Cranio-Cervical Syndrome

Signs/Symptoms:

- **Visual** (blurring, double vision, floaters, sensitivity to light, altered colour vision, poor convergence, divergent/convergent strabismus, anisocoria)
- **Gait & Station/Coordination disturbances** (involuntary movements, myoclonus, ataxias, titubation, foot drop, choreiform athetosis)
- **'Drop attacks'** (near-syncopal & syncopal episodes [fainting])

Cranio-Cervical Syndrome

Signs/Symptoms;

- **Bilateral hip pain** (trochanteric bursitis, GTPS, bilateral posterior, lateral or anterior thigh pain)
- **Paraesthesia** (unilateral or bilateral and transient; worse after prolonged periods without moving i.e., bed rest, driving distances, sitting in a theatre/cinema)
- **Unable to sit, stand, or lay still for extended periods** (failed craniospinal hydrodynamics?)

Cranio-Cervical Syndrome

Signs/Symptoms;

- **Fatigue** (Chronic Fatigue Synd., Adrenal Fatigue)
- **Unstable hypertension** (typically elevated diastolic pressure)
- **Altered/Lowered immune response** (SNS driven, atopic disorders; prone to infection, skin conditions)
- **Dysautonomia** (IBS/GI,, POTS, tachycardia, dyspnoea/SOB, dysphagia, dysmenorrhoea, urinary urgency/incontinence, loss libido)
- **Cervical, Dorsal, Lumbar pain** (can appear to be hypersensitive to palpation – 'everything hurts')

CCS investigation/diagnosis

Examination:

Neuro exam for the CCS patient can be misleading and often results in the presumption of FND

Cranio-Cervical Syndrome

Symptoms considered "functional," "psychogenic," "medically unexplained," or "hysterical" account for up to one third of new referrals to neurology outpatient departments.

Stone J, Zeman A, Sharpe M
Functional weakness and sensory disturbance
Journal of Neurology, Neurosurgery & Psychiatry 2002;73:241-245.

Cranio-Cervical Syndrome

Complaints of weakness or difficulty walking, often in combination with sensory disturbance, represent a significant subgroup of these symptoms.

Stone J, Zeman A, Sharpe M
Functional weakness and sensory disturbance
Journal of Neurology, Neurosurgery & Psychiatry 2002;73:241-245.

Cranio-Cervical Syndrome

Despite their frequency in clinical practice, descriptions of the diagnosis and management of these problems are not easily found in textbooks of neurology.

Stone J, Zeman A, Sharpe M
Functional weakness and sensory disturbance
Journal of Neurology, Neurosurgery & Psychiatry 2002;73:241-245.

Cranio-Cervical Syndrome

Always bear in mind the possibility that your patient may have both a functional and an organic disorder.

Stone J, Zeman A, Sharpe M
Functional weakness and sensory disturbance
Journal of Neurology, Neurosurgery & Psychiatry 2002;73:241-245.

