



ThinkAskLearn
Health Professional Education

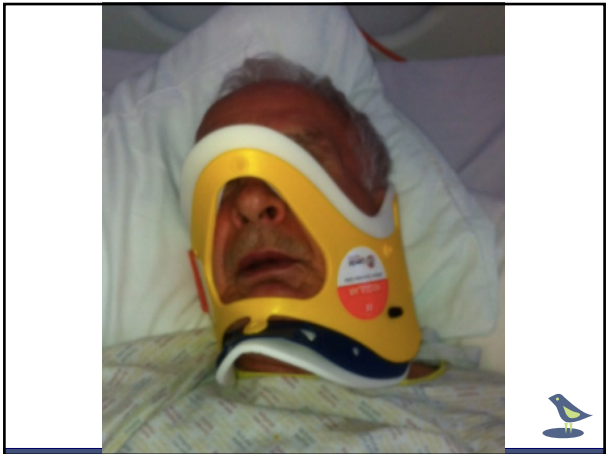
Managing a potential spinal injury

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Police and fire personnel work to extricate the injured woman from the vehicle

The constabulary has issued a force-wide notice warning officers that they should place injured victims of road traffic incidents in patrol cars only when absolutely necessary after a £20,000 vehicle was written off when the roof was removed to retrieve a woman complaining of neck pain.

The incident happened in January when an officer comforted a woman who was suffering from shock following a collision in Gosport.

The woman, who was shivering and complaining of leg pain, walked to the marked vehicle, after being assessed by paramedics, and sat in the front passenger seat.

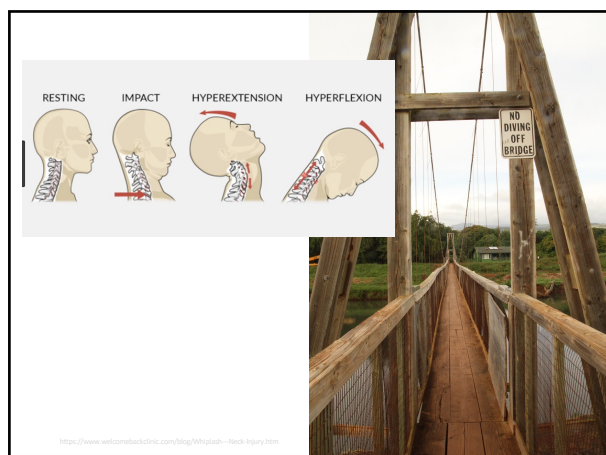
But during a second assessment, the 27-year-old complained of neck pain and concerned medics ruled she should be removed from the vehicle on a spinal board.

Sgt Andy Faulkner, who reviews all Police Vehicle Incidents (PVIs), said the episode illustrates why injured people should not be placed in police vehicles unless absolutely necessary.

He said: "I'd just remind officers that while the safety of injured parties is of course paramount, wherever possible, please do not put injured people in patrol cars. Obviously the injured person's health and welfare was our priority and would not have been compromised for the sake of a vehicle."

The injured woman's injuries were later deemed to be minor.

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Assume Injury Present

Spinal Injuries are RARE

**DEVASTATING
IF MISSED**


C-spine MUST be presumed to be at risk for any MOI capable of causing c-spine damage



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Who to immobilise

- Any patients with a history of trauma if the patient is
 - Unconscious
 - Complaining of neck pain or tenderness or limitation of movement
 - Using hands to support neck
 - Has any neurological deficit
 - Significant head /facial injuries



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Who to immobilise

- Any patient with a mechanism which may indicate spinal injuries
 - Pedestrian / cyclist hit > 30km/hr.
 - Passenger – MVA collision > 60km/hr.
 - Fall - more than 3 metres.
 - Kicked by, or fall from a horse.
 - Backed over by a car.
 - Thrown from vehicle.
 - Thrown over handlebars of bike.
 - Severe electric shock.



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How to immobilise

- Apply
- Apply sizing
- If unat
immol
– Uncr
– Infar
– Child
- Ensure



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But do hard collars work???

- Kwan et al 2009 Cochrane
– No evidence found
- Millar et al 2012
– Patient moves neck, does not immobilise
- Holla, 2012
– Head blocks do not work
- Bergan et al 2009
– No more hard collar in awake conscious patients
– Position of comfort



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But what about...

- Spinal boards
 - Used for transfer
 - Remove asap
- Taping
 - No evidence
 - Can cause harm
- Head blocks, Sandbags, Bags of Fluid
 - No longer recommended



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Spinal Board Graveyard



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But it is a simple hard collar



- Painful
- Airway occlusion
- Unable to visualise neck
- Vomiting/ Aspiration risk
- Non compliance in all age groups
- Poorly fitting
- Development of pressure area
- Able to move neck



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January 2016



ANZCOR Guideline 9.1.6 – Management of Suspected Spinal Injury

The information in this Guideline is current as of: 21/05/2025 11:35pm

- “Those with significant spinal pain will likely have muscle spasm which acts to splint their injury.” – Conscious Pt
- “Airway management takes precedence over any suspected spinal injury. It is acceptable to gently move the head into a neutral position to obtain a clear airway.”
- If the victim is breathing but remains unconscious, it is preferable that they be placed in the recovery position.
- Jaw thrust and chin lift should be tried before head tilt.



