

A freak accidental injury to the spinal cord

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Summary

This report outlines a rare injury where the victim sustained a complete spinal cord transection caused by a sharp penetrating instrument.

Key words — Spinal cord transection; stab wounds of spinal cord, myelography.

Introduction

Penetrating injuries of the spinal cord are rare. These are usually caused by knives, bullets and glass. Knife injuries are intentional stabbing meant to maim or incapacitate.¹ We report a case of accidental spinal cord transection caused by a sickle.

Case Report

The patient is a 64-year old Indian man who was harvesting oil palm fruit. This fruit occurs in large bunches, 3-4 metres above ground level and is cut down with a very sharp sickle tied to the end of a long pole. The harvester stands on the ground level. The patient slipped and fell backwards landing on the knife which had come loose and had fallen to the ground first, landing with its point upwards as it wedged itself in a ditch. The knife pierced his back and he was unable to get up or move his lower limbs.

He was seen in a peripheral hospital and referred to the Casualty Unit of University Hospital, Kuala Lumpur. The patient was found to be paraplegic with flaccid lower limbs and loss of all superficial and deep reflexes. The anal tone was lax and he was anaesthetised below T9 dermatome. He had a three cm long clean laceration on his back, five-cm to the right side of the midline below the level of the inferior angle of the scapula (Fig. 1) and was tender over T8-9 spinous processes. There was no abnormality in other systems.

A diagnosis of spinal cord transection at T9 level was made. Plain X-rays of the spine were normal. A myelogram revealed a partial extradural block at T9 vertebral level. Contrast was seen to flow superiorly on the left side (Fig. 2). A CT scan showed a fracture of the lamina of T9 vertebra on the right side with thinning of the epidural fat on that side (Fig. 3).

The spine was explored. The entry wound was excised and the track followed deeply towards the spine through the iliocostalis muscle. The right half of the T9 lamina was fractured with

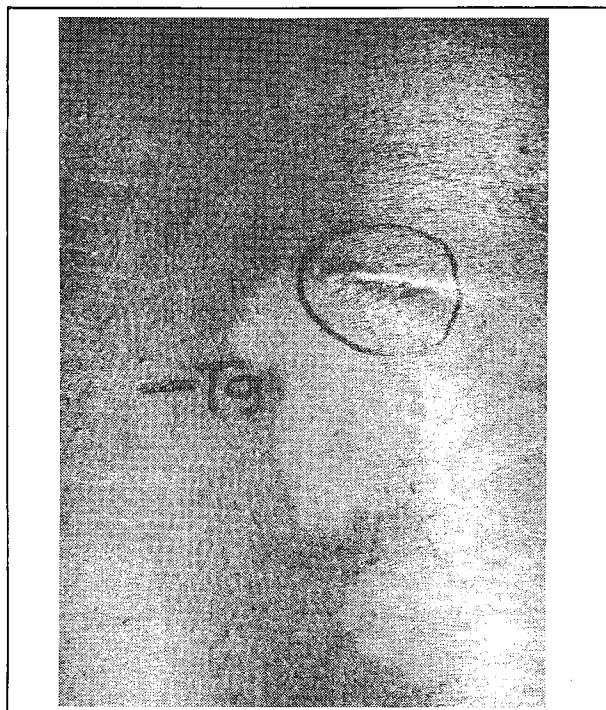


Figure 1:
Entry wound situated to the right of the
midline at level of T9 spinous process.

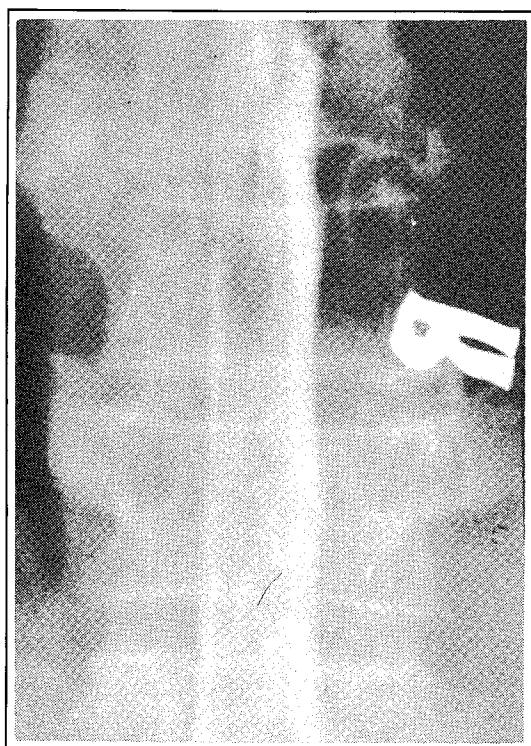


Figure 2:
Myelogram illustrating partial extradural
block on the right side.

