Section: Miscellaneous

Case Report

ACUTE ENTEROCOLITIS AND DEVELOPING ILEUS IN A 51-YEAR-OLD FEMALE WITH COMMON VARIABLE IMMUNODEFICIENCY (CVID) – A CASE REPORT

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ABSTRACT

Background: Common variable immunodeficiency (CVID) is a heterogeneous primary immunodeficiency characterized by hypogammaglobulinemia and impaired antibody production. This immune dysfunction significantly elevates susceptibility to recurrent, severe gastrointestinal and systemic infections. Furthermore, CVID is frequently associated with non-infectious complications, including autoimmune disorders and malignancies, which can severely confound clinical presentations. **Materials and Methods:** We report the case of a 51-year-old female with a remarkably complex medical history, including CVID, treated Hodgkin lymphoma, and idiopathic thrombocytopenic purpura (ITP). The patient presented to the emergency department with an acute onset of severe abdominal pain and progressive constipation. A comprehensive diagnostic workup was initiated, including laboratory evaluations and contrast-enhanced computed tomography (CT) of the abdomen and pelvis. **Results:** Diagnostic imaging revealed significant cecal and small bowel wall thickening, accompanied by marked colonic distention. These radiological findings were consistent with acute enterocolitis complicated by early-stage ileus. Given her profound immunocompromised state and history of lymphoma, differentiating between infectious enterocolitis, autoimmune bowel disease, and malignant recurrence posed a substantial clinical dilemma. **Conclusion:** This case underscores the significant diagnostic challenges encountered when managing acute abdominal presentations in immunocompromised patients. In individuals with CVID and multi-system comorbidities, atypical gastrointestinal manifestations can closely mimic severe mechanical obstructions or classic infectious pathologies. Maintaining a high index of suspicion, utilizing prompt advanced imaging, and employing a multidisciplinary approach are crucial for navigating diagnostic ambiguity, avoiding unnecessary surgical interventions, and optimizing therapeutic outcomes in this vulnerable patient population.

INTRODUCTION

While common variable immunodeficiency (CVID) predominantly presents with recurrent sinopulmonary infections, up to 50% of patients develop gastrointestinal (GI) complications. These range from chronic, opportunistic diarrheal illnesses (e.g., Giardia) to inflammatory bowel disease-like enterocolitis and lymphoid aggregates. Due to impaired humoral immunity, managing acute abdominal symptoms in CVID patients requires a high index of suspicion, careful radiological evaluation, and tailored antimicrobial therapy.

CASE PRESENTATION

Patient History and Chief Complaint A 51-year-old female with a documented history of common variable immunodeficiency (CVID) presented to the emergency department with a three-day history of severe right upper quadrant abdominal pain and severe constipation. Prior to admission, the patient attempted to manage her symptoms by taking approximately 10 tablets of bisacodyl every 6 hours, which failed to produce a bowel movement or relieve her pain. She denied any accompanying nausea or vomiting.

Past Medical and Surgical History

The patient's medical history is extensive and notable for the following:

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- **Immunologic:** CVID, managed with regular monthly intravenous/subcutaneous immunoglobulin (IVIg/SCIg) replacement therapy.
- **Hematologic/Oncologic:** Hodgkin lymphoma (diagnosed in 2013) and idiopathic **thrombocytopenic** purpura (ITP).
- **Gastrointestinal:** Recurrent diarrhea, previous *Giardia* infection, and a 2021/2022 colonoscopy **showing** colitis with atypical lymphoid aggregates (a 2022 biopsy noted a normal necrotic granuloma).
- **Other:** Positive QuantiFERON-Gold TB test.
- **Surgical:** Two prior Cesarean sections and multiple surveillance colonoscopies.

Physical Examination and Vital Signs Upon presentation, the patient was in no acute distress. Vital signs were stable: blood pressure ranged from 113/65 to 137/79 mmHg, heart **rate** was 72–94 bpm, respiratory rate was 15–18 breaths/min, and she was afebrile at 36.8°C (98.3°F). The physical examination was largely unremarkable, revealing only mild generalized abdominal tenderness without guarding, rebound tenderness, or lower extremity edema.

