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CASE REPORT | SMALL BOWEL

# Fulminant Celiac Disease Presenting in the Postpartum Period

Saatchi Kuwelker, MD[1], Riya Soni[1], Ariadna Perez-Sanchez, MD[1], Elizabeth Coss, MD[1,2], and Nilam J. Soni, MD, MS[1,2]

[1]*Joe R. Theresa Lozano Long School of Medicine, University of Texas Health San Antonio, San Antonio, TX*
[2]*Medicine Service, South Texas Veterans Health Care System, San Antonio, TX*

## ABSTRACT

Celiac disease (CD) is an immune-mediated disorder of the small intestine triggered by dietary exposure to gluten in genetically susceptible individuals. Adult CD usually has an insidious onset with gastrointestinal symptoms, most often diarrhea and weight loss. The association between CD and reproductive abnormalities has been well described in the literature, but it is uncommon for CD to initially manifest during pregnancy or the postpartum period. We report a case of adult CD in a previously healthy woman with a life-threatening presentation during the postpartum period.

**KEYWORDS:** celiac; puerperium; fulminant; pregnancy; postpartum

## INTRODUCTION

Celiac disease (CD) is a multisystem, immune-mediated disease primarily of the small intestine that develops in genetically susceptible individuals with gluten ingestion. The incidence of CD has been increasing, and the median worldwide prevalence is 0.75% (range 0%–3.1%).[1] CD is categorized as being symptomatic or subclinical, and symptomatic disease is subdivided into classical vs nonclassical disease based on the presence or absence of malabsorption, respectively. Diarrhea is the most common gastrointestinal symptom, and extraintestinal manifestations, such as osteoporosis, iron deficiency anemia, and hepatitis, are common. Autoimmune disorders are found in 35% of patients with CD, and Hashimoto's thyroiditis is the most common.[2]

Adverse pregnancy outcomes, including intrauterine fetal growth restriction, stillbirth, spontaneous abortion, preterm delivery, cesarean delivery, and low mean birthweight, are well described in pregnant women with undiagnosed CD.[3] However, CD rarely presents during pregnancy, and few cases of fulminant CD, or celiac crisis, have been reported during the postpartum period.[4–6] We report a case of celiac crisis with a life-threatening presentation postpartum.

## CASE REPORT

A 34-year-old woman of Spanish and Syrian descent with chronic iron deficiency anemia and intermittent diarrhea was brought to the emergency department after being found obtunded and lying on the floor. She was primigravid and had an uncomplicated vaginal delivery about 4 months earlier. Six weeks after the delivery, she developed nonbloody, severe watery diarrhea. She had nausea, anorexia, and a 21-pound weight loss during this period. In addition, she reported occasional loose stools since childhood and an episode of severe diarrhea in her 20s. She was also diagnosed with iron deficiency anemia 10 years earlier that had persisted to present. Three weeks before admission, she was given 5 days of ciprofloxacin to treat empirically for bacterial causes of severe diarrhea without improvement.

Physical examination demonstrated a cachectic, lethargic female who was hypothermic (93.1°F), tachycardic (107 beats/min), hypotensive (61/43 mm Hg), and tachypneic (24 breaths/min). She had pale conjunctiva, dry mucous membranes, and her extremities were cool with decreased capillary refill. Laboratory studies revealed a profound nonanion gap metabolic acidosis (pH 6.99, bicarbonate 12 mEq/L), hypokalemia (2.1 mEq/L), hypocalcemia (5.9 mg/dL), hypomagnesemia (1.3 mEq/L), hypophosphatemia (<1 mg/dL), rhabdomyolysis

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**Correspondence:** Nilam J. Soni, MD, MS (sonin@uthscsa.edu).