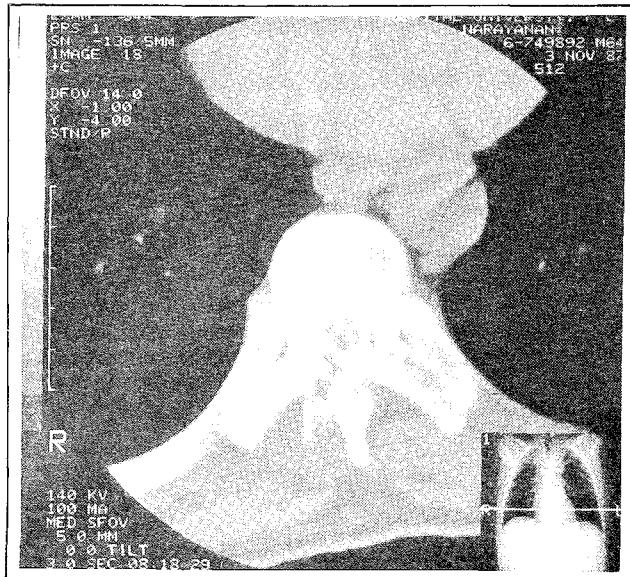


Figure 3:
CT Scan showing fracture of the lamina of T9 vertebrae on the right side.

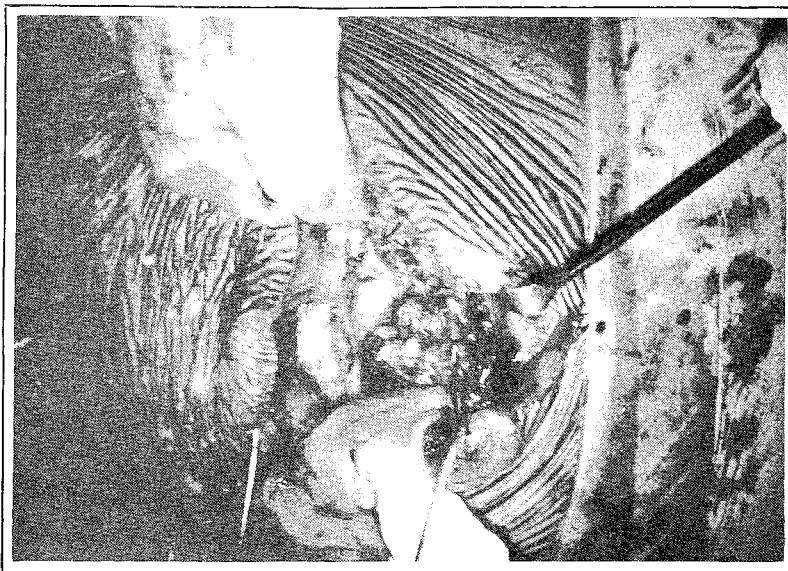


Figure 4:
Exploration of penetrating wound showing fractured lamina of T9 on the right.

division of the ligamentum flavum and there was displacement of the inferior articular process of T9 (Fig. 4). The base of the spinous process of T9 was also fractured through. The dura mater was completely divided except for a narrow bridge on the left side and the spinal cord was completely transected. The wound was debrided and the patient was put on prophylactic antibiotics. Post-operatively, the patient was given paraplegic nursing and rehabilitation.

Discussion

The most common injuries to the spinal cord are caused by motor-vehicle accidents which produce unstable fractures/dislocations of the spine.² Domestic and industrial accidents are second, with sports injuries accounting for a large proportion of the remainder. No more than 5% of spinal cord injuries arise from sharp penetrating injuries. The only large series of stab wounds of the spinal cord has been reported by Peacock et al¹ where the injury was inflicted during robbery or gang warfare. Several cases of accidental penetration of the spinal cord by glass have been reported by Muller³ and Baghai.⁴

Penetrating injuries often tend to be overlooked, resulting in delay in diagnosis of damage to deeper structures. This applies to puncture wounds in various parts of the body since the point of entry through the skin may be a considerable distance from the level of injury.³ Thus to fully assess the extent of damage caused by these penetrating injuries, a detailed history into the dynamics of the injury and the type of penetrating instrument is essential.

Most stab wounds result in partial cord lesions because the bony vertebrae hinder the path of straight bladed knives.⁴ Our patient suffered a complete transection because the curved pointed tip of the knife had penetrated the lamina and snared the cord with minimal body disruption. Treatment of such penetrating injuries of the spinal cord is controversial. While some advocate primary debridement because of the risk of meningitis, others advise that surgery should be undertaken only if there is neurological deterioration, CSF leak or infection.⁵

Occupational health teams should be responsible for proper surveillance of the equipment employed in estates, as makeshift tools may be dangerous as in this case.

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