



## Commentary

## Consider affection of respiratory muscles in SARS-CoV-2 related polyradiculitis with coughing but normal inflammatory markers

## ARTICLE INFO

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## Letter to the Editor

We were excited to read the article by Sharma et al. on a 27 years-old male diagnosed with SARS-CoV-2 associated Guillain-Barre syndrome (GBS) subtype acute, inflammatory demyelinating polyneuropathy (AIDP), two weeks after suspected infection with SARS-CoV-2 [1]. The patient partially recovered on intravenous immunoglobulins (IVIGs) at discharge three weeks after admission [1]. It was concluded that patients with tingling sensations, paresthesia, and difficulty walking associated with COVID-19 symptoms should not be misdiagnosed as arthralgia or myalgia, but GBS should be considered as a rare but serious complication of SARS-CoV-2 [1]. The study is appealing but raises concerns that need to be discussed.

The patient had complained of a dry cough for 2 weeks prior to admission, but clinical lung examination and chest X-ray were unremarkable [1]. No explanation for this discrepancy was given. Although D-dimer was normal, pulmonary embolism should have been ruled out by perfusion CT of the lungs. Since WBC counts, C-reactive protein, D-dimer, and ferritin levels were within normal limits and no fever was described [1], it is quite unlikely that the patient had pneumonia, pleuritis, or bronchitis. We should be informed how the involvement of the respiratory muscles in GBS has been ruled out. Particularly we should know whether needle electromyography (EMG) of the axial muscles and nerve conduction studies (NCSs) of the phrenic nerve were within normal limits. The results of arterial blood gas analysis (BGA) and the results of lung function tests are also decisive, especially if the vital capacity (VC) was normal or reduced. Given that respiratory symptoms had improved upon discharge [1], we should know whether this description refers to the initial cough or to respiratory symptoms newly appearing during hospitalization.

Another cause of the cough that has not been considered a differential etiology is cardiac involvement in the SARS-CoV-2 infection. Cardiac involvement in SARS-CoV-2 includes myocarditis, heart failure, acute coronary syndrome, and arrhythmias [2,3]. We should be

informed if the index patient complained about cardiac symptoms other than coughings, such as exertional dyspnoea, neck vein distension, or leg edema. Regarding the elevated creatine-kinase (CK), we should be informed whether the elevated CK levels are from the brain, muscle or heart. CK can be elevated, particularly in patients with myocarditis, a common complication of SARS-CoV-2 infections [4]. We should be told if CK-MB, troponin, and pro-brain-natriuretic peptide (pro-BNP) were also elevated. We should also know the results of transthoracic echocardiography and whether Takotsubo syndrome (TTS) has been ruled out as the cause of the cough. TTS has been repeatedly reported as a complication of SARS-CoV-2 infections [5], mimics myocardial infarction but may only manifest with respiratory symptoms and elevated CK. Were the routine electrocardiography leads all normal? After how many days did the CK return to normal?

Overall, the interesting report has several limitations which challenge the results and their interpretation. Clarifying these shortcomings would strengthen the conclusions and could improve the value of the study. In patients with GBS and respiratory symptoms, affection of the respiratory muscles in polyradiculitis needs to be thoroughly ruled out to miss the point at which these patients require ventilator support.

## Ethics approval

Was in accordance with ethical guidelines. The study was approved by the institutional review board.

## Funding sources

No funding was received.

## Author contribution

Author: design, literature search, discussion, first draft, critical

**Abbreviations:** AIDP, acute, inflammatory demyelinating polyneuropathy; BGA, blood gas analysis; CK, creatine-kinase; GBS, Guillain Barre syndrome; IVIG, intravenous immunoglobulins; proBNP, pro-brain-natriuretic peptide; TTS, Takotsubo syndrome; VC, vital capacity.

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comments, final approval.

### Registration of research studies

1. Name of the registry:
2. Unique Identifying number or registration ID:
3. Hyperlink to your specific registration (must be publicly accessible and will be checked):

### Guarantor

Josef Finsterer.

### Consent to participate

Was obtained from the patient.

### Consent for publication

Was obtained from the patient.

### Availability of data

All data are available from the corresponding author.

### Code availability

Not applicable.

### Consent

Not applicable.

### Declaration of competing interest

None.

### Acknowledgement

None.

### References

- [1] S. Sharma, A. Adhikari, N. Ghimire, G. Mainali, S.K. Yadav, R. Rajkarnikar, Guillain-Barré Syndrome associated with SARS-CoV-2 infection in Nepal: a case report, *Ann Med Surg (Lond)*. 80 (2022), 104214, <https://doi.org/10.1016/j.amsu.2022.104214>.
- [2] S.C. Xu, X.Y. Zhao, H.P. Xing, W. Wu, S.Y. Zhang, Cardiac involvement in COVID-19: a global bibliometric and visualized analysis, *Front Cardiovasc Med* 9 (2022), 955237, <https://doi.org/10.3389/fcvm.2022.955237>.
- [3] N.S. Hendren, M.H. Drazner, B. Bozkurt, L.T. Cooper Jr., Description and proposed management of the acute COVID-19 cardiovascular syndrome, *Circulation* 141 (2020) 1903–1914, <https://doi.org/10.1161/CIRCULATIONAHA.120.047349>.
- [4] K. Thom, B. Kahl, T. Wagner, A. van Egmond-Fröhlich, M. Krainz, T. Frischer, I. Leeb, C. Schuster, D. Ehringer-Schetitska, M. Minkov, C. Male, I. Michel-Behnke, SARS-CoV-2 associated pediatric inflammatory multisystem syndrome with a high prevalence of myocarditis - a multicenter evaluation of clinical and laboratory characteristics, treatment and outcome, *Front Pediatr* 10 (2022), 896252, <https://doi.org/10.3389/fped.2022.896252>.
- [5] J. Finsterer, C. Stöllberger, SARS-CoV-2 triggered Takotsubo in 38 patients, *J. Med. Virol.* 93 (3) (2021 Mar) 1236–1238, <https://doi.org/10.1002/jmv.26581>.

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