

Upper Cervical Spine Injuries

Chung Chek Wong

Sarawak General Hospital, Kuching, Malaysia

Upper cervical spine injury may involve the occipital condyles, the atlas, the axis, as well as their adjacent ligaments and facet joints. These are high energy trauma that could result in tetraplegia, respiratory dysfunction and even sudden death.

The stability of the upper cervical spine relies on the strong and complex ligamentous structures. Majority of cervical spine rotation occurs at the C1-2 articulation, whereas majority of flexion extension motion of the cervical spine occurs at the O-C1 joints.

Upper cervical spine injury without neurological deficit is still frequently missed by the initial trauma care provider. Commonest injury to the upper cervical spine is C2 pars fracture, followed by C2 odontoid fracture.

There are many classification schemes described for injury of the upper cervical spine. These classifications attempt to help patient management, based on spinal stability. The assessment of ligamentous injury is based on plain radiographs or CT scan, looking at abnormal alignment, facet joint subluxation or atlanto-dens interval of larger than 3.5mm. Another consideration to be taken when deciding on patient management is the risk of fracture nonunion, with higher risk suggesting surgical intervention. But even fracture nonunion may be well tolerated in those low physical demand patients.

Posterior surgeries is the commonly adopted approach. New techniques of stabilisation like lateral mass of C1 screw and C2 laminar screw have been proposed.