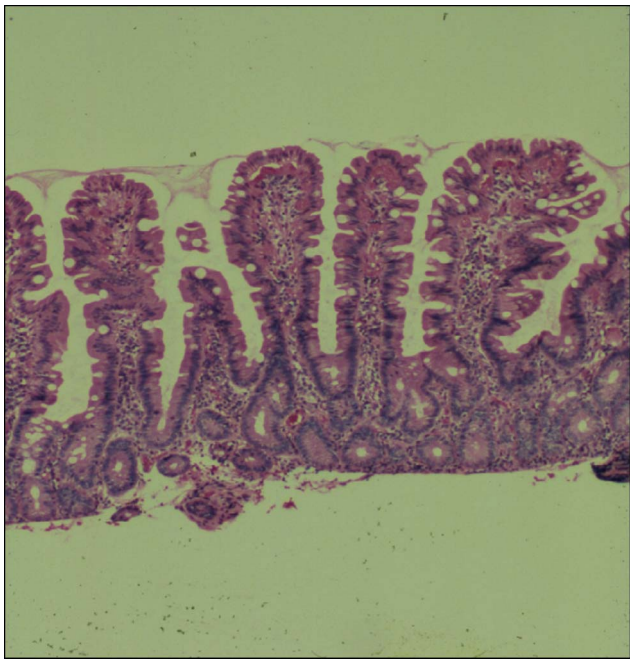

**Figure 1.** Normal small bowel biopsy with numerous villi, villus-to-crypt height ratio of 5:1, and normal number of lymphocytes (hematoxylin and eosin stain).

(creatinine kinase 4,297 U/L), hypoalbuminemia (1.0 g/dL), and acute renal failure (creatinine 1.7 mg/dL). Rhabdomyolysis was attributed to severe hypophosphatemia and volume depletion. She was diagnosed with hypovolemic shock and resuscitated with intravenous fluids with electrolyte supplementation.

Stool culture and ova/parasite examination were negative. Computed tomography of the abdomen/pelvis showed scant free fluid in the pelvis. Initially, a colonoscopy was performed to the terminal ileum that was grossly normal, but terminal ileal biopsies revealed marked villous atrophy with crypt hyperplasia, and intraepithelial infiltration with lymphocytes positive for $CD_3$ and $CD_8$, which was

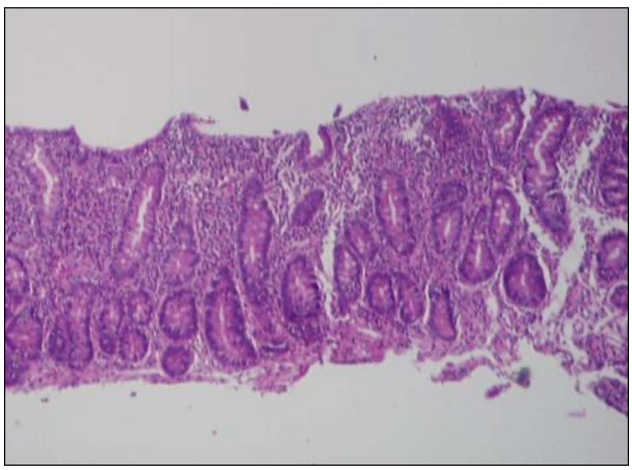

**Figure 2.** Small bowel biopsy from patient demonstrating marked loss of villi, crypt hyperplasia, and increased number of lymphocytes (modified Marsh classification type 3c).

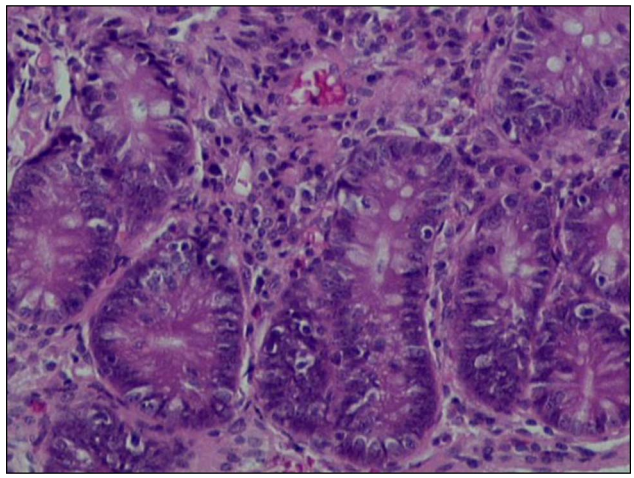

**Figure 3.** Small bowel biopsy (zoomed view) from patient demonstrating marked crypt hyperplasia and lymphocyte infiltration.

most consistent with CD (Figures 1–3). Subsequently, antigliadin IgG and IgA and anti–tissue transglutaminase IgA were reported as strongly positive. An esophagogastroduodenoscopy was deferred until the patient improved from her acute illness at the patient's request. She was given total parenteral nutrition, advanced to a gluten-free diet, and improved, regaining some weight before hospital discharge.

