Spontaneous Medial Rectus Haematoma: A Sight-Threatening Complication of Warfarin Toxicity

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Introduction

Intra-orbital haemorrhage is a rare but potentially sight-threatening emergency, most commonly due to trauma[1]. Orbital compartment syndrome may develop as blood accumulates in the rigid orbital space, requiring urgent decompression to preserve vision.

Spontaneous retro-bulbar haemorrhages associated with warfarin or direct oral anticoagulants (DOACs) have been reported, albeit extremely rare.

❗ To our knowledge, this is the first documented case of a spontaneous haemorrhage localised within the medial rectus muscle, attributed to warfarin toxicity.

Case Presentation

Presentation	• 77-year-old female • Atraumatic, spontaneous right eye (RE) subconjunctival haemorrhage. • PMHx - unprovoked pulmonary emboli managed with warfarin, CKD with failed renal transplant on haemodialysis, gastric ulcers, IHD, past endometrial cancer on Provera®.
< 48 hours	• RE painful, tense peri-orbital swelling with reduced visual acuity. • RE VA HM, IOP 40mmHg. • Emergency lateral canthotomy and cantholysis performed. • CT orbit confirmed isolated medial rectus haematoma (Figure 1).
72 hours	• Confusion, with worsening RE pain and tense orbit. • Lateral canthotomy & cantholysis extended on inferior and superior lid. • INR 4.2, Hb 75 g/L. • Managed with Octaplex and blood transfusion.
Day 4	• EUA performed – RE IOP 38mmHg and RAPD, despite complete lid laxity. • Managed with IOP-lowering drops, topical steroids and antibiotic ointment. • Unable to have systemic treatments due to renal disease
Day 10	• VA RE Perception of Light, IOP 7mmHg. (Figure 2). • Topical IOP-lowering medications stopped. Topical steroid and antibiotics continued.
Day 20	• Continued improvement, VA RE 6/18, IOP normal (Figure 3) • Mild diplopia
4 months	• VA RE 6/6, IOP normal. RE RAPD with improving diplopia • Thickened nasal conjunctiva (Figure 4) • RE OCT: ganglion cell loss and arcuate field defect.

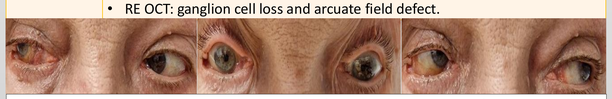


Figure 5: Horizontal gaze at 4 months. Mild left exo- and hypertropia of right eye. Full abduction noted with increasing of RE hypertropia on left gaze.

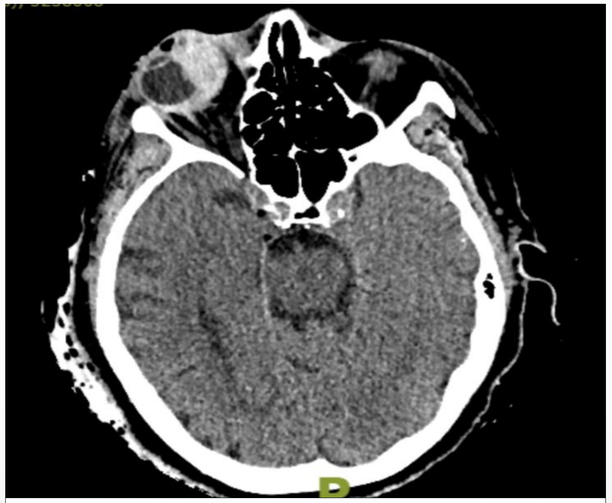


Figure 1: CT head and Orbits: RE medial rectus haematoma extending to intraconal space, associated proptosis.

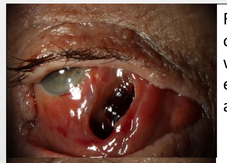


Figure 2: Image of RE, 15 days post-haematoma onset. Extensive sub-conjunctival haemorrhage with large medial rectus haemoatoma. Globe is exo- and hyper-deviated. Patient attempting to adduct eye in this image – no adduction function.

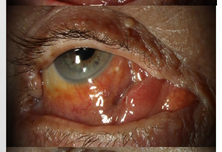


Figure 3: Image of RE, 25 days post-haematoma onset. Improvement compared to Figure 2. Patient attempting to adduct eye in this image.

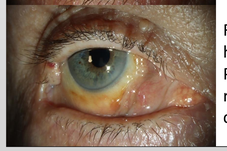


Figure 4: Image of RE, four months post-haematoma. Residual conjunctival thickening. Patient fixating with left eye in primary position – regardless, there is an improvement in exo/hyper deviation.

Discussion

Orbital haemorrhages are rare but potentially sight-threatening events characterised by bleeding within the orbital cavity, often requiring urgent intervention to prevent vision loss[2].

Spontaneous non-traumatic orbital haemorrhages are even less common, often associated with predisposing vascular abnormalities[3].

Imaging with CT or Magnetic Resonance Imaging (MRI) is essential for diagnosis, and surgical procedures such as canthotomy are often required to address orbital compartment syndrome.

Despite the patient's INR being within the therapeutic range (3.0), it was at the upper limit, increasing the risk of spontaneous bleeding.

The comorbidities contributing to this patient's susceptibility included recurrent pulmonary emboli, CKD requiring haemodialysis, ischaemic heart disease, and recurrent endometrial cancer[4]. CKD and haemodialysis impair platelet function and vascular health, whereas medroxyprogesterone acetate, prescribed for recurrent cancer, poses additional thromboembolic risk[4]. These factors likely combined to precipitate the spontaneous medial rectus haematoma.

Management of orbital haemorrhages, particularly those with orbital compartment syndrome, prioritises preventing vision loss.

Prompt assessment, imaging, and ophthalmic evaluation are critical. Signs of orbital compartment syndrome, such as proptosis, raised IOP, and reduced vision, necessitate emergency lateral canthotomy and cantholysis.

Anticoagulation therapy should be suspended, with reversal agents administered as needed. Close monitoring of IOP, optic nerve function, and overall recovery ensures resolution of symptoms[5].

In this case however, it is important to note that although the intra-ocular pressure improved following adequate lateral canthotomy and cantholysis, it remained significantly elevated. We postulate that this was due to a direct pressure effect from the haematoma and enlarged medial rectus directly upon the globe.

Conclusion

Our case highlights the rarity of spontaneous medial rectus haematoma, particularly in the context of warfarin therapy. The patient's anticoagulation, combined with comorbidities, likely contributed to vessel fragility and haemorrhagic complications.

It is important to note that lateral canthotomy and cantholysis may not result in normalisation of intra-ocular pressure, hence additional measures may be required. Regular coagulation monitoring, early recognition, and timely intervention are essential to mitigate risks, prevent orbital compartment syndrome, and preserve vision.

Take home points:

- ✔ It is crucial to maintain a high index of suspicion for spontaneous orbital haemorrhage in anticoagulated or medically complex patients, as timely recognition and intervention can be sight-saving.
- ✔ Importance of close INR monitoring to prevent spontaneous haemorrhagic complications.
- ✔ Direct oral anticoagulants (DOACs), which carry lower bleeding risks and do not require routine monitoring, offer potential alternatives.[6]

References

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