cornea. Hemoglobin forms numerous deposit within the corneal stroma where it is taken up by keratocytes and haemosiderin is formed. It occurs either with rise in intra-ocular pressure or with extensive damage to the corneal endothelium and descemet's membrane without secondary glaucoma.
4. Peripheral anterior synechia.
5. Posterior synechia and seclusion of the pupil.
6. Iris atrophy.
7. Heterochromic iridocyclitis.

TREATMENT

The therapeutic aims are

- (a) Resolution of Hyphaema without onset of secondary haemorrhage.

- (b) Maintenance of intra-ocular pressure to near normal levels.
- (c) Prevention of corneal blood staining, optic atrophy and peripheral anterior synechia.
- (d) Surgical intervention when appropriate.
- (e) Detection and treatment of all associated ocular injuries, secondary glaucoma and retinal detachment.

Medical Treatment

1. Hospitalisation. It is desirable that all patients with traumatic hyphaema are hospitalised. Only then the patient is readily accessible for frequent examinations in a controlled environment with minimal activity and any complications that may develop can be promptly identified and managed.
2. Strict rest in bed and bilateral patching of eyes. Bilateral patching helps in immobilisation of iris and ciliary body as well as patient.
3. Sedation. It helps in carrying out strict bed rest especially in children.
4. It is best to refrain from using either miotic or mydriatics unless a complication develops. Local steroids may be used to reduce the post traumatic uveitis. Steroids may, in addition be, given systematically if the traumatic iridocyclitis appears marked.
5. Aspirin should not be given. Care should be taken that analgesics advised also do not have aspirin as one of the ingredients.
6. Vitamin C may play a role in the prevention of secondary hyphaema within the first days following injury by reducing fragility of new formed vessels.

Medical treatment for elevated Intra-ocular pressure in traumatic hyphaema:-

The prospectus for control of intra-ocular pressure by administration of carbonic anhydrase inhibitors and absorption of hyphaema without resort to surgical

intervention is better when the anterior chamber is only partially filled with blood and this has a bright red colour rather than a dense clot formation which appears almost black instead of red. The following medications should be administered:

- (a) Timolol Maleate 0.5% at 12 hourly intervals is a safe and frequently effective agent for lowering intraocular pressure. Its use is contraindicated when systemic diseases such as asthma or heart block is present.
- (b) Acetazolamide a carbonic anhydrase inhibitor, in doses of 250 mgm. every 6-8 hours in adults or 5 mgm. /kgm. in children should be used if timolol maleate alone fails to lower intraocular pressure.
- (c) Hyperosmotic agents reduce intraocular pressure rapidly but transiently and may require repeat dosages. Commonly used are Mannitol 20% by intravenous drip or Glycerol orally.

Guidelines for Surgical intervention

1. To prevent optic atrophy. It is advisable to operate before intra-ocular pressure averages 50 mm Hg. for five days or 35mm.Hg. for seven days.
2. To prevent corneal blood staining. It is advisable to operate if intra-ocular pressure greater than 25mm. hg. for more than six days. A patient with early blood staining should go in for immediate surgery to remove hyphaema, since it can progress to a dense opacity within a few hours, which may require months or years to clear.
3. To prevent peripheral anterior synechia. These develop in 60% of the patients and likely to occur when hyphaema persists for more than a week. For prevention it is best to operate before a total hyphaema persists for five days or a diffuse hyphaema persists for nine days.

Surgical Techniques

Surgical approaches should be tailored to the needs of the patients and the experience of the surgeon.

1. Paracentesis. A simple paracentesis performed under aseptic conditions and releasing approximately 0.1 ml. from anterior chamber often permanently reduces intra-ocular pressure.
2. Anterior chamber wash out. This procedure is most effective in treating a diffuse hyphaema, and occasionally may suffice when a large clot is present. Irrigation aspiration can be accomplished by making a small incision at the limbus at 3 o'clock and another shelved incision in clear cornea at 9 o'clock; then apply pressure on the posterior lip of the first incision while gentle irrigation with a blunt tip cannula is done from the other one. Much of the hyphaema can be evacuated from the anterior chamber and it is not necessary to remove all of the blood.
3. Expression of clot. However when hyphaema has been present for more than five days and large clot has formed extending into the recesses of the angle and the clot is anchored, it requires a large incision to remove it. Use of Phakoemulsifier or outcome system is not freely available with us and good visualisation is essential to its usage. And if you have good visualisation you probably do not need to operate in the first place .
4. Use of Fibrinolysin. This is of doubtful utility. It does help to dissolve the clot when introduced into the anterior chamber, but :
 - (a) Probably increases the chances of a rebleed by breaking up the fibrin over the area of original bleed.
 - (b) It is Inflammatory
 - (c) It is toxic to corneal endothelial cells
5. Argon laser treatment. Small bleeding sites in the iris can some times be coagulated with argon laser
 Today almost all ophthalmologists are competent to manage traumatic hyphaema effectively.

*Never think there is anything impossible for the soul. It is the greatest heresy to think so.
 If there is sin, this is the only sin ? to say that you are weak, or others are weak.*

Do not stand on a high pedestal and take 5 cents in your hand and say, "here, my poor man", but be grateful that the poor man is there, so by making a gift to him you are able to help yourself. It is not the receiver that is blessed, but it is the giver. Be thankful that you are allowed to exercise your power of benevolence and mercy in the world, and thus become pure and perfect.

It is our own mental attitude which makes the world what it is for us. Our thought make things beautiful, our thoughts make things ugly. The whole world is in our own minds. Learn to see things in the proper light. First, believe in this world, that

- Vivekananda