IMAGING GUIDELINES FOR THE CERVICAL SPINE


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Guidelines are not absolute RULES

- **TRAUMATIC (Acute)**
  - Apply Canadian C-spine Rules
  - Use Clinical judgment
  - “Conventional radiographs are unlikely to show clinically significant injuries when all Canadian Cervical Spine Rule criteria are fulfilled.”

- **NON-TRAUMATIC**
  - Apply Red flags
  - Use Clinical judgment
Canadian Cervical Spine Rules

Any high-risk factor that mandates radiography?
- Age ≥65 yr or dangerous mechanism or paresthesias in extremities

No

Any low-risk factor that allows safe assessment of range of motion?
- Simple rear-end motor vehicle collision or sitting position in the emergency department or ambulatory at any time or delayed (not immediate) onset of neck pain or absence of midline cervical-spine tenderness

No

Unable

Yes

Able to rotate neck actively?
- 45° left and right

Yes

No radiography

Radiography
Dangerous Mechanism of Injury

- Fall > 1 meter/5 stairs
- Axial cranial force (such as diving)
- Road accident > 100 km/hr, ejected from vehicle or rollover
- Motorized recreational vehicle (ATT, snowmobile, etc)
Must do 3 views: AP lower cervical, AP open mouth upper cervical, neutral lateral cervical. DO NOT DO FLEXION/EXTENSION.
Young adult male presented to Dutch DC after a fall from the roof. These hospital films were read as normal.
After 3 view series analyzed..

- CT is best for evaluating fractures.
- MRI is best for neurological deficits.
- CT is primary investigation for high risk patients on an emergency basis.
“Non-significant injuries may rarely be missed when the CCSR is properly applied”

- Spinous process fracture
- Transverse process fracture
- However, these are significant for manual therapy.
- Thus apply Clinical Decision making.
Adult male with acute onset of neck pain after MVA

Immediate post-trauma

Immediate post-adjustment
Adult Patient with Acute Uncomplicated Neck Pain (< 4 wks duration)

- Uncomplicated = non-traumatic neck pain without underlying neurologic deficits or red flags
- Radiographs not routinely indicated
- Special Investigations not indicated
Adult pt. with non-traumatic neck pain and radicular symptoms

- Suspected acute cervical disc herniation
- Suspected acute cervical spondylotic radicular syndrome/lateral canal stenosis
- (Rare tumours causing neuro compression)

- Radiographs indicated
  - AP lower cervical
  - AP open mouth
  - Lateral
  - (rarely obliques)
Adult pt. with uncomplicated subacute neck pain (4-12 wks’ duration) with or without arm pain as well as pts with persistent neck pain (>12 wks) with or without arm pain

- Radiographs *not initially* indicated (Bone and Joint Decade 2000-2010 task force on neck pain and its associated disorders)

- If done:
  - AP lower cervical
  - AP open mouth
  - Lateral
Adult pt. re-evaluation in the absence of expected treatment response or worsening after 4 wks

- Radiographs indicated
  - AP lower cervical
  - AP open mouth
  - Lateral

- Co-management or specialist referral or MRI recommended even if conventional radiographs are unremarkable.
Adult patient with ‘Red Flags’

- Pt < age 20 or > age 50 (65), particularly with S/S suggesting systemic disease
- No response to care after 4 weeks
- Significant activity restriction > 4 wks
- Non-mechanical pain (unrelenting pain at rest, constant or progressive S&S.
- Neck rigidity in the sagittal plane in the absence of trauma
- Dysphasia
- Impaired consciousness

- Radiographs indicated
  - 3 view minimal series
- May need referral for MRI or CT
Red Flags continued

- CNS S&S (cranial nerves, path reflexes, long tract signs)
- High risk ligamentous laxity populations
- Arm or leg pain with neck movement
- Suspected cervical myelopathy and radiculomyelopathy
- Suspected neoplasia
- Suspected infection
- Positive laboratory examination and + S&S
- **Sudden onset of acute and unusual neck pain and/or headache with or without neurological symptoms**

- **Radiographs indicated**
  - 3 view minimal series
  - Flexion lateral view added
  - Check ADI
- **Radiographs indicated**
  - 3 view minimal series

- Immediate referral without plain films for advanced imaging.
56 year old female presented to her English chiropractor in 1999 with insidious onset of neck pain. It has not been relieved by Physiotherapy. There are no associated Symptoms H/O Breast cancer in 1984.
Negative Radiographs do not necessarily ‘clear’ the patient when certain Red Flags are present.

History of Malignancy is one of these situations.
Middle-aged female presented to her DC in Wales with recent onset of headaches and dizziness.
Thank you for your attention