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Case Report

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Acute Guillain-Barré Syndrome (AIDP Variant) Triggered by Enteropathogenic E. coli in a 28-Year-Old Male with Ulcerative Colitis: A Rare Case Report

Diana Khedr

Department of Neurology, Jabr El- Ahmed Armed Forces Hospital, Kuwait

ABSTRACT

This case report discusses the development of acute Guillain-Barré syndrome (GBS), specifically the acute inflammatory demyelinating polyradiculoneuropathy (AIDP) variant, in a 28-year-old male with a known history of ulcerative colitis. Following a gastrointestinal infection with enteropathogenic E. coli, the patient experienced rapidly progressive neurological deficits requiring ICU admission and mechanical ventilation. Early initiation of intravenous immunoglobulin (IVIG) led to significant improvement in his clinical condition. This report highlights the potential infectious triggers of GBS in individuals with underlying inflammatory conditions like ulcerative colitis.

***Corresponding author**

Diana Khedr, Neurology Unit, Department of Internal Medicine, JAAFH, Kuwait.

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Introduction

Guillain-Barr´e syndrome (GBS) is a rare autoimmune disorder triggered by an immune response to an antecedent infection or other event cross-reacts with shared epitopes on peripheral nerves.

Campylobacter jejuni, Haemophilus influenzae, Mycoplasma pneumonia, Epstein-Barr virus, cytomegalovirus, Zika virus, and influenza virus have been linked to GBS but rarely Escherichia coli. This report presents a rare case of GBS triggered by enteropathogenic Escherichia coli (E. coli) in a patient with ulcerative colitis, emphasizing the complex interplay between gastrointestinal infections and immune-mediated neurological disorders.

Informed Consent

Written informed consent was obtained from the patient

A copy of the written consent is available for review by the Editor of this journal.

Case Presentation

A 28-year-old male with a known history of ulcerative colitis, managed with oral mesalamine, presented to our hospital with acute onset of bloody diarrhea and severe anemia. Stool culture revealed enteropathogenic E. coli as the causative agent of his gastrointestinal symptoms. On the first day of hospitalization (February 1st, 2025), the patient developed hyperacute, bilateral ascending weakness in the lower and upper limbs, with proximal muscles affected more than distal ones. This was associated with areflexia and progressive sensory loss, initially presenting as stocking distribution numbness in the lower limbs. Over one day, his condition worsened, resulting in severe bulbar weakness, necessitating intubation and mechanical ventilation.

Clinical Course

The patient developed aspiration pneumonia during his ICU stay, with pneumonia panel findings showing positive results for coronavirus, Streptococcus agalactiae, and Moraxella catarrhalis. He was treated with specific antibiotics according to sensitivity for 10 days. At the time of ICU admission, the patient was Quadriparetic and bedridden with absent palatal, pharyngeal, and cough reflexes, as well as weakened respiratory muscles with Stocking-pattern hypesthesia in both lower limbs. His facial and extraocular muscles were spared. His motor examination showed severe generalized hypotonia, generalized areflexia with muscle power scored according to MRC scale as follows:

- **Upper limbs (proximal):** Grade 1
- **Upper limbs (distal):** Grade 3
- **Lower limbs (proximal and distal):** Grade 1

The diagnosis of Guillain-Barré syndrome (AIDP variant) was confirmed based on clinical presentation and supportive investigations:

- **CSF Examination:** Revealed cytoalbuminous dissociation with elevated protein levels and a normal cell count.
- **Nerve Conduction Studies (NCS):** Demonstrated prolonged distal latency, decreased conduction velocity, and multiple segments of conduction block in motor nerves, consistent with a demyelinating neuropathy, while sensory nerve findings were normal.
- **Stool Culture:** Positive for enteropathogenic E. coli, suggesting a potential infectious trigger for GBS
- Antiganglioside antibody positivity of AntiGQ1B IgG

The patient was initiated on a five-day course of intravenous immunoglobulin (IVIG) as per protocol. Within three days of starting IVIG, the patient exhibited marked improvement in his

muscle strength, particularly in both upper and lower limbs. He was also on prophylactic anticoagulation and underwent regular physiotherapy during his ICU stay. After one week, the patient showed significant improvement in muscle strength, with an MRC grade of 4+ in both upper and lower limbs. His swallowing function improved, allowing for extubating him successfully. He was monitored closely for signs of dysautonomia, respiratory, and bulbar dysfunction, with no significant complications observed.

Discussion

This case highlights a rare association between GBS (AIDP) variant and enteropathogenic E. coli infection in a patient with ulcerative colitis. While Campylobacter jejuni is the most commonly reported bacterial trigger of GBS, this case suggests that other enteric pathogens may play a role in the pathogenesis of GBS in susceptible individuals. The role of underlying inflammatory bowel diseases like ulcerative colitis in predisposing patients to immune-mediated neurological conditions remains an area for further study.

Conclusion

Prompt recognition and treatment of GBS with IVIG led to a favorable outcome in this patient. This case underscores the importance of considering GBS in patients with acute neurological deficits following gastrointestinal infections specifically EPEC organism, particularly in those with pre-existing inflammatory conditions like ulcerative colitis [1-5].

Conflict of Interest

The corresponding author states that there is no conflict of interest.

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Author Contribution

DK responsible for data collection, analysis, interpretation of results, drafted and revised the article.

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