

Blood-stained cornea

Lo Yee Lin

Department of Ophthalmology, Hospital Raja Permaisuri Bainun, Ipoh, Perak, Malaysia

Clinical context

A 42-year-old man who had suffered from a corneal laceration with grade 3 traumatic hyphaema underwent corneal suturing and anterior chamber washout. However, after the procedure he developed recurrent grade 2 hyphaema. Eventually, the hyphaema resolved completely after 9 days of medical management.

Question 1

What is the pathophysiology of condition seen in Figure 1a and Figure 1b?

Question 2

What is the indication for surgical intervention in traumatic hyphaema?

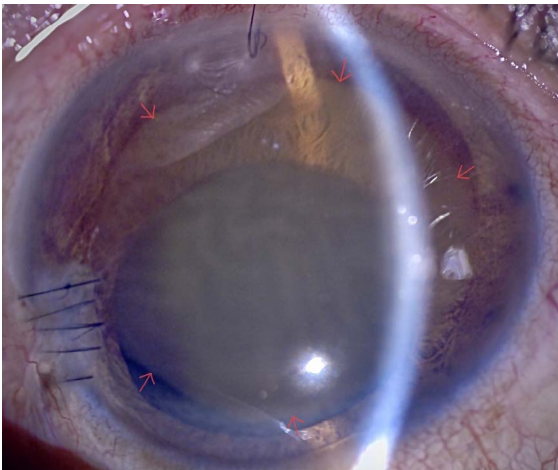


Fig. 1a.

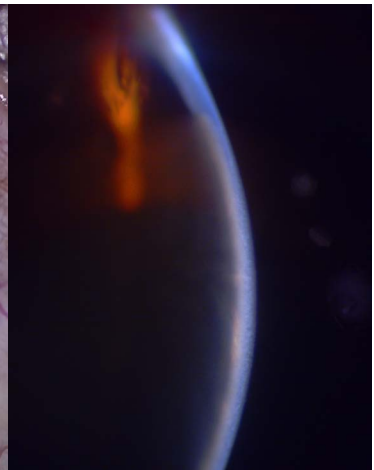


Fig. 1b.

Correspondence: Lo Yee Lin, MD, MSOphthal, Department of Ophthalmology, Hospital Raja Permaisuri Bainun, Ipoh, Perak, Malaysia.

E-mail: yeelin825@icloud.com

Answer 1

Prolonged hyphaema with high intraocular pressure (IOP) can lead to corneal blood staining. The erythrocytic breakdown products penetrated the discontinuous endothelium and intact Descemet's membrane embedded in the posterior stroma, whereas hemosiderin deposited in the anterior stroma. It is a reversible process whereby the clearing started from the periphery followed by the centre.¹

Answer 2

Timing and indications for surgical intervention:

1. To prevent corneal blood staining:
 - IOP \geq 25 mmHg for 5 days with total hyphaema or hyphaema that does not resolve below 50% at 6 days.^{2,3}
 - Evidence of early corneal blood staining.
2. To prevent optic atrophy:
 - IOP averages $>$ 60 mmHg for more than 2 days.²
 - IOP averages $>$ 35 mmHg for 7 days.³
 - IOP averages \geq 25 mmHg for more than 24 hours or repeated transient spiking of IOP $>$ 30 mmHg for 2 to 4 days despite maximum medical therapy in sickle cell disease.²
3. To prevent peripheral anterior synechiae formation
 - Total hyphaema that persists for 5 days.
 - Hyphaema failing to resolve to less than 50% of the anterior chamber volume by 8 days.²

References

1. McDonnell PJ, Green WR, Stevens RE, Barger CB, Riquelme JL. Blood staining of the cornea: light microscopic and ultrastructural features. *Ophthalmology*. 1985 Dec 1;92(12):1668-74.
2. Deutsh TA, Goldberg MF. Traumatic hyphema : medical and surgical management. Focal points: Clinical Modules for Ophthalmologist. San Francisco: American Academy of Ophthalmology;1984, module 5.
3. Wong TY. *The Ophthalmology Examination Review*. 2nd Edition. World Scientific. New Jersey.