

Hiccups and Acute Symptomatic Hyponatremia: A Rare Manifestation of COVID-19.

Praveen Kumar Pandey (✉ yurekaplus9999@gmail.com)

University of Pavia, Italy <https://orcid.org/0000-0002-2667-5183>

Divya Pandey

University of Pavia, Italy <https://orcid.org/0000-0001-5541-3273>

Case Report

Keywords: hiccups, hyponatremia, covid-19

Posted Date: January 31st, 2022

DOI: <https://doi.org/10.21203/rs.3.rs-1252678/v1>

License:   This work is licensed under a Creative Commons Attribution 4.0 International License.

[Read Full License](#)

Version of Record: A version of this preprint was published at Cureus on April 12th, 2022. See the published version at <https://doi.org/10.7759/cureus.24090>.

Abstract

We report a rare case of a COVID-19 patient presenting with very unusual symptoms.

A 62-year-old male presented to ED with complaints of headache, nausea, vomiting, and intractable hiccups for the last 2 days.

Labs showed that he had profound hyponatremia (Na^+ 103 mEq/L) and hypokalemia (K^+ 2.3 mEq/L).

And RT-PCR was positive for COVID-19.

He was treated with IV bolus of 3% Normal Saline and continuous infusion thereafter. The patient was discharged after 8 days when the electrolytes returned to normal and symptoms resolved.

Introduction

Coronavirus disease 2019 (COVID-19) is an infectious disease caused by SARS-CoV-2 virus.

The first known case was identified in Wuhan, China, in December 2019. The disease has since spread worldwide, leading to an ongoing pandemic.

As of 26 December, over 278 million cases and 5.4 million deaths have been reported globally. [1]

Most symptomatic COVID-19 patients present initially with mild disease, with fever or fever history (43%), cough (50%), and shortness of breath (29%) being the most common symptoms.

Loss of smell or taste, abdominal pain, and rhinorrhea (<10%).

However, some patients present with atypical symptoms and it's important for an ED or primary physician to know about them for prompt diagnosis.

Therefore, we present a case report of a Covid-19 patient with very rare symptoms (hiccups and severe hyponatremia), usually not seen.

Case Report

A 62-year-old male presented to ED with complaints of headache, nausea, and vomiting and a history of persistent hiccups for the last 2 days.

He reported that the hiccups started suddenly and increased in intensity over time, leading to mild dyspnea and difficulty in eating.

His SpO₂ was 98% on room air and blood pressure was 149/89mm Hg. The patient reported no history of fever, coughs, or any other chronic condition like Diabetes and Hypertension.

Labs were sent for Liver Function Test, Renal Function Test, Serum Electrolytes, Glucose, Complete Blood Count, RT-PCR for Covid-19(as per local guideline).

Patient had profound hyponatremia (Na^+ 103 mEq/L) and hypokalemia (K^+ 2.3 mEq/L).

RT-PCR was positive for Covid-19.

The patient was treated with a 100 mL IV bolus of 3 percent normal saline over 10 minutes and admitted to the Covid ICU.

Where he was treated with an intravenous infusion of 3% NaCl (10 mL/kg/h) with frequent monitoring and charting of input (restricted to 1200 ml/day) and output.

The patient had the occasional relief from hiccups as the serum Na^+ levels improved, however, displayed marked forgetfulness (unable to remember if, had meals or not).

Additional tests were ordered C- Reactive Protein (34 mg/L), D-Dimer (903 ng/mL), LDH (within normal limits), Pro BNP (within normal limits), Procalcitonin (within normal limits), and Ultrasound abdomen (No significant abnormality) to rule out any other cause of SIADH.

Eventually, after 8 days the serum electrolytes values were constantly normal (Na^+ 131 mEq/L, K^+ 3.6 mEq/L) and the hiccups resolved completely.

A repeat RT-PCR for Covid-19 also came back negative.

The patient was discharged to be followed up in Medical OPD after 1 week.

Discussion

Hiccup, or singultus, is an involuntary spastic contraction of the inspiratory muscles. Though usually a benign and self-limited annoyance, hiccups may be persistent and a sign of serious underlying illness.

The exact pathogenesis of hiccups remains unknown. In most cases in which a specific cause can be assigned, hiccups appear to result from stimulation, inflammation, or injury to one of the nerves of the hiccup reflex arc.

SARS-CoV-2 has been known to show selective neurotropism to areas of the brain controlling respiration, [2] which also control the hiccup reflex arc. Irritation or stimulation of this neural area can be a plausible explanation for hiccups in Covid-19.

Several case reports have been published [3],[4],[5],[6],[7],[8],[9] which report hiccups as a symptom of Covid-19 and a study [10] that proposes hiccups as a specific neurological symptom in males.

Hyponatremia is defined as serum sodium concentration less than 135 mEq/L and is the most common electrolyte abnormality encountered in clinical practice.

Joint European guidelines classify hyponatremia in adults according to serum sodium concentration, as follows: Mild: 130-134 mEq/L Moderate: 125-129 mEq/L Profound: < 125 mEq/L

Acute symptomatic hyponatremia is a medical emergency; a sudden drop in serum [Na⁺] can overwhelm the capacity of the brain to regulate cell volume, leading to cerebral edema, seizures, and death.