Cranio-Cervical Syndrome

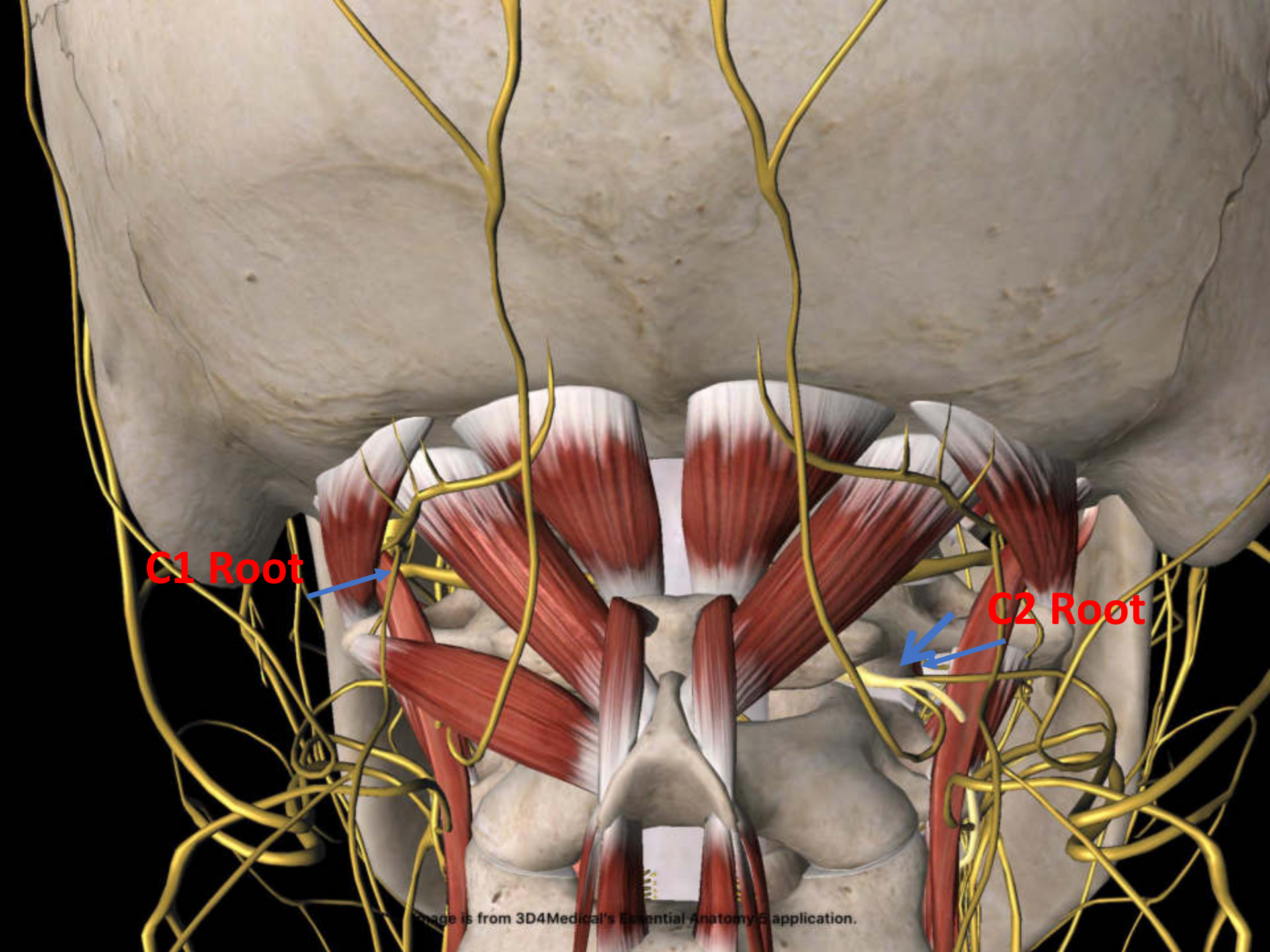
Examination Findings

- **DTRs**
- **Hemiparesis/paresis**
- **Gait and Station tests**
- **Tremors/Coordination tests**

Cranio-Cervical Syndrome

Examination Findings

- **Pain to palpation at the CCJ**
- **Four Quadrant Weakness** *(psoas, opponens pollicis and digiti minimi)*
- **Apparent Leg length discrepancy** *(supine)*


C1 Root
C2 Root
Image is from 3D4Medical's Essential Anatomy 5 application.

Cranio-Cervical Syndrome

Examination Findings

- **Craniocervical Stomatognathic Stress Test (CST) is positive**
- **Tenderness to palpation sutures** (OM, Sag)

Diagnostic Imaging

- Upper cervical X-ray
- Dynamic UMRI/CSF flow study
- CBCT/DMX
- MRA/MRV
- CTV

Diagnostic Imaging

- **Upper cervical X-ray** (Lateral, APOM, Frontal, Horizontal: additional views flex/ext, APOM lat flex)

Diagnostic Imaging

- **Upper cervical X-ray** (Lateral, APOM, Frontal, Horizontal: additional views flex/ext, APOM lat flex)



