

# Isolated complete traumatic avulsion of oculomotor nerve root

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## DESCRIPTION

A 31-year-old man sustained a road traffic accident. He developed drooping of the eyelid and pupillary dilation with outward deviation of the right eye. Fundus examination was unremarkable. The vision was 6/24 and 6/6 in the right and left eyes, respectively. A post-traumatic right oculomotor nerve injury was suspected. Non-contrast CT of the head done immediately after trauma showed no fracture or brain injury. MRI of the brain was done to localise the site of nerve damage 2 weeks later. It revealed complete avulsion of the right oculomotor nerve from its origin in the brainstem (figure 1). The free end of the avulsed nerve root was seen floating in the interpeduncular cistern. There was no other associated brain injury.

On follow-up at 3 months, patient showed no clinical improvement in ptosis or vision. Post-traumatic oculomotor nerve avulsion is exceedingly rare following head trauma.<sup>1,2</sup> Most cases of oculomotor nerve injury are usually documented on postmortem studies. To the best of our knowledge, the antemortem documentation of oculomotor nerve root avulsion has been reported only once before.<sup>3</sup> Its mechanism is not completely understood, but is believed to be due to shearing injury and differential movements of the intracranial structures during trauma.<sup>2</sup> Complete avulsion of the nerve root portends a dismal prognosis for the recovery of nerve function. Surgery for strabismus to restore cosmesis is usually the only aim of treatment. The modality of nerve reimplantation at the brainstem is under investigation.<sup>3</sup>



**Figure 1** Minimum intensity project image at the level of interpeduncular fossa showing avulsion of the right oculomotor nerve root dangling in the interpeduncular cistern. The normally attached contralateral nerve is also seen.

## Patient's perspective

I had a road traffic accident on the way to work. I suddenly fell down on the road after which I was feeling dizzy. A few minutes later, I was taken to the hospital. In the hospital, I realised that I had a double vision and could not open my right eye. Next day, an eye doctor examined me and suggested an MRI scan. Next day, I was told that the nerve supplying my right eye had torn from its root. I was shocked. Had never heard of something like that before. The eye doctor then reassured me and told that a surgery could be planned to correct the achieve the cosmetic results. The surgery has been planned next year. Hopefully, things will work out for me.

## Learning points

- ▶ Isolated oculomotor nerve avulsion is a very rare injury.
- ▶ The mechanism of this injury is believed to be shearing injury and differential movements of the intracranial structures during trauma.
- ▶ A dedicated thin section MRI for cranial nerve integrity needs to be done in all cases in which there is a suspicion of such injury.

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