

Traumatic Neck, Head, Eye Syndrome

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THIS AUTHOR NOTES:

Whiplash trauma can result in serious damage to the neck and upper part of the thoracic area, "causing neural symptoms radiating to the head."

The potential injuries include:

- 1) Narrowing of one or more of the cervical dorsal intervertebral discs.

"These injuries themselves usually did not cause immediate pain, but as time went on the development of traumatic arthritic changes, due to altered mechanical stresses, was observed." **[Important]**

"Associated abnormalities were loss or reversal of the cervical curve and a rare herniation of the intervertebral disc."

- 2) Chip or compression fractures of the vertebral bodies.
- 3) "Tear of the facet joint ligaments."

These are confirmed if radiographs show "anterior or posterior subluxation."

"In these cases the subluxation usually did not materialize until six months or more after the date of trauma, so that it is well to remember that all injuries to the neck should be followed by periodic roentgenographic studies for several years after the injury, with this point in mind." **[Very Important]**

- 4) "Pressure sensory hypersensitivity over the cervical dorsal area."
- 5) Pain with muscle spasm and restriction of motion in the neck and upper back.

This causes a ligamentous fascial contracture during the ensuing weeks causing a persistent restriction of motion.

This restriction of motion can be released with "progressive accumulative mobilization stretching."

"This mobilization stretching usually takes several months to accomplish and is something like climbing up three stairs and sliding back two." **[Very Important]**

This is best accomplished with "forced active rotation of the head, neck and thorax to each side."

Initially this treatment is given three times daily, then three visits weekly, always done by a therapist.

In all cases, "when motion is attempted past the point of restriction, the symptoms complained of, including those radiating to the head and arm, are exacerbated, so that it is possible to guide the stretching by elicitation of symptoms and make sure that the proper directions for loosening are carried out."

6) This author advocates doing needle EMG to the cervical muscles innervated by the posterior primary rami during the "forced active rotation of the head, neck and thorax to each side."

"Increased motor unit activity with each increased forced rotation of the neck and the upper thoracic portion of the spine" indicates "compression stimulus of the motor fibers by the fascial ligamentous contracture."

"This was quite dramatic and has been repeated over and over again for diagnostic, demonstration and teaching purposes."

[I believe that today this is primarily done with surface EMG.]

7) Radiating pain to the head (often along the course of the greater occipital nerve).

Occasional facial neuralgia, "including the severity of tic douloureux [trigeminal neuralgia]."

These [trigeminal neuralgia] patients have "chronic causalgia-like facial neuralgia persisting for years after trauma."

These [trigeminal neuralgia] patients are treated exactly the same way, with "forced rotation of the neck and the upper thoracic portion of the spine."

8) Pain radiating into the arm or upper intercostal area.

"This was frequently observed."

"Radiating into the arm frequently took the pattern of distribution of the ulnar nerve." [The ulnar nerve innervates the little finger side of the hand/arm; this is consistent with thoracic outlet syndrome.]

9) "Disturbances of cervical postural reflexes."

These patients had a history of discoordination immediately following the injury, and discoordination was aggravated by forced cervical dorsal rotation during testing.

10) "Blurred vision unrelated to ocular visual defects." **[Important]**

"This was complained of in nearly all of the cases." **[Very Important]**

"In those of severe involvement the blurred vision was persistent, and those in which the involvement was milder it was described as transitory."

Descriptions of vision problems included:

"Objects seem to recede from me."

"I seem to lose my focus."

In these patients, the extremes of cervical-dorsal rotation revealed "wide unilateral mydriasis" [dilation of the pupil] which "maintained itself until the rotary pressure was released."

With the forced rotation and production of mydriasis [dilation of the pupil], often on the ipsilateral side of the face there was a "vascular constriction and hydrosis [sweating], the cold, clammy bead of sweat breaking out within a few minutes and persisting for fifteen or twenty minutes or more."

"It was concluded that this combination of signs represents a form of hyperstimulation of the cervical sympathetic division, coming from the 1st, 2nd, and 3rd thoracic nerves and traversing the cervical ganglia to become distributed to the head and eye from the superior cervical ganglia." **[Important]**

TREATMENT

"On the basis of this line of reasoning, a carefully planned remobilization of the neck and the upper part of the back by means of progressive stretching exercises has been carried out in order to free the nerves from their constriction stimuli in their foraminal pathways through the contracted fascial ligamentous structures." **[Very Important]**

"It has been attended with gratifying elimination of symptoms and signs."