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January 2016



ANZCOR Guideline 9.1.6 – Management of Suspected Spinal Injury

The information in this Guideline is current as of: 21/05/2025 11:35pm

- “The clinical importance of prehospital immobilisation in spinal trauma remains unproven. There have been no randomised controlled trials to study immobilisation techniques or devices on trauma victims with suspected spinal cord injury.”



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ANZCOR Guideline 9.1.6 – Management of Suspected Spinal Injury

The information in this Guideline is current as of: 21/05/2025 11:35pm

January 2016


‘Consistent with the first aid principle of preventing further harm, the potential benefits of applying a cervical collar do not outweigh harms such as...’


“...In suspected cervical spine injury, ANZCOR recommends that the initial management should be manual support of the head in a natural, neutral position, limiting angular movement (expert consensus opinion). In healthy adults, padding under the head (approximately 2cm) may optimise the neutral position.”



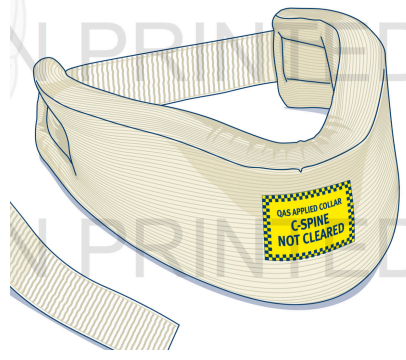
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ANZCOR Guideline – Spinal Care





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NEXUS rule for Clearing Spine

- **N**eurological signs/deficit
- **S**pinal tenderness (Cervical midline)
- **A**ltered Mental Status
- **I**ntoxication
- **D**istracting injury
- If **NO** > remove collar, rotate neck 45° to left & right, if no pain on movement > collar may be left off
- If **YES** to any of these > spinal imaging



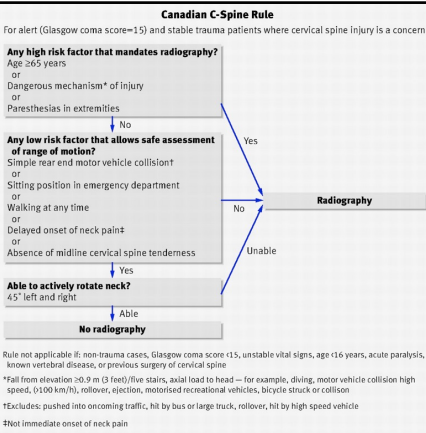
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Canadian C-Spine Rule

- From the authors of the Ottawa ankle rule and Ottawa knee rule
- More depth than NEXUS
- Less x-rays need to occur with same high sensitivity



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For alert (Glasgow coma score 15) and no focal neurological signs

Any low risk factor that with range of motion?

Simplest near end motor vehicle or

Sitting position in emergency or

Walking at any time or

Delayed onset of neck pain or

Absence of midline cervical line tenderness

Able to actively rotate neck? 45° left and right

No radiography

Rule not applicable if: non-trauma causes, Glasgow coma score less than 15, known vertebral disease, or previous surgery of cervical spine

*Fall from elevation (5.9 m (19 feet)/five stairs, axial load to speed, (1500 km/h), rollover, ejection, motorised recreation

*Excludes: pushed into oncoming traffic, hit by bus or large

Exact immediate onset of neck pain

Dangerous mechanism of Injury

• Fall >3ft/Five Stairs

• Axial load to head

• Motorised MVA >100km/hr

• Rollover

• Ejection

• Motorised recreational vehicle

• Bicycle collision

Any high risk factor that with range of motion?

Simplest near end motor vehicle or

Sitting position in emergency or

Walking at any time or

Delayed onset of neck pain or

Absence of midline cervical line tenderness

Able to actively rotate neck? 45° left and right

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Exact immediate onset of neck pain

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Lesson of the Week

(1999 Papadopoulos et al)

- 82 year old – Fall down stairs
- Walked into the ED – c/o Neck Pain
- Long standing spinal stiffness (Ankylosing spondylitis)
- Tender over C6/C7 with no neurological deficit
- Manipulated into neutral position for Hard Collar
- Developed Sudden Paralysis and Paraplegia
- Intubated in ED – developed pneumonia, renal failure, MI, cardiac dysrhythmias
- Died 2 days later

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Manipulation of the Neck

A

Collar

B

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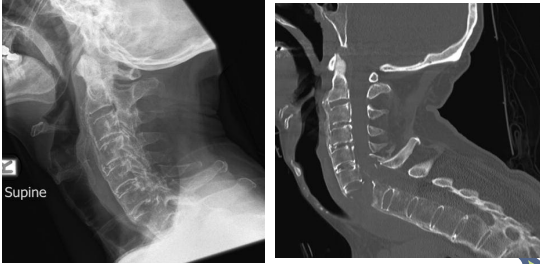
Ankylosing spondylitis : inadvertent application of a rigid collar after cervical fracture, leading to neurological complications and death

Acta Orthop. Belg., 2010, 76, 413-415

Andrew CLARKE, Stuart JAMES, Sashin ARIJIA

No Hard Collar

Hard Collar Applied



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Figure 1 The lateral trauma position. A patient has been positioned in the lateral trauma position on a stretcher. Observe that the most cephalic stretcher belt has been placed above the shoulder to prevent forward movement on the stretcher.

Fattah et al. *Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine* 2011, 19:4
<http://www.sjtem.com/content/19/1/45>

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