Int. j. adv. multidisc. res. stud. 2023; 3(4):760-761

Received: 24-07-2023
Accepted: 04-08-2023

International Journal of Advanced Multidisciplinary Research and Studies

ISSN: 2583-049X

Letter to the Editor

Unusual Presentation of SARS-CoV-2-Related Polyradiculitis in Pediatric Patients Expands the Range of Differential Diagnoses

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We read with interest the article by Orak *et al*. on two pediatric patients with SARS-CoV-2 associated Guillain-Barre syndrome (GBS), subtype pharyngo-cervico-brachial (PCB) type (patient-1, 17yo female) and acute, motor, axonal neuropathy (AMAN) type (patient-2, 15yo male) [1]. Both, patient-1 and ptient-2, made an incomplete recovery at the last follow-up after application of intravenous immunoglobulins (IVIGs) [1]. The study is excellent but has limitations that should be discussed.

We disagree with the diagnosis GBS subtype pharyngo-cervico-brachial (PCB) type as long as not all differentials were adequately ruled out. Not ruled out were Bickerstaff encephalitis (BBE), myasthenic syndrome, immune encephalitis, and metabolic myopathy. To rule out BBE and immune encephalitis, MRI with contrast medium is required. To rule out myasthenic syndrome high frequency repetitive nerve stimulation is required. To rule out metabolic myopathy, muscle biopsy would be necessary. Antibodies associated with immune encephalitis should be negative before considering GBS. There is also no mention of an MRI of cranial nerves with contrast agent in patient-1 to document hyperintesity of any cranial nerve roots.

We disagree with the notion that GBS associated SARS-CoV-2 is less appreciated in pediatric patients compared to adults [1]. SARS-CoV-2 infections associated GBS occurs in children and in adults but has been more commonly described in adults than in pediatric patients. Clinical presentation of SARS-CoV-2 associated GBS is not at variance between adults and children. However, in a study from Iran on 37 pediatric patients with SARS-CoV-2 associated GBS, the outcome was poorer compared to GBS due to other causes [2].

Ptosis is a rare manifestation of GBS and suggests that the third cranial nerve was additionally affected. Isolated affection of the branch that innervates the levator palpebrae muscle without involving other branches of the oculomotor nerve is even more rare and possibly mixed up with an underlying myopathy that becomes symptomatic during SARS-CoV-2 infection. We should know how myopathy was ruled out in patient-1.

Because SARS-CoV-2 related GBS can manifest with elevation of cytokines, chemokines, 14-3-3, intrathecal immunoglobulins, neopterin, neurofilament light chain, tau, Aβ1-42, and glial factors in the cerebrospinal fluid (CSF) [3, 4], it would be helpful to see whether or not any of these parameters was abnormal.

There is a discrepancy between abnormal nerve conduction studies (NCSs) (axonal lesion, no F-wave responses) and normal electromyography in patient-1 [1]. One would expect at least signs of acute denervation in muscles innervated by affected nerves. How to explain this discrepancy?

Overall, the interesting study has limitations that put the results and their interpretation into perspective. Addressing these issues would strengthen the conclusions and could improve the status of the study. Before diagnosing SARS-CoV-2 related GBS in children, all differential diagnoses need to be carefully ruled out, particularly if there is a non-classical clinical presentation of GBS.

Acknowledgements
Funding Sources and Conflict of Interest: None.

Financial disclosures for the previous 12 months: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Author contribution (1. Research project: A. Conception, B. Organization, C. Execution; 2. Statistical Analysis: A. Design, B. Execution, C. Review and Critique; 3. Manuscript: A. Writing of the first draft, B. Review and Critique): author JF: 1A, 1b, 1C, 3A, 3B.

Data Access Statement: All data are available from the corresponding author.

Ethical Compliance Statement: The authors confirm that the approval of an institutional review board or patient consent was not required for this work. We confirm that we have read the Journal's position on issues involved in ethical publication and affirm that this work is consistent with those guidelines. This article is based on previously conducted studies and does not contain any new studies with human participants or animals performed by any of the authors.

Keywords: COVID-19, SARS-CoV-2, Cognitive Impairment, Recovery

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