

# Primary Brainstem Injury

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## Clinical Profile

A 24-year-old army officer sustained head injury in a two-wheeler accident. He was transiently dazed and was able to get up and walk. He was admitted after thirty minutes for observation, when GCS was observed to be 15/15, and there was no focal neurological deficit. Twelve hours later, he complained of double vision, and neurological examination revealed internuclear ophthalmoplegia (INO). There was no anisocoria or motor deficit. He was further evaluated by CT brain (Fig 1)

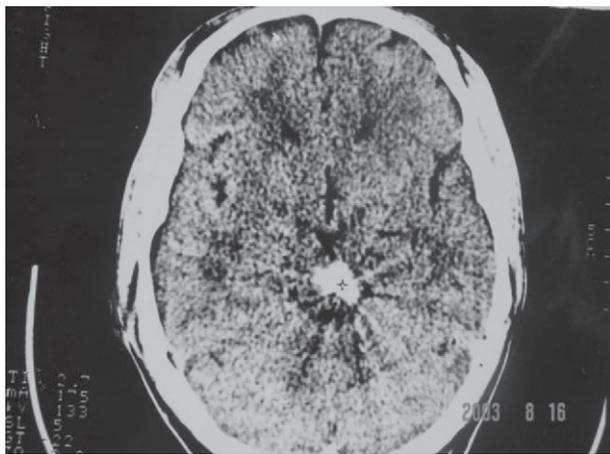


FIGURE 1. CT showing midbrain hematoma

## Imaging Diagnosis

CT brain showed midbrain hematoma. There was no evidence of supratentorial injury, cerebral edema or effacement of cisterns.

## Clinical Course

He was managed conservatively and kept under observation. Twenty-four hours after the injury, he developed cerebellar tremor and hemiathetoid movements on the left side. Conservative management was continued, and the tremor and athetoid movements gradually

disappeared after 72 hours. Internuclear ophthalmoplegia resolved after about six weeks, and there was no residual deficit.

## DISCUSSION

In head injury, brainstem is usually injured by an expanding supratentorial mass causing brainstem distortion. Primary brainstem injury is a rare occurrence, and the lesion has received scant attention in literature. Severe shearing strain to the brainstem stretches or tears the nerve fibres and small perforating arteries supplying the brainstem<sup>1</sup>. Sudden craniocaudal impact can be a contributing factor<sup>2</sup>. Coup injury to the brainstem may occur in hyperextension injuries, when brainstem is compressed against an unyielding tentorium<sup>3</sup>. How an injury can lead to brainstem injury in the absence of significant supratentorial injury is a matter of conjecture. Possibly, these injury are focused on the midline fixed structures, and there is no significant shearing or direct strain to the cerebral hemispheres. Clinically, in the absence of clouding of sensorium, presence of INO should lead to suspicion of these injuries. CT is diagnostic, and management is essentially conservative. Clinical course, in the absence of supratentorial injury, is generally benign and outcome is good<sup>4</sup>.

## REFERENCES

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