




This Invited Editorial accompanies
a Research Paper, see page 593

Sinus headache — migraine or sinusitis?

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A sinus headache as a symptom of sinusitis is quite commonly diagnosed, despite the fact that specialists, especially otolaryngologists, consider this pain to be relatively rare [1]. It seems, therefore, that migraine, and perhaps other types of headache, are sometimes confused with headache of sinus origin. Why is this the case?

Nasal symptoms often accompany migraine, although these symptoms are not part of the International Headache Society (IHS) diagnostic criteria for migraine [2]. Parasympathetic activation, as well as neurogenic and immunogenic inflammatory mechanisms, to some extent explain the frequent occurrence of nasal symptoms in migraine. On the other hand, acute sinusitis itself can be a trigger for migraine headache in migraine patients. It should therefore be emphasised that the presence of nasal symptoms as well as the localisation of pain in the sinus cast should neither *a priori* result in the diagnosis of sinusitis nor exclude the diagnosis of migraine.

In fact, it should lead to the consideration of the diagnosis of both conditions. In the American Migraine Study II, it was shown that many people diagnosed with migraine had previously thought that they were suffering from a sinus headache. Out of the nearly 30,000 participants in the study, only roughly half who were eventually diagnosed with migraine knew they were suffering from it before the study. And the most common misdiagnosis for them was sinus headache [3].

Headache and rhinosinusitis are the two most common reasons why patients visit doctors. Rhinosinusitis affects more than 30 million adults in the United States each year for example [4]. As already mentioned, pain of sinus origin is over-diagnosed, yet on the other hand, pain resulting from sinusitis (especially sphenoid) is frequently not diagnosed promptly, leading to poor treatment outcomes because it has been delayed [5]. Understanding the appropriate management of suspected rhinosinusitis, and the diagnostic criteria for headache attributed to rhinosinusitis, is essential for diagnosis and treatment.

The International Classification of Headaches (ICHD-3) lists secondary headaches in the course of acute, chronic or recurrent sinusitis as causes of sinus pain. This classification does not mention migraine pain as a cause of sinus pain [2]. Meanwhile, according to some studies, primary migraine pain should be considered as an alternative diagnosis. One study showed that among patients with sinus headache and no sinusitis on imaging, more than 80% of them had a significant reduction in headache after the use of triptans [6]. In another study, patients with headache in the sinus were treated with a 'migraine' dose of amitriptyline, which had an effect in half of them [7]. A large study by Schreiber et al. found that of patients complaining of pain and a spreading sensation in the sinus cast (without fever) and a blocked nose, 88% met the criteria for migraine [8].

Studies conducted following the outbreak of the SARS-Cov2-19 pandemic show that the migraine phenotype was far more common than facial (sinus) pain among people with SARS-Cov2 infection, and was associated with a more severe course of infection. There is also evidence that migraine-like headache in COVID-19 is associated with pre-existing migraine [9].

A lack of understanding of how migraine can mimic sinusitis, the lack of a distinct name for migraine pain in the sinus location, and finally the absence of diagnostic criteria and a standard of treatment can together lead to inadequate patient care, and especially the overuse of antibiotics. It should also be underlined that the efficacy of antibiotics in the treatment of sinusitis is generally low [10].

Very simple tools, e.g. the ID Migraine Questionnaire, are useful and effective in this type of differential diagnosis [11]. A good collaboration between the neurologist and the otolaryngologist is also helpful.

In the current issue of 'Polish Journal of Neurology and Neurosurgery', you will find a very interesting article in which the authors present the most common headache phenotypes

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occurring during upper respiratory tract infections [12]. They point out that the differences in the incidence of sinus pain (facial pain) and migraine-like or tension headache depend on the viral aetiological agent, as well as on the immunocompetence status (i.e. the protective role of vaccination). The authors also discuss the need for criteria for headaches dependent on viral aetiological agents. Does this make sense? So far, the answer to this question is ‘not entirely’.

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