

Cervicogenic Headache: Diagnostic Criteria

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The first attempt at setting forth diagnostic criteria for cervicogenic headache was made in 1990.¹ Local anesthetic blockades were not made obligatory, mainly because blockades were not available to many clinicians at the time.

An upgrading of the criteria is presently considered necessary, since the time has come when anesthetic blockades should be made obligatory, at least in scientific diagnostic evaluation. Furthermore, the strict unilaterality criterion will be softened.

Combinations of criteria that would favor a diagnosis of cervicogenic headache are proposed (see Table). The relative to absolute lack of drug effects, that is, of indomethacin, ergotamine, and sumatriptan, are also novel, but not obligatory, characteristics.

Otherwise, the changes made since the last edition of the diagnostic criteria are mostly of a cosmetic nature.

DESCRIPTION

Cervicogenic headache is, in principle, a unilateral headache, but it may also be bilateral ("unilaterality on two sides"). The duration of the solitary attack—or an exacerbation—varies, from a few hours to a few weeks. In the initial phase, the headache is not infrequently episodic; later, it frequently becomes chronic-fluctuating. Symptoms and signs referable to the neck are essential, such as reduced range of motion in the neck, mechanical precipitation of attacks or exacerbations, etc. "Migrainous" symptoms, like nausea and photophobia are, when present, generally not marked. A positive response to appropriate anesthetic blockades is essential. No specific radiological abnormalities have been identified.

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MAJOR CRITERIA OF CERVICOGENIC HEADACHE

- (I) Symptoms and signs of neck involvement:
 - (a) precipitation of head pain, similar to the usually occurring one:
 - (1) by neck movement and/or sustained awkward head positioning, and/or;
 - (2) by external pressure over the upper cervical or occipital region on the symptomatic side (see Comment I below)
 - (b) restriction of the range of motion (ROM) in the neck
 - (c) ipsilateral neck, shoulder, or arm pain of a rather vague nonradicular nature or, occasionally, arm pain of a radicular nature.

Points (I) (a through c) are set forth in a surmised sequence of importance. It is obligatory that one or more of the phenomena in point (I) are present. Point (a) suffices as the sole criterion for positivity within group (I); points (b) or (c) do not (Table). Provisionally, the combination of (I) (b and c) has been set forth as a satisfactory combination within (I) (Table). The presence of all three points (a, b, and c) fortifies the diagnosis (but still point (I) is an additional obligatory point for scientific work) (Table).

- (II) Confirmatory evidence by diagnostic anesthetic blockades.
Point (II) is an obligatory point in scientific works. (See Comment II below.)
- (III) Unilaterality of the head pain, without sideshift.
For scientific work, point (III) should preferably be adhered to. (See Comment III below.)

HEAD PAIN CHARACTERISTICS

- (IV) (a) moderate-severe, nonthrobbing, and nonlancinating pain, usually starting in the neck (see Comment IV* below)
- (b) episodes of varying duration (see Comment IV** below), or
- (c) fluctuating, continuous pain (see Comment IV*** below)

Cervicogenic Headache: Summary of Minimum Requirements for Diagnosis

	Confirmatory Combination	Provisional Combination*
(I) Neck involvement	Presence of (a1) and/or (a2)	
(a) Precipitation of attacks		
(1) Subjectively		
(2) Iatrogenically		
(b) Reduced range of motion, neck		Present
(c) Ipsilateral shoulder/arm pain		Present
(II) Anesthetic blockade effect	Positive	Positive
(III) Unilaterality without sideshift	Present [†]	Present [†]

*The "provisional combination" is tentative.

[†]In nonscientific work, (III) does not need to be present. The validity of the diagnosis will then be reduced, see "Comments (III)." Any other combinations, for example, (Ib) plus (II) plus (III) will compromise the diagnosis and might be classified "cervicogenic headache, nonfulfilling the criteria."

OTHER CHARACTERISTICS OF SOME IMPORTANCE

- (a) only marginal effect or lack of effect of indomethacin (see Comment V below)
- (b) only marginal effect or lack of effect of ergotamine and sumatriptan
- (c) female sex
- (d) not infrequent occurrence of head or indirect neck trauma by history, usually of more than only medium severity

None of the single points under (IV) and (V) are obligatory.

OTHER FEATURES OF LESSER IMPORTANCE

- (IV) Various attack-related phenomena, only occasionally present, and/or moderately expressed when present (see Comment VI below):
 - (a) nausea
 - (b) phonophobia and photophobia
 - (c) dizziness
 - (d) ipsilateral "blurred vision"
 - (e) difficulties on swallowing
 - (f) ipsilateral edema, mostly in the periocular area

The requirements for the diagnosis are summarized in the Table.

It is considered that the combination of (I) (a) that is, [a1] and/or [a2] and (II) secures (proves?) the diagnosis. Presence of the other points under (I) (1b) and (1c) utterly fortifies the diagnosis.

Tentatively, it is proposed that the combination (Ib), (1c), (II) (and [III]) also may be consistent with the diagnosis ("provisional combination"; Table).

COMMENTS

I. The areas from which pain or even attacks may be precipitated can be rather clearly defined, that is, from the tendinous insertions in the occipital area, from along the course of the major occipital nerve, from the groove immediately behind the mastoid process, and from the upper part of the sternocleidomastoid muscle, the last location probably corresponding to the minor occipital nerve. There is no adequate information as to whether attacks can be precipitated by pressure against cervical facet joints.

