Minor Neck Trauma in Chronic Ankylosing Spondylitis: A Potentially Fatal Combination

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FROM ABSTRACT

Long-standing ankylosing spondylitis may predispose a patient to serious cervical injury in the setting of minor trauma.

We report a 75-year-old man whose relatively minor trauma in the setting of AS resulted in a cervical fracture and callus formation, which masqueraded as a tumor.

The patient developed neck pain, bilateral hypoglossal nerve palsy with dysarthria, and dysphagia that ultimately resulted in his death.

This case illustrates progressive neurologic signs of gradual disarticulation of the skull from the cervical spine.

The situation is considered of importance because it emphasizes the need for early recognition and possible intervention in the presence of hypoglossal symptoms.

The specific combination of long-standing ankylosing spondylitis and minor trauma is one setting in which a clinician must be alerted. Early consideration of neck immobilization is emphasized.

THESE AUTHORS ALSO NOTE:

"Ankylosing spondylitis (AS) is a chronic inflammatory condition affecting the spine, which progressively advances to autofusion via inflammation and ossification of all the supportive ligamentous structures about the vertebrae."

"With the resultant spinous immobilization, osteoporosis can become severe, and compression fractures are a recognized complication of the disease."

If corticosteroids are used osteoporosis is compounded.

Minor trauma can produce severe vertebral fractures in patients with AS, usually in the lower cervical and cervicothoracic regions, including minor trauma such as riding a truck over rough terrain.

Neck-tongue syndrome was first described in 1962. Patients would experience pain on one side of the neck, and dysesthesias of the ipsilateral side of the tongue on contralateral turning of the head.

"The anatomic explanation of the occipital pain and numbness of half of the tongue is thought to relate to laxity of the joint capsule or subluxation of the occipitocervical articulations."

"Anastamotic fibers are known to exist between the C2 root, lingual, and hypoglossal nerves." With rotation of the neck, the C2 ventral ramus is drawn over the atlantoaxial joint or occipitocervical articulation with associated compression and symptoms.

"Usually the syndrome is annoying but not associated with serious sequelae. Recommended treatments include merely observing caution in head movements, the use of a cervical collar or, in some cases, manipulation of the cervical spine."

Occasionally atlantoaxial fusion is required.

PRESENTED CASE STUDY

A 75-year-old man with AS since childhood and treated with prednisone was injured in a slip and fall sustaining a minor trauma.

He developed persistent neck pain and increasing dysarthria.

Neurologic examination showed weakness of cranial nerve XII.

2 –3 weeks later he developed bilateral hypoglossal paralysis and minimal elevation of the posterior aspect of the tongue was the only motion noted, allowing him to only be able to pronounce the sound "K".

Examination showed that his skull had disarticulated from the cervical spine.

DISCUSSION

"Biomechanically, any degree of subluxation of the atlantooccipital articulation of greater than 2 mm indicates loss of integrity of the major stabilizing ligaments in this area."

"The association of occipitocervical pathology with tongue dysfunction has been termed the neck-tongue syndrome."

"All of the tongue motor function is supplied by the hypoglossal nerve except a small portion of the palatoglossus, which is innervated by the vagus. The palatoglossus elevates the root of the tongue and approximates the palatoglossal arch to its counterpart on the contralateral side and accounts for the ability of this patient to phonate the K consonant sounds."

"The sensory and proprioceptive fibers from the lingual nerve travel in the hypoglossal nerve, and then to the second cervical root at the C2 ventral ramus. This ramus lies in close proximity to the articulations of the head and neck and would be vulnerable to significant anatomic disruptions in this area."

The most common etiologies of hypoglossal nerve lesions are survivors of acute occipitocervical dislocation, usually from a deceleration injury, or pedestrians hit by cars, with a large number being children.

In the above case, the combination of extreme osteoporosis related to the long-standing AS and corticosteroid use, coupled with relatively minor trauma, resulted in an occult fracture with subsequent callus formation, which eventually resulted in catastrophic instability with complete occipitocervical subluxation on the right and C1-2 subluxation on the left.

"We call attention to the tongue symptoms as a warning of possible potentially catastrophic neck pathology."

"Early intervention with immobilization could be life saving."

KEY POINTS FROM DAN MURPHY

1) "The association of occipitocervical pathology with tongue dysfunction has been termed the neck-tongue syndrome."

2) Long-standing ankylosing spondylitis may predispose a patient to serious cervical injury in the setting of minor trauma.

3) The specific combination of long-standing ankylosing spondylitis and minor trauma is one setting in which a clinician must be alerted. Early consideration of neck immobilization is emphasized.

4) Minor trauma can produce severe vertebral fractures in patients with AS, usually in the lower cervical and cervicothoracic regions, including minor trauma such as riding a truck over rough terrain.

5) Neck-tongue syndrome was first described in 1962. Patients would experience pain on one side of the neck, and dysesthesias of the ipsilateral side of the tongue on contralateral turning of the head.

6) "The anatomic explanation of the occipital pain and numbness of half of the tongue is thought to relate to laxity of the joint capsule or subluxation of the occipitocervical articulations."

7) "Anastamotic fibers are known to exist between the C2 root, lingual, and hypoglossal nerves." With rotation of the neck, the C2 ventral ramus is drawn over the atlantoaxial joint or occipitocervical articulation with associated compression and symptoms.

8) "Usually the syndrome is annoying but not associated with serious sequelae. Recommended treatments include merely observing caution in head movements, the use of a cervical collar or, in some cases, manipulation of the cervical spine." **[Important]**

9) "Biomechanically, any degree of subluxation of the atlantooccipital articulation of greater than 2 mm indicates loss of integrity of the major stabilizing ligaments in this area."

10) The most common etiologies of hypoglossal nerve lesions are survivors of acute occipitocervical dislocation, usually from a deceleration injury, or pedestrians hit by cars, often involving children.

11) Presence of tongue symptoms may be a warning of potentially catastrophic neck pathology, and early immobilization could be life saving in such cases.