

THE WOMAN WITH HEADACHE ORIGINATING IN THE NECK

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Case History

A 45-year-old secretary is referred to a tertiary headache center for treatment of refractory neck, head, and facial pain. She believes her problems started 5 years ago when her desk was equipped with a new computer system and new monitor. The monitor was placed to her left, and she had to turn her head to have an optimal view of the monitor. She suffered from left-sided unilateral head pain originating from the neck. The pain was first perceived in the neck and radiated across the parietal region to the frontal and periorbital areas. Sometimes, the pain also radiated toward the shoulder. The pain was constant, nonpulsating, and of moderate severity. Initially, the pain lasted only between 30 minutes and 1 hour and improved when the patient left her desk and moved around. With time, the pain attacks increased in frequency and duration.

The patient consulted her physician. Upon investigation, she had a normal neurologic examination, except for limited mobility of the neck and increased muscle tone of the neck and shoulder muscles, with painful and tender points in the neck muscles. Radiographs of the neck showed mild degenerative arthritis of the cervical spine. The physician prescribed simple analgesics, which were not effective. He also tried a triptan, which was equally ineffective. The patient was referred to a pain specialist, who performed three local injections at the C2 root on the left side, each injection separated by 1 week. Twice he injected a local anesthetic, once a placebo. The pain improved for almost a day after injection of the local anesthetic, but did not respond to the placebo injection. More detailed questioning of the patient about the circumstances of the onset of her headaches identified as a possible cause of the neck and head pain the

long-lasting, nonphysiologic head position at work. The pain specialist advised her to relocate the computer monitor and asked the patient to undergo a training program in order to improve muscle strength of neck and shoulder muscles. With this approach, the pain improved within the next 2 months. At present, the patient has only 1 to 2 mild pain attacks per week.

Questions on the Case

Please read the questions, try to answer them, and reflect on your answers before reading the author's discussion.

- What is the most likely diagnosis and what are the differential diagnoses?
- What additional investigations should be done?
- What would be your advice with regard to treatment and prevention?

Case Discussion

Diagnosis

The most likely diagnosis for this patient is cervicogenic headache (category 11.2.1 of the new 2004 classification of the International Headache Society [IHS]; Table 41-1). The pain originates in the neck and is provoked by a long-lasting, nonphysiologic head posture. The patient has local signs in terms of reduced mobility of the neck and increased tone of the neck muscles. Mild osteochondrosis of the cervical spine as seen on the radiograph is nonspecific and does not prove the diagnosis. The diagnosis is made by placebo-controlled local anesthetic blocks of the C2 root. The pain only improved with velum injections.

Table 41-1. ICHD-II 2004 Classification for Cervicogenic Headache**11.2.1 Cervicogenic headache**

Previously used term:

Cervical headache

Coded elsewhere:

Headache causally associated with cervical myofascial tender spots is coded as 2.1.1 infrequent episodic tension-type headache associated with pericranial tenderness, 2.2.1 frequent episodic tension-type headache associated with pericranial tenderness, or 2.3.1 chronic tension-type headache associated with pericranial tenderness.

Diagnostic criteria:

- A. Pain, referred from a source in the neck and perceived in one or more regions of the head and/or face, fulfilling criteria C and D
- B. Clinical, laboratory, and/or imaging evidence of a disorder or lesion within the cervical spine or soft tissues of the neck known to be, or generally accepted as, a valid cause of headache*
- C. Evidence that the pain can be attributed to the neck disorder or lesion based on at least one of the following:
 1. Demonstration of clinical signs that implicate a source of pain in the neck[†]
 2. Abolition of headache following diagnostic blockade of a cervical structure or its nerve supply using placebo or other adequate controls[‡]
- D. Pain resolves within 3 months after successful treatment of the causative disorder or lesion

ICHD-II = International Classification of Headache Disorders II.

* Tumors, fractures, infections, and rheumatoid arthritis of the upper cervical spine have not been validated formally as causes of headache, but are nevertheless accepted as valid causes when demonstrated to be so in individual cases. Cervical spondylosis and osteochondritis are NOT accepted as valid causes fulfilling criterion B. When myofascial tender spots are the cause, the headache should be coded under 2.0 tension-type headache.

[†] Clinical signs acceptable for criterion C1 must have demonstrated reliability and validity. The future task is the identification of such reliable and valid operational tests. Clinical features such as neck pain, focal neck tenderness, history of neck trauma, mechanical exacerbation of pain, unilaterality, coexisting shoulder pain, reduced range of motion in the neck, nuchal onset, nausea, vomiting, photophobia, etc, are not unique to cervicogenic headache. These may be features of cervicogenic headache, but they do not define the relationship between the disorder and the source of the headache.

