

# Spontaneous retrobulbar haemorrhage in idiopathic thrombocytopenic purpura

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## DESCRIPTION

An 81-year-old male patient presented to the emergency department with complaints of intense and active subconjunctival haemorrhage, eyelid ecchymosis and proptosis of the right eye (optic disc, OD) with 1 hour of evolution (figure 1). The patient indicated no related pain, headache or recent head trauma. He referred to have reduced vision of the same eye 20 years prior to this event, which he could not explain. His medical history presented an idiopathic thrombocytopenic purpura (ITP), which had been treated with azathioprine for the past 4 years. Visual acuity (VA) of OD was 20/200 (same as previously), with no ocular motility restrictions or afferent pupillary defect. The intraocular pressure (IOP) OD was 22 mm Hg. Fundus examination revealed an OD of normal appearance, with no signs of posterior compression. A non-contrast CT of the brain and orbit revealed thickening and densification of the periorbital soft tissues, relative proptosis of OD and intraconal retro-orbital densification compatible with a right retrobulbar haematoma (figure 2). Further analytical study revealed a thrombocytopenia of  $7 \times 10^9/L$ . We performed local compression and irrigation with cold saline solution, and successfully stopped the haemorrhage.

The haematology and internal medicine departments were contacted to provide assistance and carefully evaluate the risk of potentially fatal extra-ocular bleeding sites.

No platelet transfusion was recommended due the high risk of peripheral destruction. The previous chemotherapy treatment was adjusted, and the patient was started on oral corticosteroids.

Although neuroimaging suggested retrobulbar haemorrhage, the ocular exam showed no signs of compression, the patient reported no recent



**Figure 2** CT of the brain and orbit showing thickening and densification of periorbital soft tissues, relative proptosis of the right eyeball and intraconal retro-orbital densification compatible with right retrobulbar haematoma.

VA loss, and given the haemorrhagic risk of lateral canthotomy and cantholysis, these procedures were not performed.

The patient was re-evaluated daily by ophthalmologists and haematologists, with a complete ophthalmological examination including evaluation of best corrected VA, IOP measurements, detailed fundoscopic examination and anterior segment inspection to insure normal reabsorption of the haemorrhage, while also closely monitoring the ITP.

Two days later, there was an increase in the patient's platelet count ( $11 \times 10^9/L$ ), a significant improvement of the proptosis and subconjunctival haemorrhage, with an IOP of 18 mm Hg and no signs of optic compression.

Managing this condition posed a challenge due to the patient's marked thrombocytopenia platelet count, for which there is currently no specific reversal agent. Consequently, our care focused on stabilising the systemic disease and monitoring for orbital compartment syndrome.

Spontaneous retrobulbar haemorrhage (SRH) is a very rare event. The causes can be either local or systemic, such as orbital vascular anomalies, underlying coagulopathy, haemophilia, chronic pharmacological anticoagulation, pregnancy, toxic conditions and uncontrolled hypertension.<sup>1,2</sup> There are few recorded cases.

One case report described an SRH event in a patient taking rivaroxaban, with an IOP of 32 mm Hg. A canthotomy was performed resulting in bleeding from the canthotomy site and increased ocular bleeding. The patient was given intravenous



**Figure 1** Subconjunctival haemorrhage, eyelid ecchymosis and proptosis of the right eye.



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prothrombin complex to reverse the anticoagulatory effect of the drug, and no further surgical treatment was recommended, with no deterioration of VA.<sup>3</sup>

In conclusion, we consider that the treatment of patients with underlying coagulopathy should be multidisciplinary in

nature. In this case, under exclusive medical treatment, the patient remained stable and demonstrated no VA impairment.

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## Learning points

- Signs and symptoms of a spontaneous retrobulbar haemorrhage (SRH) are identical to those of traumatic or postoperative aetiology. SRH may occur in patients with an underlying systemic coagulopathy.
- The medical evaluation consists of checking for: afferent pupillary defect, increased intraocular pressure, pulsations of the central retinal artery, choroidal folds and loss of vision.
- If optic neuropathy is present, immediate orbital pressure relieve with a lateral canthotomy should be performed. However, if surgery involves a high risk and there is no evidence of ocular ischaemia or compressive optic neuropathy, the patient can be monitored with serial examinations.

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