"It has been noted that, once full rotatory range of motion in the neck and upper dorsal portion of the spine has been obtained, the patients become symptom free." **[Important]**

"However, it has also been noted that if they do not continue sufficient mobilization stretching exercises to maintain the full range of motion they are subject to recurrence." **[Important]**

"A number of patients who, when they became symptom-free, disobeyed instructions and stopped the exercises completely, have had to return for a repeat series of progressive accumulative mobilization stretchings in order to regain the normal range." **[Important]**

SUMMARY

"Cephalic and ocular symptoms and signs consistent with over stimulation of the cervical sympathetic division following traumatic whiplash injuries to the cervical dorsal area" occur.

"The cause of persistence of signs and symptoms is abnormal compression stimulation of the foraminal nerve due to strain contracture of the fascial ligamentous structures following trauma."

A method of obtaining relief of whiplash injury caused symptoms and signs is to release foraminal nerve compression with "progressive accumulative stretching-loosening mobilization of the fascial ligaments."

Whiplash neurological symptoms can also be caused by brain injury, so it is important to take a careful history and do a good examination to differentiate the two.

KEY POINTS FROM DAN MURPHY

- 1) Whiplash trauma can result in serious damage to the neck and upper part of the thoracic area, "causing neural symptoms radiating to the head."
- 2) Whiplash intervertebral disc injury often does not cause immediate pain; pain develops with the progression of traumatic arthritis.
- 3) Whiplash disc injury is associated with loss or reversal of the cervical curve.
- 4) Tear of the facet joint ligaments will show on radiography as "anterior or posterior subluxation."

"In these cases the subluxation usually did not materialize until six months or more after the date of trauma, so that it is well to remember that all injuries to the neck should be followed by periodic roentgenographic studies for several years after the injury, with this point in mind." **[Very Important]**

- 5) The treatment of whiplash injuries involves using progressive accumulative mobilization stretching exercises.

"This mobilization stretching usually takes several months to accomplish and is something like climbing up three stairs and sliding back two." **[Very Important]**

This is best accomplished with "forced active rotation of the head, neck and thorax to each side."

This treatment is initially given three times daily, then three visits weekly.

"A carefully planned remobilization of the neck and the upper part of the back by means of progressive stretching exercises has been carried out in order to free the nerves from their constriction stimuli in their foraminal pathways through the contracted fascial ligamentous structures." **[Very Important]**

6) EMG analysis on the patient at the extreme of their motion can repeatedly document motor radiculopathy.

7) Whiplash injury often causes pain radiating to the head, often along the course of the greater occipital nerve.

8) Whiplash-injured patients will occasionally develop a trigeminal neuralgia, with "chronic causalgia-like facial neuralgia persisting for years after trauma."

These [trigeminal neuralgia] patients are treated exactly the same way, with "forced rotation of the neck and the upper thoracic portion of the spine."

9) The most common pain radiating into the arm is in the distribution of the ulnar nerve. [This is consistent with thoracic outlet syndrome.]

10) Most whiplash-injured patients complain of blurred vision, "unrelated to ocular visual defects." **[Important]**

11) Whiplash-injured patients, with forced rotation, may show mydriasis [dilation of the pupil] with ipsilateral facial vascular constriction and sweating, "within a few minutes and persisting for fifteen or twenty minutes or more."

"It was concluded that this combination of signs represents a form of hyperstimulation of the cervical sympathetic division, coming from the 1st, 2nd, and 3rd thoracic nerves and traversing the cervical ganglia to become distributed to the head and eye from the superior cervical ganglia."

[Important]

12) "Once full rotatory range of motion in the neck and upper dorsal portion of the spine has been obtained, the patients become symptom free." **[Important]**

13) If patients "do not continue sufficient mobilization stretching exercises to maintain the full range of motion they are subject to recurrence," and the patient must "return for a repeat series of progressive accumulative mobilization stretchings in order to regain the normal range." **[Important]**

14) The cephalic and ocular symptoms and signs following whiplash injury are consistent with over stimulation of the cervical sympathetic nerves.