

## **Retrobulbar Haemorrhage Post Thrombolysis for Myocardial Infarction**

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To the Editor,

A witnessed cardiac arrest and the subsequent life-saving resuscitation with thrombolysis resulted in a retrobulbar haemorrhage and acute loss of vision. This rare ophthalmic complication of thrombolysis was treated with a sight-saving lateral canthotomy and cantholysis. This case report reminds us that prompt decompression can allow visual recovery, even in the acutely unwell patient.

A 48-year-old male with no previous medical or ocular history presented to the emergency department with typical cardiac chest pain. He was a smoker on no medications. Upon arrival he had a witnessed ventricular fibrillation cardiac arrest. Cardio-pulmonary resuscitation was promptly commenced and two shocks (2 x 300 Joules) with adrenaline were delivered, achieving the return of spontaneous circulation. Tenectaplastase was subsequently given for an ST-segment elevation myocardial infarction and he was given dual anti-platelet therapy. Awake and alert, he complained of a sudden loss of vision while awaiting transfer to a coronary care unit for percutaneous intervention. Ophthalmology on-call was contacted in suspicion of a left retrobulbar haemorrhage. The vision was no perception of light (NPL) and there was exophthalmos, an un-reactive pupil and complete ophthalmoparesis. Digital palpation and resistance to retropulsion suggested a high intra-ocular pressure. The left pupil had full consensual but no direct light response. A prompt lateral canthotomy and cantholysis under local anaesthesia was performed. He received further anti-coagulation for PCI and discharged on dual anti-platelet therapy with visual acuity restored to 6/6 (Snellen).

Orbital compartment syndrome (OCS) is potentially blinding condition. Rapidly increasing intra-compartment pressure causes ischaemia in this confined space, affecting optic nerve and retinal function.<sup>1</sup> Prompt decompression is essential for visual recovery in OCS. Hayreh et al reported retinal ischaemia after clamping the optic nerve in rhesus monkeys; permanent damage was observed after 105 mins but recovery occurred when clamped for less than 97 mins.<sup>2</sup> OCS can be secondary to trauma and orbital fractures. Ophthalmic orbit and eyelid procedures as well as non-ophthalmic facial and ENT surgeries are important iatrogenic causes.<sup>3</sup>

Typically, all patients presenting with history and examination findings suggestive of an OCS should undergo emergency lateral canthotomy and cantholysis.<sup>1</sup> It is a relatively simple bedside procedure that is recommended and encouraged to prevent vision loss. In a sample of 190 emergency department (ED) physicians, 37.1% indicated they would comfortably perform a lateral canthotomy, while 95.7% recognised permanent vision loss as a potential consequence of OCS.<sup>4</sup> This case aims to reaffirm the sight-saving impact and importance of a lateral canthotomy for OCS. Though the majority of ED physicians can identify retrobulbar haemorrhage, the minority are willing or able to undertake lateral canthotomy and cantholysis, potentially risking irreversible but avoidable visual loss. If treated within two hours, vision of 6/12 or better can be achieved in most cases. If treatment is delayed beyond 2 hours, approximately one quarter of patients reach 6/12 or better.<sup>4</sup>

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**References:**

1. Lima V, Burt B, Leibovitch I, Prabhakaran V, Goldberg RA, Selva D. Orbital compartment syndrome: the ophthalmic surgical emergency. *Surv Ophthalmol.* 2009;54(4):441-9.

2. Hayreh SS, Weingeist TA. Experimental occlusion of the central artery of the retina. IV: retinal tolerance time to acute ischaemia. *Br J Ophthalmol*. 1980; 64:818–825.
3. Castro E, Seeley M, Kosmorsky G, Foster JA. Orbital compartment syndrome caused by intraorbital bacitracin ointment after endoscopic sinus surgery. *Am J Ophthalmol*. 2000;130(3):376-8.
4. Edmunds MR, Haridas AS, Morris DS, Jamalapuram K. Management of acute retrobulbar haemorrhage: a survey of non-ophthalmic emergency department physicians. *Emerg Med J*. 2019 Apr;36(4):245-247.