## DISCUSSION

CD is historically considered a disease of childhood but is being increasingly diagnosed in adult and geriatric populations with a broad range of extraintestinal manifestations.[2] Although reproductive abnormalities associated with CD in pregnancy are well known, this case highlights how CD can manifest as fulminant disease during the postpartum period.

Although relatively uncommon, initial presentation during pregnancy or postpartum period has been described in the literature.[4–8] Most women presenting with CD during pregnancy or the postpartum period had previous signs or symptoms suggestive of CD since childhood that were mild or transient.[5] Common triggers for subclinical CD to manifest include surgery, gluten overloading, smoking cessation, and infection,[7] and the postpartum period should be added to this list. Furthermore, our patient presented with profound metabolic acidosis, acute renal failure, rhabdomyolysis, and ultimately hypovolemic shock, and a life-threatening presentation of CD, or celiac crisis, is rare. A review of the literature identified 48 cases of adults presenting with celiac crisis,[9] but only one case was reported during the postpartum period.[6] Celiac crisis requires urgent hospitalization, fluid resuscitation, correction of electrolyte imbalances, and nutritional support with close monitoring for refeeding syndrome. All cases dramatically improved with a gluten-free diet, and only 1 death was reported (mortality of 2%).

CD can present insidiously or with celiac crisis during pregnancy or the postpartum period. An average delay in diagnosis

of 3-4 months has been reported. Clinical characteristics raising suspicion of subclinical CD include previous episodes of watery diarrhea and weight loss, self-imposed dietary changes for food intolerance, and iron deficiency anemia refractory to treatment.[5] Although screening for CD is not recommended, clinicians should order serologic testing when CD is suspected in pregnant women, especially in those with a positive family history.

The effects of sex hormones on the immune system are implicated in the activation or suppression of autoimmune diseases during pregnancy. Estrogens activate B cells to produce more antibodies, and predominantly B-cell–mediated autoimmune diseases characterized by excessive autoantibody production, such as systemic lupus erythematosus, tend to flare during pregnancy. By contrast, predominantly T-cell–mediated diseases, such as rheumatoid arthritis, might be inhibited by estrogens and tend to improve during pregnancy.[10] However, the same sex hormone can have variable effects on manifestations of a single autoimmune disease because of the hormone's different effects on B and T cells.[4,10,11]

The pathogenesis of CD is predominantly mediated by T cells, but the effects of hormonal changes of pregnancy on CD have not been well studied. Similar to rheumatoid arthritis, CD may be relatively quiescent during pregnancy and flare or return to its pregravid state in the postpartum period, but longitudinal studies monitoring CD during and after pregnancy are needed.

Updated guidelines on the management of CD strongly recommend multiple duodenal biopsies to confirm a diagnosis of CD in both children and adults. For patients unwilling to undergo esophagogastroduodenoscopy, guidelines suggest using high levels of tissue transglutaminase IgA (>10 times normal) with a positive endomysial antibody in a second blood sample for confirmation. New emphasis is on achieving and screening for intestinal healing rather than seroconversion or symptomatic relief because incomplete mucosal healing increases long-term risk of cancer, osteoporosis, and overall mortality. Hence, follow-up endoscopy with biopsies 2 years after initiating a gluten-free diet is recommended.[12]

## DISCLOSURES

Author contributions: All authors participated in the preparation and finalization of this manuscript. S. Kuwelker, NJ Soni, and R. Soni gathered, organized, and synthesized patient data to report the case. S. Kuwelker, A. Perez-Sanchez, R. Soni, E. Coss, and NJ Soni reviewed relevant literature, discussed, and drafted the discussion section. NJ Soni is the article guarantor.

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The patient was lost to follow-up after hospitalization, and we suspect she may have returned to the country from which she had emigrated. All attempts have been exhausted in trying to contact the patient, next of kin, and/or parent/guardian for informed consent to publish their information, but formal written consent could not be obtained.

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