



## Case Report

## Guillan barre syndrome in post Covid-19 infection in children

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## ABSTRACT

**Introduction:** Guillain-Barre syndrome (GBS) is an inflammatory poly-radicleoneuropathy occurring usually two weeks after a viral infection. Covid-19 infection represent with respiratory symptoms, but it might manifests with extra pulmonary symptoms, and especially neurological including Guillain-Barre syndrom  
**Case report:** A 3 years old female patient admitted to the intensive care unit for an acute symmetric and progressive ascending quadriparesis two weeks after an upper respiratory infection, the diagnosis of post covid GBS was maintained, and the evolution was favorable after intravenous immunoglobulins.  
**Conclusion:** This case report suggest the probable causal link between COVID 19 and GBS.

## 1. Introduction

Covid 19, a new pandemic infection diseases caused by severe acute respiratory Corona Virus-2 [SARS-Cov 2], manifests usually with respiratory symptoms [1,2]. But it can manifests with non specific extra-respiratory symptoms especially among children including cardiac, renal and gastro intestinal manifestations [3].

In this paper we will represent the clinical case of a 3 years old girl, admitted to the intensive care unit for Guillan Barre Syndrome, occurring 2 weeks after Covid 19 infection.

Importance: GBS post Covid19 infection in children remain rare.

## 1.1. Case presentation

A 3 years old girl with non medical history was admitted to emergency department, with progressive and ascending Paresthesia evolving two weeks after respiratory infection.

The initial clinical examination was as follows:

Pediatric Glasgow coma scale GCS 15/15, power of upper limbs 4/5, and lower limbs 2/5, with no sign of neurological focalization, deep tendon reflexes were absents. We also noted a decrease in sensitivity in the 4 members with swallowing inability.

our patient was aperyctic, with a body temperature 37,3°, pulse rate 100 BPM; blood pressure 106/67 mmhg, respiratory status was stable with a respiratory rate at 24 breaths/minutes, and pulse oxymetry of

95% at ambient air.

The initial clinical blood count was as follows:

white blood cell count:10990 cells per microliter, hemoglobin 12 g/dl; C reactive protein were negative: 0,46 mg/l. glucose: 0,9 g/l, sodium 135 Mmol/l, potassium 3,8mmol/l, urea 0,16 g/l, creatinine 3,5 mg/l, alanine amino transferase 17 IU/l, aspartate amono transferase 38 UI/l.

The cerebrospinal fluid analysis showed albumino-cytological dissociation, with a White Blood Cell: 1, and high total protein 2,5g/l. Given the pandemic situation serology test of Covid-19 showed IGG antibodies positives.

An encephalic and medullar magnetic resonance imaging was performed to rule out differentials diagnosis was normal.

The diagnosis of Guillan barre syndrome associated with covid 19 was maintained; and the patient was treated with 5 cycles of intravenous immunoglobulin 0,5 g/kg/day, with clinical improvement, and she was referred to the pediatric department after 7 days and discharged after one month.

This case report follows CARE 2018 guidelines [4].

## 2. Discussion

Covid-19 is a new outbreak infection, the lungs are the most affected organs because virus access host cells via angiotensin converting enzyme 2 (ACE2) which is most abundant on type II alveolar cells leading to respiratory symptoms [5]. However extra respiratory manifestations are

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also observed, such as cardiac, renal and gastro intestinal symptoms.

The clinical manifestations are non-specific leading to a delay on the management and potential complications [6].

The mechanism of neurological manifestation of Covid-19 can be explained by the presence of ACE-2 receptor in nervous system and the skeletal muscles; or it might be caused by direct infection injury, hypoxic injury or immune response [7–9].

The most neurological signs are dizziness and headache reported on patients with Covid-19.

Other signs are less common including meningoencephalitis and GBS [10–12].

This later is an acute peripheral neuropathy manifesting with symmetrical, ascending weakness [13].

It's preceded by an infectious disease, and C.Jejuni is the most incriminated Pathogen with 50% of case [14,15].

Other pathogens might be identified such as cytomegalovirus, Epstein-Barr virus, Mycoplasma pneumonia, Haemophilus influenzae, and influenza A virus [14].

Covid-19 has been incriminated in severe cases of CBS [16–18].

Few studies reported pediatric neurological symptoms of covid 19 and GBS [19].

### 3. Conclusion

The recent data of neurological manifestations of covid 19 in children population are insufficient; more cases with epidemiological data should be studied to improve this neuro invasive potential of covid 19 in children.

The work has been reported in line with the CARE 2018 criteria [20].

### Data availability

The data used to support the findings of this study are available from the corresponding author.

### Ethical approval

This study was exempt from ethical approval at our institution, as it was an observational finding in regular practice.

### Consent

Written informed consent was obtained from the patient's father for publication of this case report.

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NONE £

### Authors' contributions

Dr. Sanae ELMZZEUI contributed to conceptualization, methodology, validation, formal analysis, and visualization and wrote the original draft. Dr. Fatima Zahra AFTISS contributed and reviewed and edited the manuscript. Dr. Mohammed AABDI provided resources and developed software and was responsible for data curation, Pr. Houssam Bkiyar reviewed and edited the manuscript. Pr. Housni Brahim was responsible for project administration; provided resources; contributed to conceptualization, methodology, and validation; and reviewed and edited the manuscript.

### Registration of Research Studies

As this manuscript was a case report with no new medical device nor surgical techniques, not prior registration is required

### Guarantor

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### Declaration of competing interest

The authors declare no conflicts of interest.

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