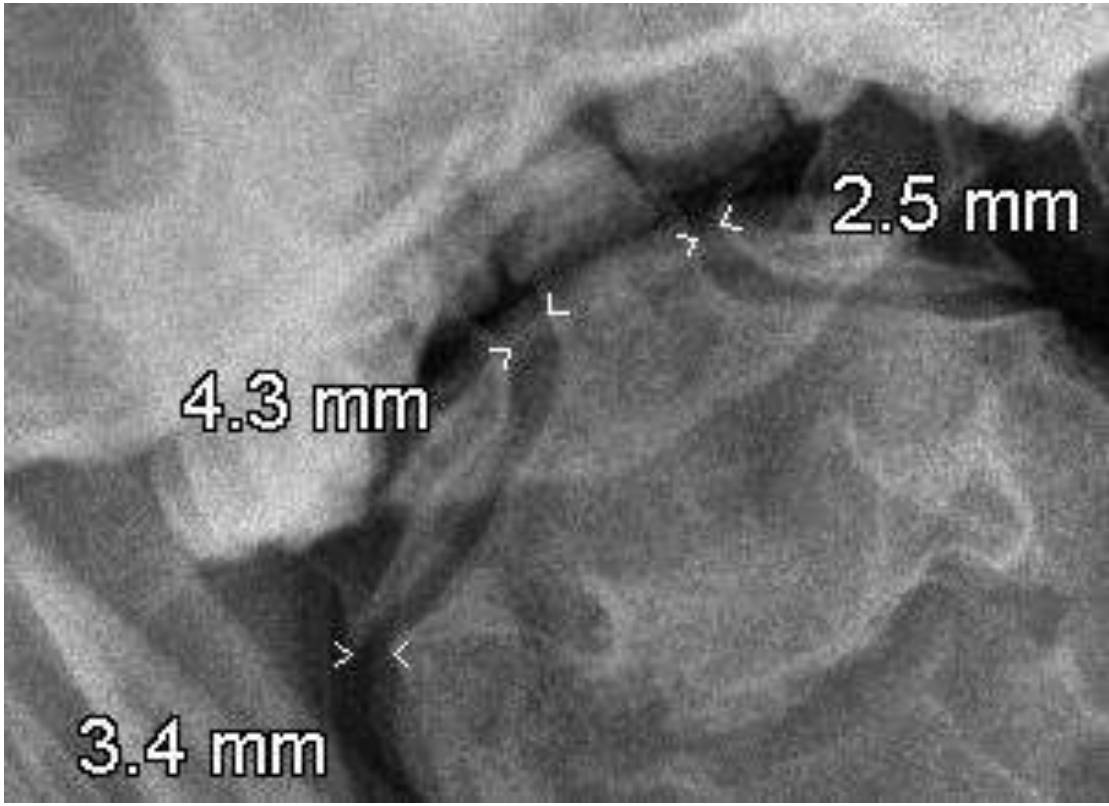
Diagnostic Imaging

- **Upper cervical X-ray** (Lateral, APOM, Frontal, Horizontal: additional views flex/ext, APOM lat flex)

