

## Traumatic Atlantoaxial Rotatory Subluxation in Adult

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### INTRODUCTION:

Based on NCHS data (2021), trauma was the most common cause of death in the USA, which was the most preventable cause (1). Although cervical spine trauma only constitutes about 3.7% of all trauma patients, but it associated with higher mortality and morbidity than other trauma types (2). Traumatic atlantoaxial subluxation/dislocation appears to be an infrequent entity in adults. Due to the unique anatomy of the atlantoaxial complex, which provides high-level mobility, it protects and guides the vertebral arteries and the spinal cord. Therefore, injuries of these cervical structures are often accompanied by neurovascular complications and can possibly lead to death.

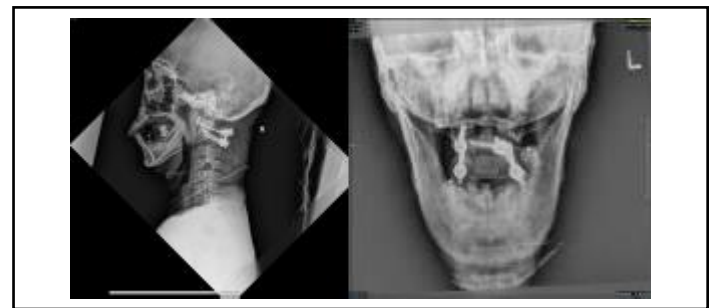
### REPORT:

54 years old, Malay, male, no known medical illness. He was fall from height about 8 feet, while fixing concrete beam. He falls with his right side of neck hit the floor. Post fall, he sustained neck pain, stiffness, and reduced range of movement. Patient was still able to ambulate. Neurology was intact. On examination, he was alert, conscious, comfortable under room air. Cervical examination shows spine tenderness at upper cervical level, no bruises or wound, torticollis towards right side. Neurological examination was normal.

Plain radiographs showed C1-C2 rotatory subluxation. CT cervical demonstrated asymmetry of the lateral atlantodental distances with comminuted fracture of right superior articulating facet of C2. Operation was done, C1-C2 posterior instrumentation and fusion. Intraoperation was uneventful. The patient uneventfully recovered from surgery. 2 months post operation, cervical film shows satisfactory C1-C2 fusion without instability. He was fully neurologically intact.



**Figure 1:** Preoperative CT cervical spine. Coronal (a) and axial (b) bone window CT cervical spine images demonstrate the right atlantoaxial rotatory subluxation, where the atlas has rotated on the odontoid with no anterior displacement.



**Figure 2:** Postoperative plain radiographs show restoration of C1-C2 alignment

### CONCLUSION:

Atlantoaxial dislocation is a rare but complex entity of injury, which occurs with various combinations of ligamentous and osseous lesions. Only rotatory injuries affecting ligamentous structures solitarily may be successfully treated conservatively, while injuries resulting in horizontal or vertical instability of the atlantoaxial complex require internal fixation of atlas and axis (3).

### REFERENCES:

1. Murphy SL, Kochanec KD, Xu J, Arias E. Mortality in the United States 2020, NCHS data Brief, No:427, December 2021
2. Milby A, Halpern CH, Guo W, Stein SC. Prevalence of cervical spinal injury in trauma. *Neurosurg Focus*. 2008;25:E10.
3. Hindawi, *BioMed Research International*, Volume 2019, Article ID 5297950, 9 pages