[‡] Abolition of headache means complete relief of headache, indicated by a score of zero on a visual analogue scale (VAS). Nevertheless, acceptable as fulfilling criterion C2 is $\geq 90\%$ reduction in pain to a level of < 5 on a 100-point VAS.

Investigation

In this case, the history and the clinical presentation are congruent and make the diagnosis of cervicogenic headache highly probable. The fact that analgesics and triptans are ineffective makes a migraine originating in the neck unlikely. In addition, autonomic symptoms are absent in this case. If the patient had radiating pain to the arm with mild weakness or sensory radicular disturbances, then I would perform a magnetic resonance imaging scan of the cervical spine to exclude root compression by a cervical disc prolapse. Other additional tests, including laboratory investigations, are not required.

Management Strategies

I would have started with muscle relaxants instead of analgesics. In this simple case, it was clear that the nonphysiologic head position triggered the neck pain and headache. Repeated anesthetic blocks are usually not effective. In this case, it was only necessary to relocate the computer monitor and to build up muscle strength by physical therapy and isometric muscle training.

Case Summary

- This patient has cervicogenic headache due to long-lasting head turning to the left at her workplace. The pain starts in the neck but then radiates to the head.
- The diagnosis was made by placebo-controlled local blocks of the C2 root on the affected side.
- With a more physiologic head position at work and improvement of muscle strength of neck muscles, the symptoms improved dramatically.

Overview of Cervicogenic Headache

Cervicogenic headache leads to unilateral neck and head pain, usually not shifting sides. The pain is continuous, nonpulsating, and not stabbing. The pain arises from the neck and is of moderate to severe intensity. Additional symptoms such as sensitivity to light or sound, nausea, vomiting, or dizziness may occur during the pain attacks. The pain attacks are provoked by certain neck movements or head postures. The pain can also be provoked by local pressure in the area of the greater occipital nerve or on neck muscles. The pain may radiate to the shoulder region or toward the arm. Some patients may suffer from the chronic form of cervicogenic headache, with constant pain superimposed by mechanically provoked increases in pain intensity. The duration of pain attacks is very variable and may last from a few hours to several weeks.

The estimated prevalence in the general population is 1 to 2.5%. The mean age at onset is 30 to 35 years and women are three times more often affected. The mean pain days per month are 10 to 30 days, with duration of single pain episodes from 0.4 to 2.5 days.

Diagnosis is based on IHS criteria or the 1998 criteria by Sjaastad and colleagues. A prerequisite for the diagnosis is a positive response to local blocks with anesthetics in a blinded, placebo-controlled fashion. Injection points are the greater or lesser occipital nerves, the C2 or C3 roots, or the facet joints C2/C3 and C3/C4. The blockade should relieve all aspects of the headache for the duration of action of the local anesthetic used.

In contrast to cluster headache, cervicogenic headache does not occur in clusters with long-lasting pain-free

periods. The differentiation from migraine may be difficult. Cervicogenic headache, however, does not respond to triptans.

Treatment consists of manual therapy with gentle mobilization and manipulation of the neck. Massage can be used, but controlled trials for this approach are absent. Repeated local blocks sometimes combined with corticosteroids are often applied, without evidence from randomized or controlled trials. Oral nonsteroidal anti-inflammatory drugs in combination with muscle relaxants might provide some relief, but do not result in freedom from pain. Surgical procedures are advocated, again without proof from randomized trials. These procedures either aim at damaging the dorsal roots of C2 and C3, or performing fusion of cervical joints.

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Editorial Comments

Few topics in headache medicine have been as controversial over the years as that of “cervicogenic headache.” Intuitively, it makes anatomic and clinical sense that the neck and upper spinal structures play a role in the pathogenesis of some forms of headache. Structural lesions, excluding spondylosis and osteoarthritic changes, probably play a role in selected patients; but what about those in whom no objective signs can be found and in whom diagnosis is dependent on a subjective response to local blockades? There are no easy answers here, and one suspects the controversy will be ongoing for some time. Dr. Diener, however, presents a most valuable case, and a simple solution after diagnosis is established—adjust the location of the computer monitor and build muscle strength. Sometimes, complex medical problems do have simple solutions, and we wish they were all that simple to diagnose and treat effectively.

FINAL DIAGNOSIS:

Cervicogenic headache

