



Neck Injury—Rugby

Beware the Recurring Stinger

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Purpose

“Stingers” occur commonly in contact sport and, due to their transient nature, are often not investigated. Recurring unilateral “stingers” or bilateral neuropraxia, however, may be indicative of an underlying neurological abnormality and warrant investigation. Team doctors need to be aware of the various causes of neuropraxia and be clear on management guidelines.

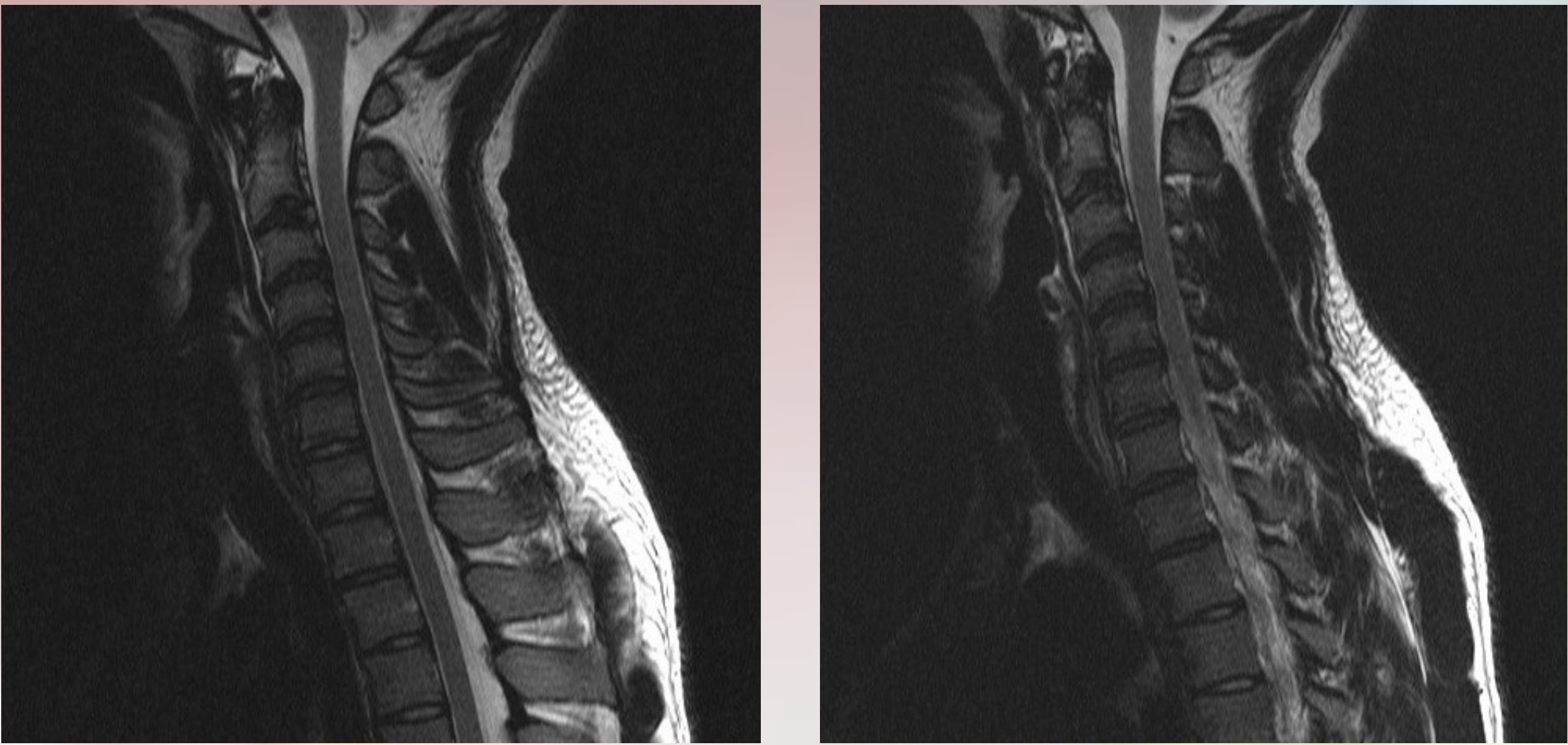
Background

Cervical spinal stenosis (CSS) refers to a congenital or acquired narrowing of the spinal canal. It is one of many causes of cervical cord neuropraxia, and may be acute or acquired.¹ CSS is a common radiographic finding in athletes presenting with transient spinal cord injury.² Acquired stenosis often occurs in athletes subjected to repetitive contact sport causing degenerative osteophyte formation which narrows the canal.² Congenital cervical stenosis is defined as a loss of cerebrospinal fluid (CSF) around the spinal cord.³ Athletes with congenital cervical stenosis may not present with any symptoms until an acute traumatic incident.² In these cases, often the severity of the symptoms is disproportionate to the force causing the trauma, making CSS a risk factor for cervical spine injury² with some studies reporting a 3-fold increases in the incidence of peripheral nerve “stinger” injuries associated with spinal stenosis.²

The very fact that cervical cord neuropraxia has numerous aetiologies of varying clinical significance with poorly defined distinguishing factors, makes the subject a daunting one for many sports practitioners. CSS as a cause for neuropraxia remains a controversial topic as specialists deliberate classification systems and return-to-play (RTP) guidelines.^{1,4} There is an urgent need to simplify diagnostic criteria and establish consistency in the management of these conditions.

References

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Case Report

•History

A 19-year-old rugby player sustained a neck injury while tackling. The mechanism of injury involved axial compression followed by lateral flexion of the neck. The athlete had a previous history of intermittent symptoms following rugby-related neck trauma spanning two years. Because symptoms were transient, the athlete continued playing and the condition was never investigated.

•Clinical Examination

