Conjunctival injection in cluster headache

Barón et al. have documented that during cluster headache attacks with unilateral pain, the conjunctival injection was bilateral, involving the peripheral conjunctival vessels but not the ciliary vessels.

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Not all autonomic features of cluster headache attacks are unilateral

Commentary by Michael Bjørn Russell, MD, PhD, DMSci

Cluster headache is characterized by severe unilateral orbital pain, accompanied by restlessness or agitation, and ipsilateral autonomic features, such as conjunctival injection, lacrimation, nasal congestion, rhinorrhea, eyelid edema, facial sweating, miosis, and ptosis.¹ Genetic factors are likely to play a role: first-degree relatives of patients with cluster headache are five to eight times more likely to have cluster headache than the general population, but at present no genes have been identified.² PET studies of cluster headache show activation of areas generally associated with pain as well as a specific activation of the ipsilateral inferior hypothalamic gray matter during attacks of cluster headache, while there is no activation between attacks.³ The PET studies suggested the idea that hypothalamic stimulation inhibits the hypothalamic activation to improve or eliminate the pain in intractable chronic cluster headache.⁴ This treatment is encouraging as most patients improve and many become pain-free.

The Barón et al. study⁵ challenges our perception of cluster headache. Their meticulous observations of conjunctival injection during cluster headache attacks are documented by high-quality photographs. When specifically asked, eight patients reported conjunctival injection ipsilateral to pain and only one reported bilateral injection. However, Baron et al. demonstrate bilateral bulbar and palpebral conjunctiva injection in eight of nine consecutive patients, while the pericorneal vessels were unaffected. These bilateral findings were present even though all patients had strictly unilateral episodic cluster headache. These observations on unilateral pain and bilateral ocular congestion are in accordance with other trigemino-facial reflexes such as corneal and lacrimal ones that are elicited upon sensitive stimulation on one side leading to a bilateral response. Thus the view that there is a unilateral trigeminal-autonomic reflex in cluster headache is challenged.⁶ A recent review argues for peripheral rather than a central cause of the autonomic symp-

toms in cluster headache.⁷ It is impressive that even in the 21st century, it is possible to make original clinical observations that change our view of clinical features as well as the pathophysiology of this severe form of headache.

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January 2 Highlight and Commentary: Not all autonomic features of cluster headache attacks are unilateral

Neurology 2007;68;3

DOI 10.1212/01.wnl.0000252804.28021.c3

This information is current as of January 2, 2007

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