

Whiplash Syndrome Fact or Fiction?

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THESE AUTHORS NOTE:

- "The cervical spine is frequently injured as the result of motor vehicle trauma."
- The whiplash syndrome "is real and is manifested by symptoms consistent with the anatomic injury sustained, and has the potential to cause significant impairment."
- Whiplash is a musculoligamentous sprain/strain injury to the soft tissue structures about the cervical spine.
- "In an 8-mile-per-hour rear-end collision, a 2 G force of acceleration of the vehicle may result in a 5 G force of acceleration of the occiput and head."
- "The amount of damage to the automobile may bear little relationship to the forces applied to the cervical spine and to the injury sustained by the cervical spine."
- "Seatbelts, which minimize injury to the chest wall and head, may intensify the potential for cervical trauma by restricting motion of the lower body."

Whiplash hyperextension forces frequently cause:

- 1) Anterior longitudinal ligament injury
- 2) Anterior neck muscle injury, including the sternocleidomastoid, scalenes, and longus colli
- 3) Esophageal hemorrhage; stretch injuries or contusion of the esophagus and larynx may cause hoarseness and dysphagia
- 4) Disc disruption

"Visual disturbances may result from vertebral, basilar, and vascular injury, or from injury to the cervical sympathetic chain."

Following injury, symptoms are commonly delayed for several hours or several days. Associated symptoms include headaches and dizziness. An examination of the patient made within the first few hours following injury "is frequently negative."

- The muscle most commonly found to be in spasm is the trapezius.
- Compression of the cervical spine will aggravate radicular symptoms.
- Altered sensory examination is often not in a dermatomal pattern.

In cervical whiplash patients, the thoracolumbar spine should also be examined because of possible injuries. "In many patients with cervical sprain, movement of the lower back will cause discomfort in the neck."

"The physical findings may vary significantly at different times within the same patient. There may even be variation within the course of a day or within the course of the work week."

"Radiologic findings may be minimal. Nevertheless, a full radiographic series is necessary to rule out bony injury or displacement in all of these patients." **[Very Important]**

The x-ray views required are:

- AP cervical
- AP open mouth odontoid view
- Lateral cervical
- Lateral flexion cervical and extension
- Left and right oblique cervical

Pre-existing structural changes and degenerative changes are "frequently associated with a more difficult, more prolonged, and less complete recovery."

“When hyperextension injury occurs in the presence of pre-existing osteophyte formation, there is further narrowing of the spinal canal, which increases the potential for injury to the nerve roots or cord.”

Soft tissue injuries may be present even when x-rays, MRI, CT, bone scan, and myelogram are all negative. **[Very Important]**

If a cervical collar is used, it should be used in an on and off basis for a period of no longer than 2 weeks. However, some patients will only be able to sleep while wearing a cervical collar.

Prolonged heat may aggravate symptoms and cause prolongation of the course of recovery.

Isometric exercises should be initiated immediately following the injury.

The following factors are associated with a poor prognosis for full recovery:

- 1) Radiation of pain into an extremity
- 2) Extremity paresthesia
- 3) Altered extremity sensory examination
- 4) Altered extremity deep tendon reflex
- 5) Extremity weakness
- 6) Extremity muscle atrophy
- 7) Sharp or irregular reversal of the normal cervical curvature
- 8) Pre-accident degenerative joint and/or disc disease
- 9) Congenital anomalies such as a block vertebra
- 10) Significant positive findings on EMG's, CT, MRI, or myelogram

“Most patients with negative studies will heal, generally slowly and irregularly, on a program of initial rest and protection of the area, followed by mobilization, cautious exercises, and guided return to function. However, some of these patients will continue to be symptomatic, despite appropriate treatment.”

KEY POINTS:

- 1) The whiplash syndrome is FACT, not FICTION and “has the potential to cause significant impairment.”
- 2) An 8 mph rear-end collision produces a 2 G force of acceleration of the vehicle and a 5 G force of acceleration of the occiput and head of the vehicle occupant.
- 3) “The amount of damage to the automobile may bear little relationship to the forces applied to the cervical spine and to the injury sustained by the cervical spine.”
- 4) “Seatbelts, which minimize injury to the chest wall and head, may intensify the potential for cervical trauma by restricting motion of the lower body.” **[Very Important]**
- 5) “Visual disturbances may result from vertebral, basilar, and vascular injury or from injury to the cervical sympathetic chain.”
- 6) An examination of the patient made within the first few hours following injury “is frequently negative.”
- 7) Cervical whiplash can injure the thoracolumbar spine.
- 8) “The physical findings may vary significantly at different times within the same patient. There may even be variation within the course of a day or within the course of the work week.” **[This is very important because it indicates that the findings in a one-time insurance examination might not truly represent the patient's day-in and day-out clinical status.]**
- 9) “Radiologic findings may be minimal. Nevertheless, a full radiographic series is necessary to rule out bony injury or displacement in all of these patients.” **[Very Important]**
- 10) Pre-existing structural changes and degenerative changes are “frequently associated with a more difficult, more prolonged, and less complete recovery.”

11) "When hyperextension injury occurs in the presence of pre-existing osteophyte formation, there is further narrowing of the spinal canal, which increases the potential for injury to the nerve roots or cord."

12) Soft tissue injuries may be present even when x-rays, MRI, CT, bone scan, and myelogram are all negative.

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