Cervicogenic headache: It is time to call for more attention

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Cervicogenic headache (CH) refers to head pain originating from the pathology in the neck. However, the diagnosis of CH is still controversial and it is often misdiagnosed. The author was called to consult a patient in a university hospital not so long ago. The patient was a 28-year-old female with a history of headache for six months. Her headache was described as continuous, dull and achy. It was mainly in the right side occipital and parietal areas. Sometimes she felt a headache behind the eyes. Her headache got worse periodically, several times a month, with nausea, photophobia, and phonophobia. She had no previous history of headache until a whiplash injury six months before. She had been diagnosed as having 'migraine' and 'post-traumatic headache.' She had used all anti-migraine medications. ‘Nothing was working.’ The patient was admitted into hospital because of ‘intractable headache.’

On the day when the author saw the patient, she was lying on the bed, with the room light turned off and a bed sheet covering her head and eyes. She was given Dilaudid, 2mg/h continuous intravenous (IV) drip, for the headache. The patient had normal results from magnetic resonance imaging (MRI) of the brain and lumbar puncture. According to the patient, no doctors had touched the back of her head and upper neck since admission. The author examined the patient and found a jumping tenderness over the right greater occipital nerve. The patient was given 2ml of 2% lidocaine with 40mg of Kenalog for the right greater occipital nerve (GON) block. Her headache was gone within five minutes and the Dilaudid drip was immediately discontinued. At follow-up four weeks later, the patient was headache-free. This was a typical missed case of CH (occipital neuralgia).

The concept of CH was first introduced by Sjaastad and colleagues in 1983. The International Headache Society published its first diagnostic criteria in 1998 which was revised in 2004. Patients with CH may have histories of head and neck trauma. Pain is often unilateral. Headache is frequently localized in the occipital area. However, pain may also be referred to the frontal, temporal or orbital regions. Headaches may be triggered by neck movement or sustained neck postures. Headache is constant with episodic throbbing attacks, like a migraine. Patients may have other symptoms mimicking a migraine such as nausea, vomiting, photophobia, phonophobia, and blurred vision. Due to the fact that there is a significant overlap of symptoms between CH and migraine without aura, CH is often misdiagnosed as migraine. CH is commonly found in patients after whiplash injuries, especially in the chronic phase.

Anatomical studies have provided a basis for the pathogenesis of CH. The suboccipital nerve (dorsal ramus of C1) innervates the atlanto-occipital (AO) joint and dura matter over in the posterior fossa. Therefore, a pathologic condition of AO joint is a potential source for occipital headache. It has been reported that pain from the C2-3 and C3-4 cervical facet joints can radiate to the occipital area, frontotemporal and even periorbital regions. Even pathology in C5 or C6 nerve roots have been reported to cause headache. The trigeminocervical nucleus is a region of the upper cervical spinal cord where sensory nerve fibres in the descending tract of the trigeminal nerve (trigeminal nucleus caudalis) are believed to interact with sensory fibres from the upper cervical roots. This functional convergence of upper cervical and trigeminal sensory pathways allows the bidirectional referral of painful sensations between the neck and trigeminal sensory receptive fields of the face and head.

Clinicians should always put CH in the list of differential diagnoses when they work up a headache patient. A history of head/neck injury, and detailed examination of the occipital and upper cervical area, should be part of the evaluation. Patients with CH may have tenderness over the greater or lesser occipital nerve, cervical facet joints and muscles in the upper or middle cervical region. Diagnostic imaging such as X-ray, computerized tomography (CT) and MRI cannot confirm CH, but can lend support to its diagnosis.

Treatment of CH is empirical. This headache does not respond well to migraine medications. Treatment should be focused on the removal of the pain source from the occipital-cervical junction. Initial therapy should be directed to non-steroidal anti-inflammatory drugs (NSAIDs) and physical therapy modalities. GON block is easy and safe to perform in office. It is effective for the treatment of occipital neuralgia and CH. The author followed a group of patients after GON block. The pain relief effects of GON block lasted an average of 31 days (unpublished data). If patients do not respond to GON block, diagnostic medial branch block and radiofrequency (RF) denervation of the upper cervical facet joints can be considered.
Early studies have reported positive results. A subsequent randomized study found no benefit of RF. However, there were only six cases in each group, which significantly limited the power and validity of the conclusion from that study. Surgical treatment of cervical degenerative disc disease may offer effective pain relief for CH. Jansen reported 60 cases of CH patients treated mainly with C4/5, C5/6 and C6/7 nerve root decompression. More than 63% patients reported long lasting pain freedom or improvement (> 50%).

CH is common, with a prevalence of 0.4% and 2.5% in the general population. However, compared with other common pain conditions, CH is less studied. A Medline search found 6818 abstracts for migraine in 2009, whereas only 86 abstracts on CH were found. CH has not been well studied and it is often misdiagnosed. It is time to call for more attention.

Competing Interests
None Declared

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REFERENCES