

# Secondary Stabbing Headache Associated with COVID-19: A case report

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## Research Article

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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 four months after the acute onset of COVID-19, and recurred twice twelve 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 cephalgia.

## 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 minute is not well-characterized as part of COVID-19 symptomatology.

Secondary effects of the COVID-19 vaccine are often mild, including local pain at injection-site, fatigue and headache [3]. Headaches secondary to the BioNTech (Pfizer) vaccine have been described in around 50% of the cases [3]. 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 [4].

## Case Report

A 55-year old white Hispanic male, blood type O-positive with normal BMI (22 kg/m<sup>2</sup>) 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 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 one month after acuity. However, positivity for anti-N SARS-CoV-2 antibodies (48.49 units; Eclisys, Roche) was obtained approximately two months later, allowing a retrospective diagnosis of COVID-19.

Starting approximately four months after COVID-19 onset, the patient has experienced four 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 seconds and progressively wanes. On two occasions, headache was accompanied by tearing and so severe that the patient stopped all activity and massaged 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 micrograms 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 1/23/21, twelve days after the second vaccine dose, the last episode of stabbing headache occurred twice during a lapse of three hours. 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 three months. Since this cephalalgia is episodic no treatment has been administered and the patient remains asymptomatic.

## Discussion

Headaches are alarming and can be associated with various non-infectious and infectious diseases, including COVID-19 or vaccination against SARS-CoA-2 [3]. 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. Diagnostic criteria for short-lasting unilateral neuralgiform headache attacks with autonomic symptoms (SUNA) are unmet, and the best classification is 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 [5], 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 cephalalgia.

## **Declarations**

## **Funding**

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## **Availability of Data and Materials**

Not applicable.

## **Conflicts of interest/Competing Interests**

None.

## **Ethics approval**

Case reports are exempted from Internal Review Board.

## **Consent to participate and of publication**

Patient consent was obtained.

## **Availability of Data and Material**

Not applicable.

# Code availability

Not applicable.

# Authors Contributions

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

# Declarations

The authors do not have conflicts to declare.

# References

1. Ioannidis JPA. Infection fatality rate of COVID-19 inferred from seroprevalence data. *Bulletin of the World Health Organization*. 2021; 99: 19-33F.
2. Porta-Etessam J, Matias-Guiu JA, Gonzalez-Garcia N, et al. Spectrum of Headaches Associated With SARS-CoV-2 Infection: Study of Healthcare Professionals. *Headache*. 2020; 60: 1697-704.
3. Polack FP, Thomas SJ, Kitchin N, et al. Safety and Efficacy of the BNT162b2 mRNA Covid-19 Vaccine. *N Engl J Med*. 2020; 383: 2603-15.
4. Göbel CH, Heinze A, Karstedt S, Morscheck M, Tashiro L, Cirkel A, Hamid Q, Halwani R, Temsah MH, Ziemann M, Görg S, Münte T, Göbel H. Clinical characteristics of headache after vaccination against COVID-19 (coronavirus SARS-CoV-2) with the BNT162b2 mRNA vaccine: a multicentre observational cohort study. *Brain Commun*. 2021; 23;3(3):fcab169. doi: 10.1093/braincomms/fcab169.
5. Mendy A, Keller JL, Apewokin S and Morrow AL. Is Blood Type Associated with COVID-19 Severity? *medRxiv*. 2020.

# Supplementary Files

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