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Spontaneous recovery of vision following an orbital haemorrhage

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SUMMARY A 73-year-old man presented to casualty with a penetrating orbital injury and total loss of vision in the affected eye. He subsequently spontaneously recovered full vision. We stress the need for frequent assessment of vision before considering potentially hazardous surgical intervention.

Blindness has been reported following penetrating and blunt orbital trauma,¹⁻⁸ but to our knowledge spontaneous and complete recovery of vision has never been reported.

Case report

A 73-year-old man presented to an eye casualty department 45 minutes after having been stabbed in the supratrochlear region of his right orbit with a screwdriver. The visual acuity was, on the right, no perception of light, and on the left 6/12. On examination there was 5 mm of proptosis and a complete ptosis on the right side. Movements of the right eye were generally restricted. There was an absolute right afferent pupillary defect, with a normal consensual response. Both fundi were normal.

One hour after injury the patient's right visual acuity was counting fingers in the temporal periphery. One hour 10 minutes after the injury the right visual acuity was 3/24, and one hour 55 minutes after it the acuity was 6/12, with a pinhole 6/9. Twenty-four hours after the injury the findings on the right were: V A 6/9, 2 mm of proptosis, normal pupil, extraocular movements full, no ptosis, fundus normal.

Six months later his best corrected visual acuity on the right was 6/9 -3, with no abnormalities detected on that side.

Discussion

A 73-year-old man presented to the casualty department with penetrating orbital trauma and total loss of vision in the affected eye. He subsequently spontaneously recovered full vision.

The cause of visual loss may have been due to compromise of the retinal, choroidal, or optic nerve circulation. We consider that this case represents an episode of optic nerve malfunction. Lederman² reported loss of vision following surgical treatment of a zygomatic-orbital floor fracture. His case had a normal electroretinogram and an abnormal visual evoked response in the affected eye, implying a compromised optic nerve.

Optic nerve malfunction may be due to compression of the pial plexus of vessels or direct compression of the axons. Feist *et al*⁴ reported a case of presumed direct optic nerve injury with spontaneous but incomplete recovery.

Central retinal artery occlusion has been reported following both blunt and penetrating trauma.^{8,9} Kroll's experimental work¹⁰ on monkey retinas has shown that ophthalmoscopically visible fundal changes occur 15 minutes after central retinal artery occlusion. In our case, even though total blindness was recorded for only 15 minutes the blindness probably persisted for longer. Thus it seems unlikely that arterial occlusion was a cause of the visual loss.

The ptosis could have been caused by a third nerve palsy involving the superior branch of the nerve. This

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would be consistent with the preservation of the consensual pupillary response, since the pupillary fibres are carried in the inferior branch.¹⁰

Blindness following orbital trauma has been treated in a number of ways. A lateral canthotomy was performed to immediate and good effect by Katz *et al* in two cases of visual loss following orbital haemorrhage, when vision improved after three and a half and four and a half hours of total blindness.¹ In a case of orbital haemorrhage and visual loss Brooks and Finkelstein proceeded to a superolateral orbitotomy after computerised tomography had revealed an intraorbital haematoma.⁵

A lateral canthotomy should be immediately undertaken in a patient with a normal fundus and visual loss due to an orbital haemorrhage. If this does not produce significant sustained visual recovery, urgent computerised tomography is indicated in order to decide on the appropriate surgical approach. There is time to organise these investigations, for Katz *et al* have shown that the optic nerve can withstand prolonged ischaemia.¹

The present case shows that visual loss following orbital haemorrhage may end in spontaneous recovery. We stress the need for frequent assessment of vision before considering potentially hazardous surgical intervention.

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