

# HOSPITAL PHYSICIAN®

## GASTROENTEROLOGY BOARD REVIEW MANUAL

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The *Hospital Physician Gastroenterology Board Review Manual* is a study guide for fellows and practicing physicians preparing for board examinations in gastroenterology. Each manual reviews a topic essential to the current practice of gastroenterology.

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## Celiac Disease

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# Celiac Disease

Amy S. Oxentenko, MD, and Joseph A. Murray, MD

## INTRODUCTION

Celiac disease (CD) is an immune-mediated condition where susceptible patients have characteristic small intestinal changes in response to dietary wheat gliadins and related proteins, with clinical and histologic response to a gluten-free diet (GFD) and relapse if gluten is reintroduced.<sup>1</sup> When a genetically at-risk individual ingests gluten, antigen-presenting cells, in association with HLA-DQ2 or HLA-DQ8, present gliadin to T cells. T cells are then activated, recruiting other lymphocytes and immune cells, resulting in cytokine release and ultimately damaging the small intestine. Tissue transglutaminase (tTG) is released with inflammation and can act upon the glutamine residues in the gliadin, making it much more antigenic in CD and magnifying the immune response many fold. tTG is also targeted by the humoral immune system, producing circulating antibodies which make serologic testing of CD possible.<sup>2</sup>

Europeans appear to have the highest prevalence of CD. It is being recognized more frequently in North Americans given a growing population of persons of European origin and an increase in screening by clinicians. Prevalence studies in North America reveal that 1 in 133 people has CD, which is often asymptomatic and largely unrecognized.<sup>3</sup>

Once thought to be predominantly a disease of childhood, CD is now well-recognized in patients of all ages, with approximately 20% of patients diagnosed after age 60 years.<sup>4</sup> Although the mechanism for this variation in presentation is not known, certain stressors such as pregnancy, surgery, or intestinal infections can be triggering events. The disease has a slight female predominance, with a female to male ratio of 2–3 to 1. Clinicians are becoming increasingly aware of the wide spectrum of demographic presentations and clinical manifestations of CD.

## CLINICAL MANIFESTATIONS

### CASE PRESENTATION

#### Initial Presentation and History

A 35-year-old Caucasian woman presents to a gastro-

enterologist for evaluation of progressive, intermittent bloating of greater than 6 months' duration. She describes abdominal discomfort and distension daily. Her symptoms worsen several hours postprandially, with near complete relief after defecation. She has tended towards constipation, with harder stools and mild straining. She attempted a lactose-free interval, which did not improve the bloating. Addition of fiber supplementation worsened her symptoms. Her appetite has been good, and she denies any weight loss.

The patient's past medical history is significant for migraine headaches, hypothyroidism, 2 prior cesarean sections, and a cholecystectomy. Her only medications include occasional ibuprofen for headaches, levothyroxine, psyllium, and the recent addition of docusate sodium. She is married, works as a teacher, and has 2 young children. She rarely drinks alcohol and denies history of tobacco or drug use. Her family history is remarkable for a sister with onset of type 1 diabetes mellitus at age 12 years. Her mother, brother, and 2 children are healthy.

### Physical Examination

On examination, the patient is 170 cm (67 in) in height and weighs 57.3 kg (126 lb), with a body mass index of 19.7 kg/m<sup>2</sup>. Blood pressure is 114/68 mm Hg, with a heart rate of 74 bpm. The thyroid gland is minimally enlarged. Her abdominal examination reveals scars from past surgeries, normal bowel sounds, and mild nonfocal tenderness throughout. She has normal rectal tone and descent, with firm stool in the vault. The remainder of her examination is normal.

### Laboratory Evaluation

Laboratory studies performed several weeks ago showed the following: hemoglobin, 10.6 g/dL; mean corpuscular volume, 74 fL; and ferritin, 17 µg/L. Electrolytes, calcium concentration, and liver biochemistries were normal, and the thyrotropin level was 3.7 mIU/L.

- What are the possible explanations for this patient's bloating and abdominal discomfort?
- Is there any relationship between her intestinal complaints and the finding of iron-deficiency anemia?