Diagnostic Imaging

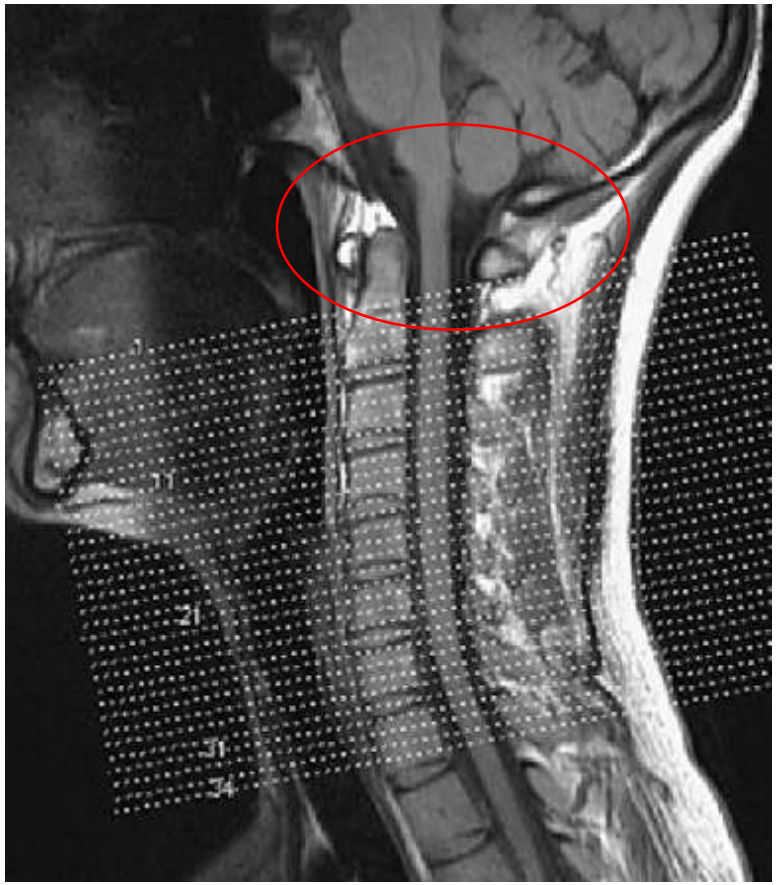
Imaging Findings

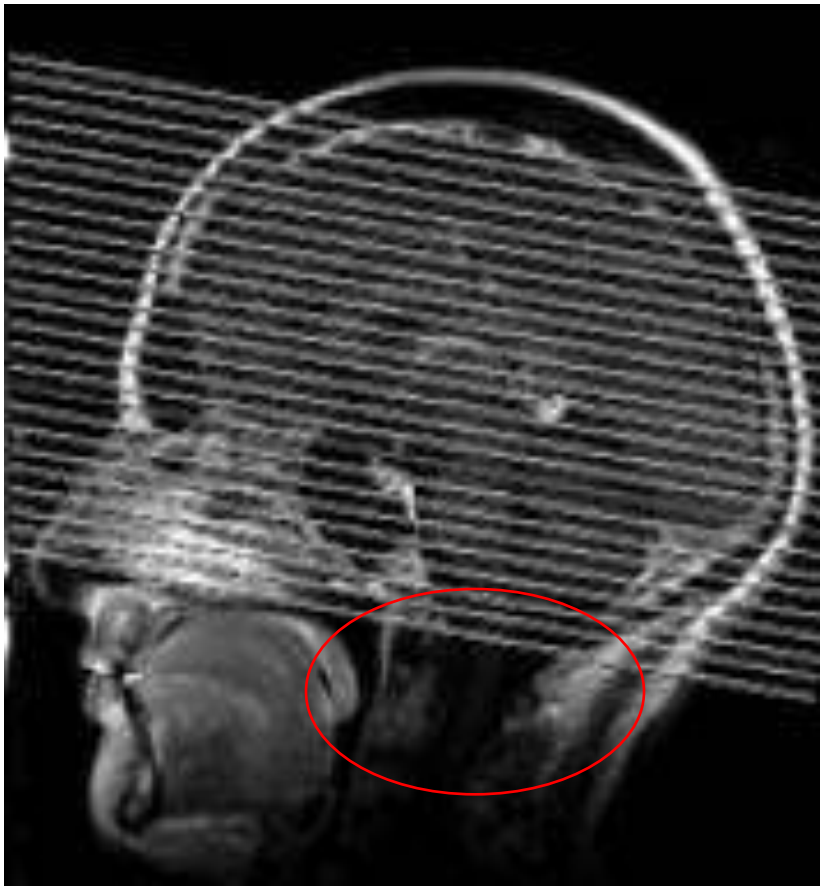
- Overhang of the lateral mass of C1 >2mm
- Asymmetry of the paraodontoid space



*'**Diagnostic Accuracy of Video fluoroscopy for Symptomatic Cervical Spine Injury Following Whiplash Trauma**' Michael D. Freeman1,*, Evan A. Katz2, Scott L. Rosa3, Bryan G. Gatterman4,Ellen M. F. Strömmer1and Wendy M. Leith; Int. J. Environ. Res. Public Health2020,17, 1693*

The CCJ….?