II. Blockades (and/or the provocative procedures) should relate to nerves and structures suspected of mediating or causing the pain. Blockades of, for example, the major or minor occipital nerves, the C2 root, the third cervical nerve, facet joints, or of the lower cervical roots and branches on the symptomatic side—or combination of them—should virtually abolish the pain. As a general rule, only one nerve or root should be blocked at a time, since the identification of the crucial, pathological structure is a prime task. When solitary blockades do not provide pain freedom, or close to it, combinations of blockades should be tried. Preferably, only small quantities of the anesthetic agent should be employed (0.5 to 1 mL), in order to avoid anesthesia of neighboring structures and, thereby, obscuring the results. The pre-blockade pain should *preferably* amount to 40% of maximal pain or more.

Positive blockade effect is a mandatory component of scientific and, preferably, of routine diagnostic workup. The effect is transitory, and most importantly, *the pain is drastically reduced in areas not anesthetized, for example, the frontotemporal area, where pain usually is marked.* In

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tension-type headache, frontotemporal pain will not be removed. If bilateral cases are accepted, bilateral blockades should be carried out. In scientific contexts, it may be advisable to compare the effect of short- and long-lasting anesthetics blindly.

III. Laterality of Pain.—In the typical case, pain is unilateral, but may spread across the midline during episodes of severe pain, still with a preponderance on the usual side. For scientific work, this type of unilaterality should be used as a guideline.

For routine work, patients with bilateral headache ("unilaterality on two sides") may be acceptable. If so, patients with bilateral and unilateral pain should be compared. Great caution should be exercised in order not to include tension headache patients in cervicogenic headache series (see under "Blockades," point [II]).

IV*. Pain Characteristics.—Pain episodes and exacerbations generally start in the neck, eventually spreading to the oculo-frontotemporal area on the symptomatic side. During maximum, frontotemporal pain may be as strong as, or stronger than, the neck/occipital pain.

Headache may be combined with ipsilateral, facial pain. There is a "nonclustering" pain episode pattern.

IV. Duration of Pain Episodes.**—The duration is usually a few days to a couple of weeks; sometimes only an hour or 2, but most frequently longer than in common migraine ("migraine without aura"). A marked intraindividual variation is characteristic.

IV*. Long-term Pattern.**—While *pain episodes* seem to be typical of the early phase, generally continuous pain eventually will prevail.

V. Drug Effect.—Although a *negative proviso* is not made part of the diagnostic criteria, it seems rather clear that an *absolute* indomethacin effect would undo a diagnosis of cervicogenic headache.

VI. Rarely Occurring Associated Phenomena.—Generally, some of the phenomena (for example, [VI] [a, b] which are of a "migrainous" nature), are much less marked than in migraine without aura. Dizziness ([VI] [c]) is probably a not so infrequently occurring phenomenon. Some phenomena, for example, (VI) (f) that are present only in the exceptional case, may be present all the time (that is, also outside attacks).

DISCUSSION

Cervicogenic headache can, at present, be differentiated clinically from other headaches with reasonable certainty. It is *not* a "disease" or "entity" *sui generis*, but a reaction pattern. In the single case, the origin of the pain episodes is

possibly one or more structures in the neck or back of the head, such as nerves, nerve roots, ganglia, uncovertebral joints, intervertebral discs, facet joints, bone, periosteum, muscles, ligaments, or even venous "lakes" around ganglia/nerves.² Cervicogenic headache may be viewed as a sort of final common pathway for several pain-generating disorders in the neck. One common misunderstanding is that pain necessarily stems from bony structures. Cervicogenic headache may arise not only from the upper, but also from the middle and even from the lower cervical area.

For scientific purposes, unilaterality, and one without a sideshift at that, should be adhered to. Otherwise, this headache will be confused with tension headache ("tension-type headache") and common migraine ("migraine without aura"), especially when the strict, rigid rules of anesthetic blockades^{3,4} are not followed. Bilateral cases of cervicogenic headache, nevertheless, exist and such cases may even be rather frequent. For the practical clinical work, bilaterality is allowable, preferably when there is some degree of unilateral preponderance (see Comment III), and provided the blockade results are unequivocal (see Comment II). Blockade is more important in bilateral than in unilateral cases because of the increased risk of confounding the headache with tension-type headache in the former case. If patients with bilateral headache are included in scientific works, they should be treated as a separate subgroup for comparison with those with unilateral pain. The main reason for the caution, as regards this feature, is our rather firm conviction that the diagnosis of unilateral cases for now rests on a more firm foundation than that of bilateral cases.

The scarcity of autonomic symptoms and signs in the ordinary sense distinguishes this headache from cluster headache,⁵ and so do other features, such as the temporal pattern, severity, and the female preponderance. Hemisphericity and cervicogenic headache have many traits in common as far as the clinical manifestations and developmental patterns are concerned; both disorders apparently frequently starting with a remitting headache, which eventually may develop into a chronic one. Both exhibit a female preponderance. However, precipitation mechanisms are not an integral part of hemisphericity. The response to indomethacin (see Comment V) is a decisive factor in the differential diagnosis. The differential diagnosis versus migraine without aura has been dealt with in detail elsewhere. Suffice it to state here that migraine attacks to a higher extent than those of cervicogenic headache seem to be accompanied by photophobia and phonophobia, pulsating pain, and aggravation

tion on minor physical activity. Migraine pain most frequently starts in the anterior parts of the head and not infrequently shifts side, and is not abated by local anesthetic blockades of cervical nerves (see Comment II).

The term *cervicogenic headache* has recently been accepted by the International Association for the Study of Pain (IASP).⁸

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