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LETTER TO THE EDITOR

Cluster headache and acute maxillary sinusitis

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Sir,

Cluster headache (CH) is a primary headache, by definition not caused by any underlying structural pathology and belonging to the group of trigeminal-autonomic cephalalgias [1]. CH is the most frequent syndrome in this group. Although uncommon, symptomatic cases of CH have been described, e.g. tumours, particularly pituitary adenomas, malformations, and infections/inflammations [2]. The question whether patients with CH should undergo neuroimaging to exclude a causal underlying structural lesion is unresolved.

We here report a case of acute maxillary sinusitis the symptoms characteristics of which fully comply with the criteria of cluster headache [1]. Symptomatic CH due to maxillary sinusitis is rare. Previous cases have only been described by Takeshima et al. (Headache 1998; 28: 208-208) and Molins et al. [Med clin (Barc) 1989; 92:181–183].

A 21-year-old man presented with a 3-week history of side-locked attacks of excruciatingly severe stabbing and boring right-sided pain located in the orbit. The attacks were associated with nasal obstruction, clear nasal discharge, conjunctival injection, restlessness, nausea and photophobia/phonophobia. No continuous background pain was identified. The duration of the attacks was about 30 min and the frequency 3–4 per 24 h, 4–5 days a week and they also occurred during the night. There was no history of headache. His medical and family history was otherwise unremarkable. He was not on any medications and used no drugs. Vital signs, physical examination, and neurological examination were normal. Local tenderness over the sinuses was not found. Laboratory testing was normal. He satisfied the revised International Classification of Headache Disorders criteria for cluster headache. A diagnosis of CH was made and subcutaneous sumatriptan as well as oral sumatriptan were prescribed. The patient responded to subcutaneous sumatriptan with relief within 15–20 min. A follow-up was planned. As the headache attacks continued, the patient was hospitalized after about 3 weeks. At admission, the examination was normal. A computer tomography (CT) of the head suggested (but of course not conclusively) a right-sided maxillary sinusitis (Fig. 1). However, a sinus puncture was performed and it displayed acute inflammation/high leukocyte count. Bacterial culture displayed *Streptococcus pneumoniae*. The headache attacks resolved completely after treatment with antibiotics and sinus puncture. No additional treatment was given. He remained headache-free and had not experienced any headache attacks at follow-up after 4 years.

The case study highlights a patient with CH. Evaluations revealed an acute maxillary sinusitis. Although we cannot exclude an unintentional comorbidity, in our opinion, the co-occurrence of an acute maxillary sinusitis with unilateral headache, in a hitherto headache-free man, points towards the fact that in this case the CH was caused or triggered by the sinusitis. The headache attacks resolved completely after treatment. An alternative explanation could be the following: during CH attacks autonomic symptoms, including nasal congestion, are commonly observed. Nasal congestion could predispose the patient to develop an acute sinusitis. A spontaneous remission of an episodic CH could be misinterpreted as being an effect of the antibiotics treatment. However, the patient remained free of CH attacks at the follow-up after 4 years and had not previously suffered from CH.

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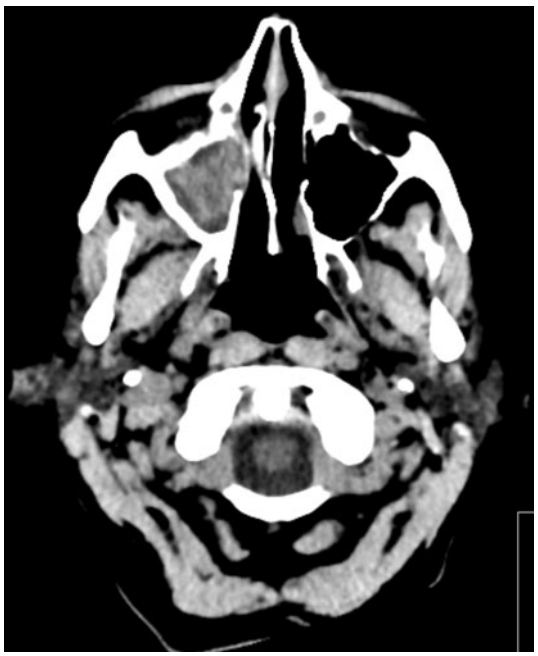

Fig. 1 CT scan, showing a right-sided acute maxillary sinusitis

The response of the headache to sumatriptan and other typical CH medications does not exclude a secondary form [3]. Associated cranial lesions such as tumours have been reported in CH patients and the attacks may be clinically indistinguishable from the primary form. Mainardi et al. [2] identified 156 secondary cluster-like headache cases published from 1975 to 2008. They found in the review that vascular pathologies, e.g. intracranial aneurysms and dural fistulas were the first cause of secondary CH, followed by tumours and inflammatory/infectious diseases, the latter accounting for 13.1 % of cases. Among the inflammatory/infectious cases, two cases were associated with sphenoidal aspergillosis and one each with ophthalmic herpes zoster, post infection from herpes simplex and maxillary sinusitis. The article also reports two cases of cluster-like headache (not fulfilling the criteria for CH) associated with sinusitis.

The pathophysiology of CH is not well known. The most widely accepted theory is that primary CH is characterized by hypothalamic activation with secondary activation of the trigeminal-autonomic reflex, probably by a trigeminal-hypothalamic pathway. The exact pathophysiology in our case is unknown. A structural lesion may cause autonomic imbalance, resulting in periodic fluctuations in the activity of the autonomic nervous system, ultimately leading to an attack-wise presentation of the symptoms. Differences in the individual threshold for triggering the parasympathetic trigeminal reflexes may also play a role [4, 5].

Attempts have been made to define red flags indicating a secondary cause when cluster-like headache appears for the first time [2]. The authors of that study emphasize in their report that, at first observation, 50 % of patients with secondary CH presented as cases fulfilling the criteria for CH, perfectly mimicking CH. Therefore, the possibility that a secondary cause is responsible for a clinical picture mimicking a primary CH should always be considered [2]. This opinion is in accordance with the review by Wilbrink et al. [4], who recommend neuroimaging, preferably MRI brain scanning in all patients with trigeminal-autonomic cephalalgias.

CH might in rare cases be the presenting symptom of an acute maxillary sinusitis even in typical forms of that headache. Neuroimaging, preferably magnetic resonance imaging including sinuses should always be considered in patients with CH.

Conflict of interest The authors declare that they have no conflict of interest.

References

1. Olesen J (2004) The international classification of headache disorders: 2nd edition. Cephalalgia 24(Suppl 1):9–160
2. Mainardi F, Trucco M, Maggioni F et al (2010) Cluster-like headache. A comprehensive reappraisal. Cephalalgia 30:399–412
3. Ad Hoc Committee on Classification of Headache (1962) Classification of headache. JAMA 179:717–718
4. Wilbrink LA, Ferrari MD, Kruit MC et al (2009) Neuroimaging intrigeminal autonomic cephalgias: when, how, and of what? Curr Opin Neurol 22:247–253
5. Straube A, Freilinger T, Rüther T et al (2007) Two cases of symptomatic cluster-like headache suggest the importance of sympathetic/parasympathetic balance. Cephalalgia 27:1069–1073