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Letter to the Editor

Reader Comment Regarding: Cushing's Reflex Due to Spontaneous Pneumocephalus After Forceful Nose Blowing: A Case Report

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Letter to the Editor

We read with interest the article by Seifert *et al*. about a 70-year-old female patient with a history of migraine, arterial hypertension, hyperlipidemia, reflux disease, cataract surgery, and depression. She suddenly experienced severe, right-sided headache after blowing her nose in the shower, accompanied by photophobia, phonophobia, and visual disturbances. The initial diagnosis was a migraine attack [1]. After a cerebral computed tomography (CT) scan revealed air in the pontocerebellar cistern, simple pneumocephalus was diagnosed. Conservative therapy was chosen, and the patient made a full recovery [1]. The study is promising but has some limitations that should be discussed.

First, the connection between the internal auditory canal and the subarachnoid space is questionable. The substance defect depicted in Figure 3 is not convincing. Simple pneumocephalus can also be caused by trauma, previous neurosurgical procedures, lumbar punctures, epidural injections, infections of the brain, sinuses, or middle ear caused by gas-producing bacteria, mechanical ventilation, skull base tumors, or nasal tumors, or it can occur spontaneously [2]. These differential diagnoses must be carefully ruled out before attributing pneumocephalus to nose-blowing. Since the patient apparently suffered from sinusitis one week before the onset of the headaches, it is conceivable that the pneumocephalus was caused by sinusitis with gas-producing bacteria and not by nose-blowing.

Second, a multimodal brain MRI was lacking [1]. To rule out ischemic stroke, thrombosis, dissection, reversible cerebral vasoconstriction syndrome, aneurysm, vasculitis, cerebral venous sinus thrombosis, subarachnoid hemorrhage, brainstem ischemia, brainstem encephalitis, autoimmune encephalitis, meningitis, or other cerebral pathologies, magnetic resonance angiography, magnetic resonance venography, and contrast-enhanced MRI would have been essential.

Third, a cerebrospinal fluid (CSF) analysis was not performed [1]. This would have been necessary to rule out infectious and autoimmune encephalitis, as well as meningitis. Given the suspicion of a CSF leak, it is crucial to exclude the possibility that the headache and other symptoms were caused by inflammation of the meninges or the brain.

Fourth, it is not plausible that the clinical neurological examination was unremarkable [1]. Since the patient presented with visual disturbances, sensitivity to light and sound, and headaches, it is conceivable that he also had neck stiffness, visual field defects, or increased tendon reflexes. Was the patient actually examined by a neurologist?

Fifth, information on current medication is missing [1]. Given the patient's history of arterial hypertension, hyperlipidemia, reflux disease, and depression, it can be assumed that she was regularly taking the corresponding medications.

Sixth, if a fistula between the inner ear and the subarachnoid space did indeed exist, cerebrospinal fluid leakage is conceivable and could have been detected using a fluorescein test. Did the patient complain of unusual discharge from the nose or external auditory canal?

Seventh, it is unclear why the suspected migraine attack was treated with an NSAID but not with tryptans.

Finally, several limitations must be noted: The headache occurred on the right side, while the fistula was described on the left; the nature of the visual disturbances was not specified; the temporal course of the headaches since their onset was not described in detail; there is no evidence that pressure was actually exerted on the brainstem; and no reference values for blood chemistry were provided. No defect is visible in the area of the round window on the temporal CT scan, as the defect was merely assumed according to the discussion; the title is misleading, as spontaneous pneumocephalus has no obvious cause.

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