Bifrontal Extradural Hematoma (EDH) Causing Isolated Right 3rd Nerve Palsy with Spontaneous Partial Recovery

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ABSTRACT

All neurosurgeons are aware of traumatic intracranial hematomas presenting with oculomotor nerve palsy which requires immediate surgical intervention. Isolated third nerve palsy with no other neurological signs due to head injury is a rare occurrence. We report a case of head injury with bifrontal extradural hematoma presenting as isolated right sided third nerve palsy which partially improved with nonsurgical management. We also discuss the possible causes of such involvement.

Key words: Extradural hematoma, oculomotor nerve palsy.

INTRODUCTION

Severe head injury in road traffic accidents is a leading cause of mortality and morbidity in young population.¹ Third nerve palsy after head injury usually occurs in the setting of uncal herniation and constitutes a neurosurgical emergency. A bifrontal extradural hematoma (EDH) leading to isolated unilateral third nerve palsy with no other neurological impairment is a rare presentation. The oculomotor nerve may be damaged either as a result of direct injury or indirectly due to compression by expanding hematoma.² Full recovery to complete normality is unusual in such cases.³

CASE REPORT

A 26 year old male patient presented to us with history of alleged road traffic accident while riding a motorcycle. He was not wearing any helmet at the time of impact. He was unconscious for twenty minutes following the injury. He was brought to our emergency department where he regained consciousness. On examination, his vitals were stable with no other organ system involvement. His Glasgow Coma Scale score was 15/15. He had no motor or sensory deficits. He had right sided complete third nerve palsy with ptosis and a pupil size of 5mm with no reaction to light. The eyeball was classically deviated downwards and outwards (Fig 1 & 2).

Patient was complaining of severe headache. A plain CT head revealed an alarming large bifrontal extradural hematoma (Fig 3) with compression of bilateral frontal lobes. Patient was advised urgent surgery for evacuation of extradural hematoma but he and his family did not give consent and instead wanted nonsurgical treatment. The patient was kept in close neurological observation in the

Fig 1. Right eyeball deviated - down and out.

Fig 2. Right side complete ptosis.
neurosurgical high dependency unit. He was further evaluated for the cause of the third nerve palsy.

His MRI brain did not reveal any abnormality other than large bifrontal extradural hematoma (Fig 4).

Gradually his headache improved and his GCS remained 15/15 throughout the course of admission. He was discharged from the hospital after 10 days of observation. At the time of discharge, the ptosis was static but the pupil had started to react sluggishly to light. On first follow-up, 3 weeks from the time of injury, the ptosis had recovered partially and his pupil size had become 4mm with reaction to light (Fig 6). NCCT head about 1 month post injury revealed resolved bifrontal extradural hematoma and the ptosis had significantly improved (Fig 7 and 8). The patient remained neurologically stable in this period of follow-up.

DISCUSSION

Isolated oculomotor nerve palsy is a common presentation of intracranial aneurysms, chronic inflammatory meningeal infiltration, cavernous sinus lesions and medical causes such as diabetes mellitus, hypertension and atherosclerosis. Traumatic third nerve palsy is usually associated with severe head injury in the setting of uncal herniation. There have been few case reports of isolated unilateral oculomotor nerve palsy in mild head injury. There,
however, have been few reports of bilateral subdural hematoma presenting as isolated oculomotor palsy.[6] Bilateral extradural hematomas presenting with an isolated unilateral oculomotor palsy are unusual. Rucker in his series of patients of third, fourth and sixth cranial nerve palsies reported only 15% incidence of oculomotor nerve palsy due to head injury.[7]

The oculomotor nerve runs over the posterior petroclinoid ligament where it may be prone to damage as it is stretched when the brainstem shifts downwards at the time of impact to the head.[12] It may be due to pressure of the herniating uncus of the right temporal lobe. The cranial nerves may be affected due to disturbances in blood supply arising from head injury.[13] Traumatic oculomotor palsy has poor prognosis and full recovery is rare.

Despite the fact that the patient had bilateral large bifrontal extradural hematoma, only right sided oculomotor nerve was paralysed. Slight variation in anatomy in the course of third nerve in relation to the tentorial edges and uncus might explain the involvement of right side only. Solomon et al reported in their series that indirect injury to the third nerve is more common compared with the direct injury.[3] Gradual recovery of the third nerve after resolution of the extradural haematoma and no other findings in MRI brain are suggestive of shearing injury in the dorsal part of midbrain or at the exit site of oculomotor nerve.[14]

REFERENCES

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