He suffered no loss of consciousness and immediately reported bilateral parasthesia of the upper limbs with no associated neck pain. His symptoms lasted approximately 45 seconds and by the time he arrived in the medical room for secondary examination, he had no residual symptoms of parasthesia. The athlete was non tender on palpation of the cervical spinous processes, his neck movements were within normal range, and a thorough neurological assessment yielded no abnormal findings.

•Investigations

XRAY showed no obvious structural lesions, fractures, subluxations, or displaced vertebrae. MRI and myelogram confirmed bulging intervertebral discs at C3/4, C4/5 and C5/6 level. Central disc herniation and an annular tear was noted at C4/5. There was no CSF anteriorly over C4-C6. Measurement of his spinal canal diameter on these levels indicated a width of 8-10mm. He had a reduced Torg-Pavlov ratio of 0.6.

•Differential Diagnosis

Stinger, Cervical Spinal Cord Injury, Cervical Disc Lesion, Cervical Spondylosis, Concussion.

•Diagnosis

Congenital Cervical Stenosis. This diagnosis was based on clinical findings and the radiological findings of a cervical diameter < 14mm, a Torg-Pavlov ratio <0.8, and a loss of CSF identified on MRI and myelogram.

•Outcome

The player consulted two orthopaedic spine specialists for opinion and was advised to discontinue rugby and refrain from future participation in contact sport.

Discussion

Athlete’s experiencing bilateral neuropraxia or recurrent unilateral neuropraxia may have a significant underlying neurological abnormality and need to be investigated.¹ Sport associated with spinal cord trauma include rugby, football, water sports, gymnastics, wrestling and ice hockey.² Athletes who have CSS are at increased risk for serious nerve injuries. RTP following a cervical spine injury is complicated and very often controversial.⁵ Due to the catastrophic risk associated with these injuries, decisions about RTP must be carefully calculated and individualised.^{1,5} The following factors should be considered when making a decision about RTP:^{1,4}

1. Severity and structural deformity in initial injury
2. Severity and persistence of symptoms
3. Range of Motion (ROM) of cervical spine and neck strength
4. Demands of sport and specific position played

Conclusion

Athletic trauma accounts for less than 10% of catastrophic cervical cord injuries.^{1,4} Although CSS is not common as a clinical entity, the potential disastrous sequelae warrant that all practitioners potentially faced with this challenge should be clear on diagnostic criteria, appropriate investigations and the latest management guidelines.