Early Decompression in Traumatic Cervical Dislocation Improve Patient Neurology Outcome

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Introduction

Traumatic cervical spine fractures or dislocations are often associated with cervical spinal cord injury (SCI) as a result of several mechanisms, including narrowing of the cervical spinal canal or by direct displacement of one cervical spine component with direct focal compression on the spinal cord. This will lead to worsening neurological condition due to haematoma formation, oedema progression and spinal instability. Reduction of the cervical spine displacement can restore the spinal cord diameter or relieve the focal compression on the spinal cord. Spinal decompression surgery is then beneficial for decreasing neurological impairment after post spinal cord injury (SCI). Some studies have shown that it improves patient outcome by preventing the activation of secondary injury mechanism [1,2].

Case Report

We present a case of a 23-year-old Malay gentleman who sustained C5/C6 fracture dislocation after neck injury during rugby match. Post trauma he complained of bilateral upper and lower limbs weakness with reduced sensation on all limbs. His upper limb power were grade 3 from C5 to T1 bilaterally and lower limb were 0 from L2 to S1 bilaterally. His sensation was reduced from C7 to T2 and absent from T3 downwards bilaterally. Anal tone was intact. Urgent CT (Figure 1) and MRI (Figure 2) of his cervical spine have shown comminuted left C5 posterior element fracture with disruption of the left C5/C6 facet joint causing anterolisthesis and significant spinal canal stenosis at C5/C6 level complicated by spinal cord compression and oedema [3-5].

Abstract

There have been vast numbers of studies looking at the timing of surgical intervention for traumatic spinal cord injuries but still no consensus has been reached on the optimum timing of spinal decompression surgery. A review of the current literature reveals varying results with some indicate potential neurological benefit associated with “early” decompression, while others do not. We have demonstrated that early surgical intervention within 24 hours in our patient with cervical dislocation improve neurological outcome without any complications.

Keywords: Decompression; Spinal Cord injury; Neurology outcome
(American Spinal Injury Association). Spinal cord decompression and posterior instrumentation (Figure 3) with fusion from C3 to C7 was done within 12 hours from time of injury. Post-operative day one, he has shown regain power of his upper limb bilaterally and right lower limb. At post-operative day 5 he regained almost normal power to his bilateral upper limb and right lower limb with some residual weakness on left lower limb (L2-S1). Patient was then discharge with outpatient physiotherapy and occupational therapy [6].

![Figure 3: Radiograph following spinal decompression and posterior instrumentation and fusion from C3-C7](image)

At follow up of three months post-surgery, patient have complete regain his upper and lower limb power with sensation back to normal (ASIA E). Early surgical compression for this patient has improved his neurology status from ASIA C to ASIA E [7].

**References**


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