Cervical Facet Dislocation
7:30-7:45a

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Radiographic findings - unilateral vs. bilateral

Plain film
  Anterolithesis on lateral view
  ~25% with unilateral dislocation
  ~50% with bilateral dislocations
  Rotation on AP view

CT
MRI
MRA/CTA/angio

Associated injuries

Vertebral Artery

Multidetector CT angiography in the evaluation of acute blunt head and neck trauma: a proposed acute craniocervical trauma scoring system.
*Delgado Almandoz JE1, Schaefer PW, Kelly HR, Lev MH, Gonzalez RG, Romero JM.*

Multivariate logistic regression analysis showed that the presence of cervical interfacetal subluxation/dislocations (44.4%; odds ratio [OR], 6.3; P < .0001), fracture lines reaching an arterial structure (22.1%; OR, 4.4; P < .0001), and high-impact MOIs (16.5%; OR, 3.1; P < .0001) were independent predictors of an increased risk of arterial injury

Presence of VA injury may affect approach and post-operative care, but does not usually affect timing of surgery in setting of unreduced dislocation

Nerve root

*J Spinal Disord Tech*. 2013 Nov 7. [Epub ahead of print]
Cervical Post-traumatic Unilateral Locked Facets: Clinical, Radiological and Surgical Remarks on a Series of 33 Patients.
*Piccirilli M, Liberati C, Santoro G, Santoro A.*

10/33 patients presented with radicular findings (weakness, numbness, pain) on side of dislocation
Spinal Cord


觟 In comparison to those without FD, patients with cervical SCI in association with FD were found to present with a greater severity of neurological deficit as a result of higher energy injury mechanisms.  
� Patients with bilateral FD, as compared to those with unilateral FD, had a greater severity of neurological deficit at presentation, measured by ASIA impairment scale grade and ASIA motor score.  
䕚 Decompression of the spinal cord was achieved earlier postinjury in patients with FD as compared to patients without FD (25.1 hr vs. 41.3 hr, respectively).  
䒼 Patients with FD were found to experience a smaller amount of motor recovery at 1-year follow-up as compared to patients without FD, even after adjusting for baseline discrepancies in neurological status.  
䒟 Patients with FD had a longer duration of acute hospital stay as compared to patients without FD.

Analysis of patient variables affecting neurologic outcome after traumatic cervical facet dislocation.  
Greg Anderson D1, Voets C, Ropiak R, Betcher J, Silber JS, Daffner S, Cotler JM, Vaccaro AR.

“Although traumatic cervical facet dislocation accounts for only about 6% to 15% of cervical spinal column injuries, it is responsible for a disproportionate number of the approximately 11,000 new spinal cord injuries sustained each year in North America [1] and [2]. The high rate of neurologic injury after this type of spinal column disruption results in parts from the high-energy trauma leading to these injuries and to the displacement of the spinal column that subjects the spinal cord to a mechanical disruption or compression.”

Throat

Case reports of esophageal injury
Reduction
Options:
Traction
Intra-operative- tips/tricks/traps
Closed
Posterior
Anterior

Role of MRI prior to reduction

Initial Closed Reduction of Cervical Spine Fracture-Dislocation Injuries.
STANDARDS: There is insufficient evidence to support treatment standards.
GUIDELINES: There is insufficient evidence to support treatment guidelines.
OPTIONS:
• Early closed reduction of cervical spine fracture-dislocation injuries with craniocervical traction is recommended to restore anatomic alignment of the cervical spine in awake patients.
• Closed reduction in patients with an additional rostral injury is not recommended.
• Patients with cervical spine fracture-dislocation injuries who cannot be examined during attempted closed reduction, or before open posterior reduction, should undergo magnetic resonance imaging (MRI) before attempted reduction. The presence of a significant disc herniation in this setting is a relative indication for a ventral decompression before reduction. MRI study of patients who fail attempts at closed reduction is recommended.
• MRI study of patients who fail attempts at closed reduction is recommended.
• Prereduction MRI performed in patients with cervical fracture dislocation injury will demonstrate disrupted or herniated intervertebral discs in one-third to one-half of patients with facet subluxation. These findings do not seem to significantly influence outcome after closed reduction in awake patients; therefore, the usefulness of prereduction MRI in this circumstance is uncertain.

? risk of cord injury from traumatic HNP with reduction

Acute quadriplegia following closed traction reduction of a cervical facet dislocation in the setting of ossification of the posterior longitudinal ligament: case report
*Wimberley DW, Vaccaro AR, Goyal N, Harrop JS, Anderson DG, Albert TJ, Hilibrand AS.*

Magnetic resonance evaluation of the intervertebral disc, spinal ligaments, and spinal cord before and after closed traction reduction of cervical spine dislocations.
*Vaccaro AR, Falatyn SP, Flanders AE, Balderston RA, Northrup BE, Cotler JM.*

STUDY DESIGN:
A prospective clinical study using magnetic resonance imaging of the cervical spine in a consecutive series of patients with cervical spine dislocations.
OBJECTIVES:
To determine the incidence of intervertebral disc herniations and injury to the spinal ligaments before and after awake closed traction reduction of cervical spine dislocations.

SUMMARY OF BACKGROUND DATA:
Prior series in which the prereduction imaging of disc herniations in the dislocated cervical spine are described have been anecdotal and have involved small numbers of patients. In addition, no uniform clinical criteria to define the presence of an intervertebral disc herniation in the dislocated cervical spine has been described. The incidence of disc herniations in the unreduced dislocated cervical spine is unknown.

METHODS:
Eleven consecutive patients with cervical spine dislocations who met the clinical criteria for an awake closed traction reduction had prereduction and postreduction magnetic resonance imaging. Using strict clinical criteria for the definition of an intervertebral disc herniation, the presence or absence of disc herniation, spinal ligament injury, and cord injury was determined. Neurologic status before, during, and after the closed reduction maneuver was documented.

RESULTS:
Disc herniations were identified in 2 of 11 patients before reduction. Awake closed traction reduction was successful in 9 of the 11 patients. Of the nine patients with a successful closed reduction, two had disc herniations before reduction, and five had disc herniations after reduction. No patient had neurologic worsening after attempted awake closed traction reduction.

CONCLUSIONS:
The process of closed traction reduction appears to increase the incidence of intervertebral disc herniations. The relation of these findings, however, to the neurologic safety of awake closed traction reduction remain unclear.

Stabilization techniques

Posterior
Lateral mass/pedicle fixation vs wiring
May be a challenge due to associated facet fractures
Tricks/tips

Anterior
Anterior cervical discectomy and fusion
Tricks/tips

Staged