Evulsion of the optic nerve

W.A.E.J. de VRIES-KNOPPERT
Free University Hospital, Department of Ophthalmology, Postbox 7057, 1007 MB
Amsterdam, The Netherlands

Accepted 18 July 1989

Key words: optic nerve evulsion, orbital trauma

Abstract. Optic nerve evulsion is an uncommon traumatic event, which may result from various orbital or facial injuries. Two patients in whom clear media permitted prompt diagnosis are described. The possible mechanisms are not quite clear, but extreme rotation of the globe seems to play an important role.

The rare traumatic event of an evulsion of the optic nerve may result from penetrating injury of the orbit, concussion of the globe or massive trauma of the face. The diagnosis is not usually made in the acute stage because of the concurrent vitreous haemorrhage, but in this report two cases are presented where good visualisation of the fundus was possible shortly after the trauma.

The mechanism of the injury inducing rupture of the optic nerve axons while the sheath remains patent is not completely understood. Presumably different mechanisms are possible depending on the circumstances.

Patients

Case 1

A 42-year-old man attempted suicide by driving his car at high speed against a garage door. Severe concussion of the face resulted in a Le Fort III fracture and a 180-degree paralimbal rupture of the left eye. While the patient was under general anaesthesia for surgical repair of his face and the other eye, the right eye was examined and showed a normal anterior segment. The following day however the patient had no light perception in either eye. Examination of the fundus of the right eye showed a deep dark hole in place of the optic nerve head, surrounded by massive epiretinal haemorrhages.
The whole of the posterior pole was oedematous and both arteries and veins contained segmented blood columns (Fig. 1).

Case 2

A 76-year-old ship's carpenter was struck on the nasal side of the left orbit by a high velocity drillhead, which shot loose from the machine. He remained conscious and instantly noticed complete loss of vision in the left eye. The drillhead appeared to have destroyed the nasal bone and the ethmoid bone, while its tip had lodged in the sphenoid sinus. The drillhead was removed under general anaesthesia and inspection of the left eye showed a non-penetrating irregular corneal lesion and some sphincter tears. Temporary detachment of the internal rectus muscle no evidence of a scleral rupture revealed.

Funduscopic examination revealed a dark pit at the site of the optic nerve head. In the peripapillary region flame-shaped haemorrhages were seen. The retina was oedematous with a "cherry red" spot at the macula and some retinal vessels had interrupted blood columns (Fig. 2). Computed tomography of the orbit showed that the optic nerve sheath was not interrupted.

Funduscopcy 4 months after the trauma showed complete resorption of the haemorrhages and a massive proliferation of fibrous tissue at the site of the optic disc (Fig. 3).