Hyponatremia both asymptomatic and acute symptomatic has been reported to be associated with Covid-19 in many case reports. [11], [12], [13]

Hyponatremia in Covid-19 can be caused by either SIADH or inflammatory cytokines, IL-6, or a combination of both. [14]

This is the first case that reports upon both acute symptomatic hyponatremia and hiccups to be present simultaneously, in a Covid-19 patient.

Both hiccups and hyponatremia can develop in a Covid-19 patient independently, however, hiccups can be triggered by many metabolic disorders, hyponatremia being one. [15]

It's difficult to say if, the hyponatremia developed first which precipitated hiccups or both hiccups and hyponatremia developed independently.

However, resolution of hiccups with improvement in serum sodium levels points more towards metabolic etiology.

Conclusion

It's been more than 2 years since the emergence of Covid-19 and physicians are discovering new symptoms, correlations, and possible causations

This case report attempts to document the prevalence of rare symptoms in Covid-19.

Thereby, raising the index of suspicion of the triage or primary physician for Covid-19 in patients presenting with these symptoms.

Declarations

1. The authors have signed consent from the patient, for the publication of this case. 2. The authors declare no competing interests.

References

1. World Health Organization. Coronavirus disease 2019 (COVID-19) Situation Report – 72. Accessed January 03, 2022: https://www.who.int/docs/default-source/coronaviruse/situation-reports/20211228-weekly_epi_update_72.pdf?sfvrsn=7a3567d4_3&download=true

2. Conde Cardona G, Quintana Pájaro LD, Quintero Marzola ID, et al. Neurotropism of SARS-CoV 2: mechanisms and manifestations. *J Neurol Sci.* 2020;412 10.1016/j.jns.2020.116824
3. Prince G, Sergel M. Persistent hiccups as an atypical presenting complaint of COVID-19. *Am J Emerg Med.* 2020;38(7):1546.e5–1546.e6
. 10.1016/j.ajem.2020.04.045
4. Alvarez-Cisneros T, Lara-Reyes A, Sansón-Tinoco S. Hiccups and psychosis: two atypical presentations of COVID-19. *Int J Emerg Med.* 2021;14(1):8. 10.1186/s12245-021-00333-0
5. Bakheet N, Fouad R, Kassem AM, et al. Persistent hiccup: a rare presentation of COVID-19. *Respir Investig.* 2021;59(2):263–265. 10.1016/j.resinv.2020.11.003
6. Ikitimur H, Borku Uysal B, Ikitimur B, et al. Case report: two cases of persistent hiccups complicating COVID-19. *Am J Trop Med Hyg.* 2021;104(5):1713. 10.4269/ajtmh.21-0190
7. Totomoch-Serra A, Ibarra-Miramón CB, Manterola C. Persistent hiccups as main COVID-19 symptom. *Am J Med Sci.* 2021;9629(21):00001–X:S0002. 10.1016/j.amjms.2021.01.001
8. Atiyat R, Veeraballi S, Al-Atiyat, et al. A rare case report of persistent hiccups as an atypical presentation of COVID-19. *Cureus.* 2021;13(3) 10.7759/cureus.13625
9. Sangamesh S, Gosavi S, Shastry S, et al. Hiccups and hyponatremia: unusual co-presentation in COVID-19. *J Fam Med Prim Care.* 2021;10(2):1040–1043. 10.4103/jfmpc.jfmpc_1582_20
10. Nakaya A, Ogura E, Katayama Y, et al. Hiccups as a specific neurological manifestation in males with COVID-19. *IDCases.* 2021;26:e01330. 10.1016/j.idcr.2021.e01330
11. Habib MB, Sardar S, Sajid J. Acute symptomatic hyponatremia in setting of SIADH as an isolated presentation of COVID-19. *IDCases.* 2020 Jun 1;21:e00859. 10.1016/j.idcr.2020.e00859
12. Jg A-S, IJ N-G, Cuesta M, et al. Prognostic impact of hyponatremia and hypernatremia in COVID-19 pneumonia. A HOPE-COVID-19 (health outcome predictive evaluation for COVID-19) registry analysis. *Front Endocrinol (Lausanne).* 2020 Nov 30;11:599255. 10.3389/fendo.2020.599255
13. Chittal AR, Rao SJ, Lakra P, Zulty ME. Asymptomatic hyponatremia precipitated by COVID-19 pneumonia. *J Community Hosp Intern Med Perspect.* 2021 Nov 15;11(6):779–781.
10.1080/20009666.2021.1979738
14. Berni A, Malandrino D, Parenti G, et al. Hyponatremia, IL-6, and SARS-CoV-2 (COVID-19) infection: may all fit together? *J Endocrinol Invest.* 2020 Aug;43(8):1137–1139. 10.1007/s40618-020-01301-w
15. Jones JS, Lloyd T, Cannon L. Persistent hiccups as an unusual manifestation of hyponatremia. *J Emerg Med.* 1987 Jul-Aug;5(4):283–7. 10.1016/0736-4679(87)90256-3