

A case of cluster headaches preceded by back pain

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Abstract

This is the report of a patient with cluster headaches preceded by back pain. The patient's back pain was provoked by arm and shoulder movement. Mild back pressure caused severe back pain and, as a result, he could not lie in a supine position. His back pain was usually mild, however he sometimes experienced severe stabbing and aching pain. We diagnosed the back pain as allodynia. We herein discuss the diagnosis of back pain in this case and its relationship with cluster headaches.

INTRODUCTION

Allodynia occurring in association with cluster headaches is not well recognized. Back pain is also not well recognized to be associated with allodynia. We report here a patient with cluster headaches preceded by back pain, whose back pain was diagnosed as allodynia. We herein discuss the diagnosis of back pain in this case and its relationship with the patient's cluster headaches.

CASE REPORT

The patient was a 41-year-old male with a four-year history of severe headaches. His headaches occurred at the back of the left eye and in the left temporal region. The headaches continued every day for two months once a year. Starting three years previously, the patient experienced left side back pain before the headaches. He visited a local orthopedic clinic and was prescribed prednisolone. In addition, he visited an anesthesia pain clinic. He received stellate ganglion blocks and local injection of anesthetic drugs; however, these interventions had no effect. Therefore, he visited the Department of Internal Medicine at our hospital. The patient's back pain was provoked by arm and shoulder movements and radiated from the anterior chest wall to the medial side of the left scapula without motor or sensory disturbance. His back pain was usually mild, however, he sometimes experienced severe stabbing and aching pain. Mild back pressure caused severe back pain and, as a result, he could not lie in a supine position. No clear methods to relieve the patient's pain could be identified. No skin eruptions or swelling were

recognized. A medical examination, including electrocardiogram, chest X-ray, blood chemistry and spinal magnetic resonance (MR) imaging showed no abnormalities. Cardiac, pulmonary and thoracic diseases were absent. The patient received only typical analgesics, and his back pain spontaneously disappeared. The following year, the back pain and headaches returned and the patient consulted our neurosurgery/headache clinic. He had no special past medical or family history. He had been working for a welding business; however, his daily severe headaches prevented him from working regularly. The headaches frequently occurred at night. During the headaches, left side lacrimation was present, whereas nasal discharge, sweating and ptosis were not observed. The headaches were not associated with nausea or photosensitivity, although they were induced by daytime naps and hunger. The patient's headache and back pain were similar to those observed three years previously, with the headaches being preceded by back pain. The duration of the back pain and the interval between the onset of back pain and headache tended to vary, but generally it lasted several minutes. No other neuralgia or symptoms of allodynia were observed. This allodynia was present only in the patient's back. Brain MR imaging and MR angiography showed no abnormalities. We diagnosed the headaches and back pain as cluster headaches with allodynia. We prescribed valproic acid as a prophylactic drug and sumatriptan succinate for headache therapy. These medications were effective, and the patient's headaches and back pain disappeared.

DISCUSSION

We diagnosed the patient's back pain as allodynia because it usually preceded cluster headache attacks. Allodynia is frequently observed in trigeminal nerve areas, the neck and shoulders and occasionally in the extremities. Allodynia in the chest or back is rarely reported.¹⁻³ Cuadrado reported patients presenting with spontaneous body pain in association with migraine attacks as "migrainous corpalgia". These patients developed allodynia in response to mechanical stimuli over the painful areas. The authors discussed the body pain and allodynia as being consequences of central sensitization.² Burstein hypothesized that allodynia in the ipsilateral head reflects sensitization of second-order neurons in the trigeminal nucleus caudalis, while allodynia outside this area is related to sensitization of third-order neurons in the thalamus.⁴ A PET study of patients with migraines demonstrated brush-evoked allodynia activated in the posterior parietal cortex, suggesting involvement of cortical areas in the processing of allodynia.⁵ Because the parietal sensory cortex also innervates the back and chest, allodynia occurring in the back or chest is plausible.

Allodynia is well known to be associated with migraines⁶; however, allodynia associated with cluster headaches is rarely reported.^{7,8} Ashkenazi reported that allodynia occurring in patients with cluster headaches is characterized by rapid onset and termination.⁷ A PET study of patients with chronic cluster headaches revealed activation in the hypothalamus, thalamus, cingulate cortex and insulae.⁹ Central sensitization has been discussed as being the cause of allodynia in patients with cluster headaches.⁸ The occurrence of allodynia in association with cluster headaches is reasonable because chronic cluster headaches may cause central sensitization.

Our patient demonstrated the typical symptoms of cluster headaches. However, because he experienced severe back pain, most of the examinations and supportive measures were directed toward treating the back pain. The patient's cluster headache symptoms were self-limiting; therefore, he was not referred to a headache clinic. Patients with migraines and cluster headaches frequently demonstrate symptoms of allodynia. Allodynia may occur in any location in body; thus, patients with allodynia may visit the department of internal medicine or orthopedics. Therefore, primary care physicians must be aware of and recognize the symptoms of allodynia associated with migraines and

cluster headaches. If allodynia is suspected, the patient should be referred to a headache clinic for appropriate care.

DISCLOSURE

Conflict of interest: None

REFERENCES

1. Guilloff RJ, Fruns M. Migrainous limb pain. A historical note. *Headache* 1990; 30:138-41.
2. Cuadrado M, Young W, Fernandez-de-las-Penas C, Arias J, Pareja J. Migrainous corpalgia: body pain and allodynia associated with migraine attacks. *Cephalalgia* 2007;28:87-91.
3. Riederer F, Selekler HM, Sándor PS, Wöber C. Cutaneous allodynia during cluster headache attacks. *Cephalalgia* 2009; 29:796-8.
4. Burstein R, Cutrer MF, Yarnitsky D. The development of cutaneous allodynia during a migraine attack. Clinical evidence for the sequential recruitment of spinal and supraspinal nociceptive neurons in migraine. *Brain* 2000; 123:1703-9.
5. Witting N, Kupers RC, Svensson P, Arendt-Nielsen L, Gjedde A, Jensen TS. Experimental brush-evoked allodynia activates posterior parietal cortex. *Neurology* 2001; 57:1817-24.
6. Eidlitz-Markus T, Shuper A, Gorali O, Zeharia A. Migraine and cephalic cutaneous allodynia in pediatric patients. *Headache* 2007; 47:1219-23.
7. Ashkenazi A. Allodynia in cluster headache. *Current Pain and Headache Reports* 2010; 14:140-4.
8. Ashkenazi A, Young WB. Dynamic mechanical (brush) allodynia in cluster headache. *Headache* 2004; 44:1010-2.
9. May A, Bahra A, Buchel C, Frackowiak RS, Goadsby PJ. Hypothalamic activation in cluster headache attacks. *Lancet* 1998; 352:275-8.