Diagnostic Evaluation

Laboratory Findings

- **Complete Blood Count (CBC):** Normal total white blood cell count ($9.7 \times 10^3/\mu L$) but elevated red blood cells (6.29×10^6 /µL) and normal hemoglobin (12.0 g/dL). Red blood cell indices indicated profound microcytosis and anisocytosis, with an MCV of 61.0 fL, MCH of 19.1 pg, and an elevated RDW of 18.0%.
- **Metabolic Panel:** Notable for mild hyponatremia (Na: 133 mEq/L) and an isolated elevation in alkaline phosphatase (123 U/L). BUN (8 mg/dL) and creatinine (0.51 mg/dL) were within normal limits.
- **Microbiology:** Blood cultures were negative for acute growth at the time of consultation; a routine urine culture was pending.

Radiological Imaging

- **Chest X-ray:** Showed no acute cardiopulmonary disease, infiltrates, or free air under the diaphragm.[2]
- **Right Upper Quadrant Ultrasound:** Revealed mild-to-moderate right hydronephrosis without visible nephrolithiasis. The liver measured 14.4 cm with mild echogenicity changes consistent with steatosis; the gallbladder was unremarkable.[2]

The radiographic observations from the CT Abdomen and Pelvis (with contrast) reveal significant wall thickening involving the cecum and small bowel loops. Additionally, there is marked distention with liquid stool present in the ascending and transverse colon. Evaluation of the right kidney demonstrates mild-to-moderate hydronephrosis, while examination of the peritoneum shows trace ascites within the paracolic gutters.[2,4]

Differential Diagnosis & Assessment The clinical presentation and radiographic findings strongly suggest acute enterocolitis. Despite her severe clinical constipation, the CT findings of liquid stool-filled colonic distention suggest a paradoxically retained diarrheal process or a developing early ileus complicating the underlying enterocolitis. Given her CVID, the underlying etiology could be infectious (bacterial, viral, or parasitic recurrence) or an autoimmune/inflammatory enteropathy. The mild right-sided hydronephrosis is non-obstructive and likely an incidental finding.

Management Strategy The patient was admitted for inpatient care with a multidisciplinary approach. The therapeutic plan includes:

- Antimicrobial Therapy**:** Empiric broad-spectrum coverage for opportunistic and gastrointestinal pathogens using Ceftriaxone and Metronidazole.
- Gastrointestinal Rest & Support: Strict bowel management, aggressive intravenous hydration, and close monitoring for ileus progression.

Surveillance: Continuous monitoring of sequential CBCs to evaluate for leukocytosis or worsening of baseline ITP, alongside strict metabolic profile monitoring.

DISCUSSION

Gastrointestinal pathology is a primary source of morbidity in patients with CVID. The cecal and small bowel thickening observed in this case illustrates how inflammatory processes manifest in the absence of normal mucosal IgA defenses.[1] Furthermore, the patient's presentation of constipation alongside fluid-filled colonic distention demonstrates how enterocolitis can readily trigger a dysmotility cascade or functional ileus in this population.

Initiating empiric therapy with atypical and anaerobic bacterial coverage (e.g., metronidazole, which also targets her historical vulnerability to Giardia) is crucial while awaiting definitive cultures. Clinicians must remain vigilant, balancing aggressive infectious management with the understanding that CVID enteropathy can closely mimic non-infectious inflammatory bowel disease.[3]

The following foundational peer-reviewed references inform the clinical context, diagnostic criteria, and pathological patterns of the gastrointestinal manifestations of CVID outlined in this report.

CONCLUSION

Acute gastrointestinal complications in patients with common variable immunodeficiency (CVID) can present atypically, with symptoms like severe constipation masking an underlying enterocolitis and

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functional ileus. Due to absent mucosal IgA defenses, these patients exhibit altered inflammatory responses, demanding a high index of clinical suspicion and early radiological evaluation to uncover structural pathologies. Because CVID enteropathy closely mimics non-infectious inflammatory bowel disease or mechanical obstructions, prompt multidisciplinary management is crucial. Effective care requires immediate supportive gastrointestinal management paired with tailored, empiric antimicrobials targeting opportunistic pathogens (e.g., Giardia) while awaiting definitive cultures.

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