

ORAL PRESENTATION | ABSTRACT

A Case of Incomplete Spinal Cord Injury Associated with Brown Sequard Syndrome After Cervical Blunt Trauma with Atlanto-Axial Rotatory Subluxation in a Paediatric Patient

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Background and aim: Brown Sequard Syndrome (BSS) is a rare clinical presentation of incomplete spinal cord injury and even rarer caused by blunt trauma in the paediatric population. We presented a case of a paediatric patient with high cervical spinal cord injury due to blunt trauma resulting in atlantoaxial rotatory subluxation (AARS). **Methods:** A 10-year-old boy acquired SCI AIS D and neurological level of C4 due to AARS Fielding 1 secondary to blunt trauma. He had right extremities weakness with the majority of key muscle's strength of MRC 2-3 and impaired sensory function under the neurological level for light touch and pinprick. The tactile impairment was more prominent on the right side with preserved proprioception, pain, and temperature sensation. **Results:** The patient underwent Gardner Well Tongs (GWT) traction procedure which was maintained for 2 weeks and then prescribed with Minerva Brace. He also showed signs of reflexive neurogenic bladder. The patient was hospitalised for 2 weeks in the rehabilitation ward for independence and intermittent catheterisation training. He ambulated using a wheelchair at the time of discharge but could walk independently using a quadripod cane after 1 month of follow-up, showing good motor recovery. **Conclusion:** Most cases of traumatic Brown Sequard usually arise from penetrating or stab wound, while blunt trauma is usually accompanied by spine fracture or non-bony elements such as ligament instability or subluxation. This patient only had AARS fielding 1, but the extensive right side

motor weakness might be caused by a direct acceleration-deceleration mechanism at the cervical spinal cord followed by secondary trauma due to oedema and diminished blood perfusion. As a result, this patient did not show pure classic BSS in terms of sensory impairment

but had hemiplegia. For pediatric patients, determining the prognosis and optimisation of appropriate rehabilitation programs for children is crucial for maximal outcomes and long-term quality of life.