LETTERS TO THE EDITOR

Posterior medial wall blow out fracture

EDITOR,—Isolated blow out fracture of the medial orbital wall with rectus entrapment is rare. Only a few cases have been reported in the literature. All of these had restriction of abduction, 1-3 a few also had significant adduction limitations. 4-6 Leone, on the basis of duction tests, attributed this to a paretic problem. 6

We report a case of an isolated large medial orbital wall fracture with posterior medial rectus entrapment which caused restriction of adduction almost exclusively, and was corrected by surgery.

CASE REPORT
A 16-year-old boy presented to the eye clinic complaining of horizontal diplopia. He had been kicked in the right eye the previous day. There was bruising of upper and lower eyelids with subconjunctival haemorrhage. On examination, visual acuity was 6/6 in each eye. In the right eye the anterior segment, pupil reactions, intraocular pressure, and fundus were normal. There was no enophthalmos. Cover test revealed an intermittent left alternating divergent squint. Ocular movements showed marked limitation of adduction in the right eye. The Hess chart recorded on day 1 demonstrates this (Fig 1a). Only a narrow strip of binocular single vision was present (Fig 2a). Clinically and radiographically a blowout fracture of the medial wall of the right orbit was diagnosed. The patient was kept under observation in the outpatient clinic.

Two weeks after the injury adduction in the right eye had fully recovered but gross restriction of adduction persisted. Diplopia was present in all areas of left gaze. Computed tomography scan was performed which showed a fracture of the right ethmoid bone. The fracture extended from the plane of the equator of the globe posteriorly for 2 cm. Its maximum height at the mid point was 4 mm. Soft tissue was prolapsed through the defect and the medial rectus muscle was involved posterior to the globe. There was no other orbital fracture (Fig 3).

He was reviewed again at 24 days when there was some improvement of adduction. Hess and binocular field of vision records show this (Fig 1b, 2b) and diplopia persisted in left gaze preventing him from working.

His case was considered by the ear, nose, and throat and ophthalmic staff. It was decided that exploration of the medial wall to free any entrapment was justified. Twenty seven days after the injury the patient was taken to theatre and the medial wall explored via an external ethmoidectomy approach.

The ethmoidal air cells were opened and followed posteriorly until the trapped soft tissue was found 6 cm deep to the incision. The medial orbital periostium was lifted until the trapped tissue was defined. A limited removal of ethmoid bone was performed and the soft tissue freed and allowed to move laterally from the air cells into the orbit.

Postoperatively there was immediate recovery of single vision. This has been maintained (Fig 4a, 4b).

COMMENT
Lerman 6 described the mechanism for the eye position in primary and secondary gaze for orbital floor fracture with inferior rectus entrapment. He concluded that if the entrapment is anterior to the equator of the globe the eye will be fixed in a depressed position with restriction of elevation. If the entrapment is posterior the eye will be fixed in an elevated position with restriction of depression.

More recently, Krane et al 7 reviewed reports of orbital floor blow out fractures and using results from anatomical research, showed the complexity of the motility apparatus and suggested that the bizarre motility disturbances following floor fractures are due to the additional traction effects of the connective tissue systems. He has advocated, in pure blow out fractures in which no cosmetic deformity is expected, that surgery should be delayed.

We agree with the complex nature of the motility apparatus. However, in this case with a posterior medial wall fracture it may be justifiable to apply Lerman's simpler principle. We suggest that the cause of adduction restriction and divergent squint was posterior entrapment of the medial rectus apparatus. This caused a pseudoparalysis of the medial rectus but did not restrict the action of the lateral rectus muscle.

We think this case is unique in having adduction restriction only, which mimicked a paralysis. Operative intervention in this case was successful.

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