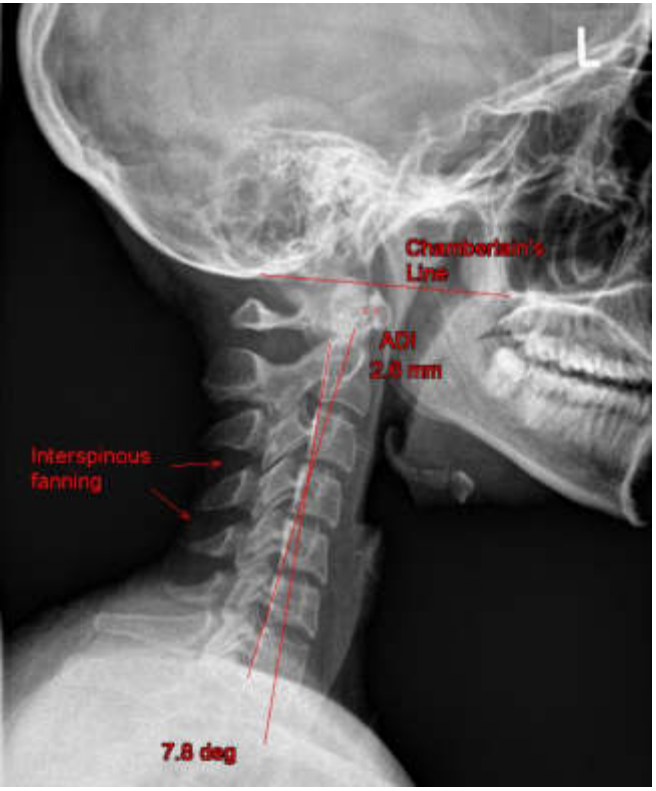




Hypermobility/CCI/AAI/CCJ misalignment…?

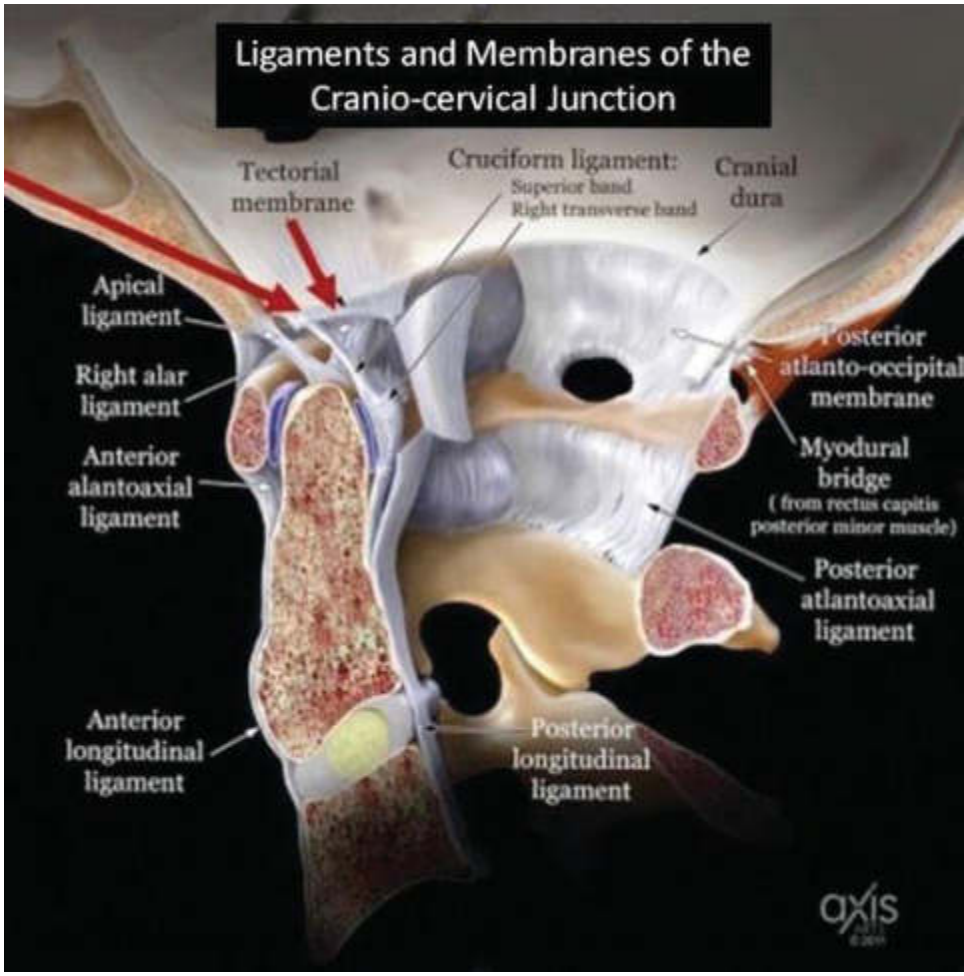
The importance of diagnosis and staging in management

Acquired...? Inherited...? Congenital...? Disease...?



The Craniocervical Junction (CCJ)

"Hyperextension is limited by tectorial membrane and lateral flexion and Rotation by alar ligaments. Excessive flexion is limited by Anterior arch C1 contacting the basion and Anterior translation is limited by transverse ligament."



Saxena A (2017) ***Cranio-Cervical Trauma Eidemiology, Classification, Diagnosis and Management****. J Spine Neurosurg 6:5. doi: 10.4172/2325-9701.1000284*