

CASE REPORT

Paraplegia secondary to fracture-subluxation of the thoracic spine sustained playing rugby union football

A J Walsh, S Shine, F McManus

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Fractures of the spinal column during rugby matches of all codes are rare but catastrophic, especially when associated with spinal cord injury. The cervical spine is vulnerable during trauma to the head and neck in contact sports. Spinal injuries reported during rugby matches have almost exclusively involved the cervical region, often with neurological sequelae. This is the first reported case of paraplegia caused by a fracture-dislocation of the thoracic spine resulting from a low velocity rugby union injury.

CASE REPORT

A 35 year old accountant, playing at wing forward, was admitted to our spinal injuries unit after an injury during a junior level rugby match. He had sustained a forced hyperflexion injury to his spine. The player was in a seated position, when a maul, in which he had just been involved, collapsed over him. He complained of instant severe thoracolumbar back pain associated with an immediate loss of all power and sensation from his lower abdomen distally.

On examination in the emergency room, he had tenderness over his lower thoracic spine with palpable malalignment of the posterior elements at this level. A complete neurological injury with a sensory level at T12 was diagnosed. He had no associated injuries and was otherwise healthy. Of note, the patient had undergone lumbar spinal surgery 11 years previously. Anteroposterior (fig 1A) and lateral (fig 1B) plain radiographs showed a fracture-subluxation of the T11/T12 vertebrae. The radiographs also showed previous bilateral fusions for spondylolysis of L3 and L4.

The patient was nursed on a spinal bed and taken to the operating theatre. Reduction and stabilisation of the fracture-dislocation with posterior instrumentation from T10 to L1 was carried out. Postoperative anteroposterior (fig 2A) and lateral (fig 2B) radiographs showed adequate alignment of the thoracolumbar spine. The patient was subsequently transferred to a neurorehabilitation unit, but has since showed no significant neurological recovery.

DISCUSSION

Injuries to the spine in rugby have been widely reported, with a high rate of cervical spine and spinal cord injury.¹⁻⁸ The most frequently injured vertebrae are C4 to C6.^{1,7} Approximately half of all cervical spine injuries in rugby result in tetraplegia.^{1,2} Transient spinal cord concussion often occurs in the setting of pre-existing pathology.⁴ Many studies have identified scrums, rucks, and mauls as well as both high "stiff arm" and "spear" tackles as the modes of play most likely to inflict spinal trauma. Front row forwards suffer a statistically higher percentage of spinal injuries than players in other positions.^{1,7}



Figure 1 Anteroposterior (A) and lateral (B) radiographs showing a fracture of the T12 vertebra with anterior and lateral subluxation of T11 on T12.

The only thoracic spine fracture reported in a rugby player occurred at the T6/7 level, with no neurological sequelae.⁹ A compression fracture of the thoracic spine in an American footballer, with intact neural elements, has also been reported.¹⁰ Thoracic spine fractures during field sports are uncommon owing to the extra stability afforded to the dorsal spine by the rest of the chest wall. Our patient may have had an increased susceptibility to spinal injury above the level of his previous surgery at L3 and L4, because of residual spinal motion segment stiffness at those levels.

This is the first reported case of paraplegia secondary to a thoracic spinal injury during a rugby match. The seated position places the thoracolumbar spine at increased risk of injury. Players falling into this position, particularly around set plays such as scrums, rucks, and mauls, should be advised

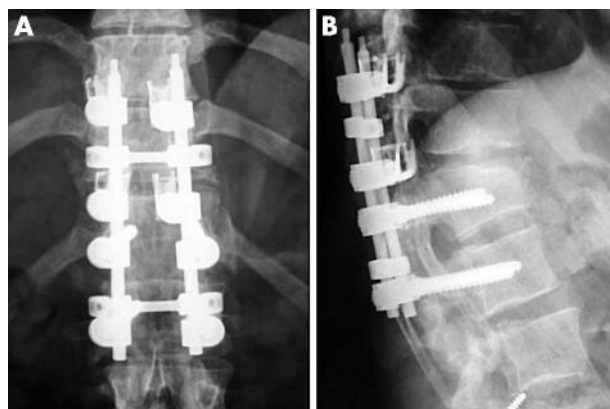


Figure 2 Postoperative anteroposterior (A) and lateral (B) radiographs showing restoration of alignment of the stabilised thoracolumbar spine.

Take home message

- A player who was in a sitting position when a scrum collapsed on him suffered a fracture-dislocation of the thoracic spine with paraplegia.
- Players falling into this position around set plays such as scrums, rucks, and mauls should be advised to protect themselves by rapidly lying or standing to lessen the probability of a hyperflexion injury of the thoracolumbar spine.

to protect themselves by rapidly lying or standing to lessen the probability of a hyperflexion injury of the thoracolumbar spine. Increasing the awareness of the rugby playing community to these dangers may help to prevent any further cases of this unusual but devastating injury.

Authors' affiliations

A J Walsh, S Shine, F McManus, Orthopaedic Surgery, Mater Misericordiae Hospital, Dublin, Ireland

Correspondence to: A J Walsh, Mater Misericordiae Hospital, Orthopaedic Surgery, 289 Sutton Park, Sutton, Dublin 13, Republic of Ireland; walshajw@eircom.net

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