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CASE REPORT

Secondary Stabbing Headache Associated with COVID-19: a Case Report

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Abstract

Although COVID-19 is mainly an acute viral illness, persistent symptoms are common. However, headache is not a frequent sequela of this disease. Furthermore, stabbing/ice-pick cephalalgia has been reported in < 10% of cases of COVID-19, and recurrent forms occurring after vaccination against the disease have not been published yet. We present here an unusual short-lasting unilateral stabbing/ice-pick headache with recurrent periodicity over 10 months, which may represent a sequela of COVID-19. The cephalalgia presented in a 55-year-old male with no significant medical problems approximately 4 months after the acute onset of COVID-19, and recurred twice 12 days after the second dose of COVID-19 vaccination with BNT162b2 (Pfizer). This report represents a contribution to the semiological pattern of COVID-19-related cephalea.

Keywords Unilateral ice-pick cephalagia · SARS-CoA-2 · Vaccine sequela · Case report

Introduction

Meta-analysis reveals an accumulated COVID-19 fatality rate < 1.63% worldwide contributed mostly by individuals with pre-existing conditions, such as diabetes, obesity, or lung disease [1].

Although the disease is predominantly an acute viral illness, persistent symptoms such as fatigue, dyspnea, cough, arthralgia, and chest pain are common. Headache is reported in < 60% of acute COVID-19 cases and also as a sequela [1]. However, persistent headaches presenting ~ 3 weeks after recovery have been described in < 20% of patients [1]. COVID-19-associated cephalalgias are most frequently chronic, bilateral, and tensional-type [2]. Only < 5% show migraine-type phenotype, and ~ 2–10% are stabbing [2].

Short-lasting unilateral stabbing/ice-pick headache associated with tearing is often idiopathic but can be associated with neoplastic (cerebral or pituitary), inflammatory (vasculitis or encephalitis), or autoimmune disease in patients that may also manifest other types of cephalalgia. Episodic stabbing headache, peaking, and disappearing in < 1 min is not well-characterized as part of COVID-19 symptomatology [3].

Secondary effects of the COVID-19 vaccine are often mild, including local pain at injection-site, fatigue, and headache [4]. Headaches secondary to the BioNTech (Pfizer) vaccine have been described in around 50% of the cases [4]. To the best of our knowledge, episodic recurrent headaches, as described below, have not been reported in association with COVID-19 or vaccination against it [5].

Case Report

A 55-year-old white Hispanic male, blood type O-positive with normal BMI (22 kg/m^2) presented with mild-to-moderate flu-like symptoms (cough, malaise, and bone aches, more pronounced on lower back and legs) and without respiratory distress, headache, fever, ageusia or anosmia/parosmia. The viral illness presented in March 2019 and lasted less than a week. No medical attention was sought since COVID-19 was not suspected, and the patient self-medicated 500 mg of acetaminophen once during the acute episode. One week

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later, the patient's wife developed similar symptoms and was diagnosed with COVID-19 by RT-PCR (BioGX, BD MAX). Failure to confirm COVID-19 by RT-PCR on a nasal swab obtained from our patient was obtained approximately 1 month after acuity. However, positivity for anti-N SARS-CoV-2 antibodies (48.49 units; Eclisys, Roche) was obtained approximately 2 months later, allowing a retrospective diagnosis of COVID-19.

Starting approximately 4 months after COVID-19 onset, the patient has experienced four similar episodes of sudden, stabbing, severe headaches (Visual Analog Scale intensity 9, scale 0–10), in the central-retro-orbital area, irradiated to the occiput in an approximate V1 distribution. The pain lasts < 40 ss and progressively wanes. On two occasions, the headache was accompanied by tearing and the severity prompted the patient to stop all activity to massage his head. Classical migraine features (throbbing/pounding/pulsating character, aggravation with physical activity/movement, prolonged duration or aura) were absent. Mental status alteration or motor deficits were absent. Prior medical history and physical examination were unremarkable. The patient takes vitamin D (25 mg per day). No allergies, sinus disease, drug use, smoking, or excessive alcohol intake were reported. Regular yearly influenza vaccination without side effects was noted. Repeat antibody testing was performed 19 days after completion of vaccination and was positive for N (15.19 units, Eclisys, Roche) and S (250 units, Eclisys, Roche) proteins. Routine CBC, comprehensive metabolic panel (CHEM20), endocrine panel, lipid panel, sexually transmitted disease panel, iron studies, vitamin B12, vitamin D, immunoglobulins (IgG, IgA, and IgM), hemoglobin A1c, C-reactive protein, and erythrocyte sedimentation rate were normal.

After the second headache episode, the patient received the BioNTech COVID-19 vaccine (Pfizer). On January 23, 2021, 12 days after the second vaccine dose, the last episode of stabbing headache without lacrimation occurred twice during a lapse of 3 h. Brain magnetic resonance imaging done after this last episode revealed no acute findings throughout the brain parenchyma. The previous two episodes were separated by approximately 3 months. Since this cephalalgia is episodic, no treatment has been administered and the patient remains asymptomatic after 3 years of follow-up.

Discussion

Headaches are alarming and can be associated with various non-infectious and infectious diseases, including COVID-19 or vaccination against SARS-CoA-2 [4]. However, episodic stabbing headaches, mimicking trigeminal autonomic cephalgia (classically unilateral), are rare, incompletely characterized and unassociated with COVID-19 [2]. A unique post-COVID-19 transient severe cephalalgia that recurred after vaccine challenge and persisted for 10 months is reported. Also, short-lasting unilateral neuralgiform headache attacks with autonomic symptoms (SUNA) or with conjunctival injection and tearing (SUNCT) were considered in the differential diagnosis, but the exact criteria were unmet. Furthermore, SUNA and SUNCT are usually chronic. Therefore, the best classification of this cephalalgia is by exclusion stabbing headache (International Classification of Headache Disorders/ICHD-3). Since cephalalgia occurred before and after COVID-19 vaccination, we propose it is due to central nervous system/meningeal/trigeminal irritation related to immune response to SARS-CoA-2. The severity of COVID-19 may be associated with host genetic factors, such as blood type. Controversially, milder COVID-19 has been reported in association with O-positive blood type [6], as in our patient. Further studies to analyze post-COVID-19 headaches according to blood types may be of interest. Since prior medical history of migraines/chronic headaches, allergies, sinusitis, and other predisposing factors were absent, we believe this episodic cephalalgia may represent a sequela of COVID-19, triggered by the immune response to the BioNTech vaccine or the native coronavirus. Unfortunately, COVID-19 was suspected only retrospectively, and more precise virology/serology cannot be performed.

Conclusion

COVID-19-associated cephalalgia is frequently chronic, bilateral, and tensional-type. Although episodic brief stabbing headaches are rarely reported in association with COVID-19, we present such a case adding to its rich symptomatology. Severe sudden stabbing headaches may be mistaken for intracerebral bleed by patients and inexperienced physicians, especially when presenting as a sequela. Therefore, we believe that this report may contribute to the expanding semiology of COVID-19-related cephalea.

Author Contribution HA wrote the manuscript. ML analyzed clinical data and edited the manuscript. VN designed the study and edited the manuscript.

Data Availability Not applicable.

Code Availability Not applicable.

Declarations

Ethics Approval Case reports are exempted from Internal Review Board.

Consent to Participate and of Publication Patient consent to participate in the publication was obtained.

Conflict of Interest The authors declare no competing interests.

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