

# Is Hiccups a Precursor to a Stroke?

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## Abstract

Hiccups that last more than 48 hours are known as persistent hiccups. A 38-year-old man presented to the emergency with a 3-day history of persistent hiccups, and after partial treatment and normal test results, he was discharged from the emergency. After 22 hrs, he was brought to the emergency again with a complaint of stuttering and was admitted with a chance of stroke. A 50% stenosis development in the right carotid artery was reported, and the MRI results were normal. After 20 hrs of admission, the patient's stutter was thoroughly treated, and he was discharged with the diagnosis of TIA. Persistent hiccups can be a precursor to a stroke.

**Keywords:** Persistent hiccups, stroke, TIA

## Introduction

Hiccups are a form of continuous and involuntary jerks of diaphragmatic muscles, with spasmodic contractions occurring along with early glottic closure disrupting the inspiration.[1] Hiccups are commonly transient and classified depending on the duration. Hiccups are identified as persistent or chronic when they last more than 48 hours.[2] Regardless of the fact, that persistent hiccups are considered a rare medical condition, they can have a detrimental impact on an individual's life.[3]

Though hiccups may potentially be regarded as being caused by metabolic gastrointestinal abnormalities, they might be an indication of the lesions located in the brainstem. [4],[1, 2] Herein, we present a case of a 38-year-old man with persistent hiccups.

## Case Report

A 38-year-old man presented to the emergency with a 3-day history of persistent hiccups. He visited a general physician

twice, but the hiccups were refractory to several medications. Even traditional treatments and homemade remedies were ineffective. Subsequently, his situation didn't improve.

The patient was a heavy smoker (~40 cigarettes per day) with a history of coronary artery angiography of 4 years earlier, which showed a 50% stenosis in a coronary artery. He complained of nausea, epigastric pain, and continuous hiccups. In the physical examination, the patient was alert and oriented. Other than mild dehydration and epigastric tenderness, there were no other abnormalities.

There were no pathologic findings in echocardiography (ECG). Cardiac troponin and other routine laboratory tests were normal. After a prescription of ampule Chlorpromazine 50 mg and Haloperidol 2.5 mg, the patient was temporarily treated. Considering clinical, laboratory, and imaging findings being normal, he was discharged from the ER.

After 22 hours, the patient was brought to the emergency again, complaining of stuttering. In the examination, the patient was stuttering and had difficulty spelling some words, and his muscle force was normal. Afterward, he was admitted to the neurology ward. In Echocardiography (ECG), Ejection Fraction (EF) = 50% and mild MR (Mitral Regurgitation),

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**Received:** 14.02.2022 • **Accepted:** 03.04.2022

**DOI:** 10.33706/jemcr.1072172

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**Cite this article as:** Ahmadi S, Bagi HM, Hanifeh P. Is hiccups a precursor to a stroke? Journal of Emergency Medicine Case Reports. 2022;13(3): 74-75

and in Color Doppler Sonography, hypoechoic plaque in the right carotid bulb, with an expansion into the internal carotid and a stenosis development <50% was reported.

In Magnetic Resonance Imaging (MRI) in the ER, there was no other finding other than bilateral sinusitis in ethmoidal sinuses.

The patient's stutter was thoroughly treated after 20 hours of admission. Eventually, he was diagnosed with a Transient Ischemic Attack (TIA) and discharged home without any symptoms.

## Discussion

Hiccups are continuous and myoclonic contractions of diaphragmatic muscles, with an early closure of the glottis disrupting the air exchange. Hiccups based on the duration are categorized as transient, which is the most common, and persistent or chronic, which last more than 48 hours. Transient hiccups are mostly caused by factors like alcohol, tobacco, eating too many spicy foods, or overeating in general.

Although the etiology of persistent hiccups is not particular, however, gastrointestinal abnormalities are likely to cause persistent hiccups. On the other hand, persistent hiccups can be elicited by lesions located in the central nervous system.

The posterior cranial fossa is the largest and the most profound cranial of three cranial fossas, which incorporates the cerebellum and the brainstem. The brainstem is the part of the brain, which controls body functions like breathing. We think our patient was having persistent hiccups as a symptom of a Transient Ischemic Attack, which we believe occurred in the arteries of the hiccups center, presumably located in the brainstem near the inspiratory center.

Transient Ischemic Attack (TIA) has similar symptoms to a stroke, but it is temporary. A TIA is also called a mini-stroke, which can be an indication of a future stroke. Almost 30% of the people who have had TIA are likely to have a

stroke. In addition, hiccups, particularly persistent hiccups, might be a symptom of a TIA. Hence, persistent hiccups can be a precursor to a stroke.

Regarding the patient's initial presentation and their main complaint of hiccups, the final diagnosis of an ischemic stroke in the Posterior Cranial Fossa, in further studies of elderly patients presenting to hospital with persistent hiccups that are resistant to regular treatments, one of the main diagnoses that need to be considered is Cerebrovascular event.

## Conclusion

TIA has similar symptoms to a stroke. Almost 1 in 3 patients with a TIA tends to have a stroke. Our patient had persistent hiccups and was diagnosed with a TIA. Taking that into account, persistent hiccups as a symptom of a TIA can be an indicator of an ischemic stroke.

**Acknowledgement:** *Special thanks to head of emergency department, Prof. Dr. Alireza Ala, for his kind support And Prof. Dr. Samad Shams Vahdati, deputy of research of emergency department for his guidance.*

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