Neck Pain and Headaches

Treating Cervicogenic Headaches

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Question: *I hurt my neck in a car accident a few years ago. Nothing was fractured, but I did get a bulging disc in my neck as a result. My pain began only in my neck at first, but I soon started getting bad headaches at the back of my head and toward the top. Sometimes, the pain occurs behind and above my eyes, too. These headaches have been occurring regularly since my accident. Why am I still in pain, and what can I do to relieve my headaches?*
— Fran, Louisville, KY

Answer: This is a very common presentation with cervicogenic headaches, which are caused by referred neck pain. Referred pain is pain that moves away from where it originates. In this case, the pain source is the neck, and the pain radiates from the back of the head into one or both temples and one or both of the eyes.

Cervicogenic headaches are sometimes misdiagnosed as migraine, sinus, or cluster headaches (cluster headaches are extremely painful and come and go periodically). Both migraines and cluster headaches arise within the sensitive membrane coverings of the blood vessels within the skull, i.e. they originate in your head.

However, cervicogenic headaches—while felt in the back of the head, and sometimes in the temples or behind the eyes—arise from a problem in the upper cervical spine. Because the upper 3 cervical spinal segments share nerve tracts with the cranium itself, pain is misinterpreted and thus "felt" by the brain as being located in the head. Unfortunately, many patients are misdiagnosed and treated each year as suffering from migraine, sinus or cluster headaches. Therefore, they do not receive a proper diagnosis or treatment,

How Neck Pain Can Cause Headaches

Anatomically and physiologically, the upper 3 cervical spinal roots (located at C1, C2, and C3) share a pain nucleus (which routes pain signals to the brain) with the trigeminal nerve. This nerve is the main sensory nerve that carries messages from your face to your brain.

The upper 3 cervical spine nerve roots send fibers toward the head that converge on the trigeminal nuclei, which are located at the very top of the spinal cord. These nuclei relay pain messages through the the trigemino-cervical tract.

Think of the trigemino-cervical tract as a relay station where pain signals are sent via nerve tracts first to the thalamus in the midbrain, and then to the higher cortical region of the brain. It is at these thalamic and cortical centers that pain acquires its defining qualities, including severity, meaning, how the body should respond to it, and where it originated.

The brain is not good at defining the precise location of pain that comes from the neck. This is why the brain usually mistakes upper cervical spine pain as a headache. This same phenomenon

is more commonly recognized in the heart attack victim who feels arm pain during an attack despite no injury to the arm. The brain, again, misinterprets the area of pain due to shared sensory nerves by the arm and heart.

Treating Cervicogenic Headaches

As a general rule, treatment begins once the diagnosis of cervicogenic headache has been made. A proper diagnosis should include:

- your detailed medical history and physical examination
- a series of plain cervical spine x-rays, including flexion/extension views of the facet joints and other joints in the upper 3 cervical spinal segments
- an open-mouth view of the skull and a lateral skull x-ray may be necessary
- a positive cranio-cervical flexion test and loss of normal atlanto-axial (C1-C2) range of motion are common findings

Although it may be of interest, an MRI or CT of the cervical spine is not mandatory.

In treating cervicogenic headaches, pain drugs may be considered initially, including non-steroidal anti-inflammatory drugs (NSAIDs), along with the application of ice or gel packs daily. Specific corrective exercises to stabilize the cervical spine and improve neck and head posture are also of critical importance. Osseous manipulation performed by a chiropractor or osteopath can be applied when appropriate to restore normal joint mechanics. Additionally, various therapeutic techniques and interventions may be used to facilitate a more complete recovery. These include craniosacral therapy, manual therapies and muscle activation techniques (M.A.T.), as well as a thorough ergonomic evaluation.