

> **THE PATIENT**
67-year-old woman

- > **SIGNS & SYMPTOMS**
- Excessive flatulence, belching, and bloating
 - Persistent heartburn
 - Chronic cough

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> THE CASE

A 67-year-old woman with type 2 diabetes mellitus and hypertension presented to our family medicine office for evaluation of excessive flatulence, belching, and bloating that had worsened over the previous 6 months. The patient said the symptoms occurred throughout the day but were most noticeable after eating meals. She had a 5-year history of heartburn and chronic cough. We initially suspected gastroesophageal reflux disease (GERD). However, trials with several different proton pump inhibitors (PPIs) over a 3-year period did not provide any relief. Lifestyle modifications such as losing weight; remaining upright for at least 3 hours after eating; and eliminating gluten, dairy, soy, and alcohol from her diet did not alleviate her symptoms.

At the current presentation, the physical examination was normal, and an upper endoscopy was unremarkable except for some mild gastric irritation. A urea breath test was negative for *Helicobacter pylori*, and a chest radiograph to investigate the cause of the chronic cough was normal. The patient's increased symptoms after eating indicated that a sensitivity to food antibodies might be at work. The absence of urticaria and anaphylaxis correlated with an IgG-mediated rather than an IgE-mediated reaction.

Due to the high cost of IgG testing, we recommended that the patient start a 6-week elimination diet that excluded the most common culprits for food allergies: dairy, eggs, fish, crustacean shellfish, tree nuts, peanuts, wheat, and soy.¹ We also recommended that she eliminate alcohol (because of its role in exacerbating GERD); however, excluding these foods from her diet did not provide sufficient relief of her symptoms. We subsequently recommended a serum IgG food antibody test.

THE DIAGNOSIS

The results of the test were positive for IgG-mediated allergy to vegetables in the onion family, as indicated by a high (3+) antibody presence. The patient told us she consumed onions up to 3 times daily in her meals. We recommended that she eliminate onions from her diet. At a follow-up appointment 3 months later, the patient reported that the flatulence, belching, and bloating after eating had resolved and her heartburn had decreased. When we asked about her chronic cough, the patient mentioned she had not experienced it for a few months and had forgotten about it.

DISCUSSION

The most common food sensitivity test is the scratch test, which only measures IgE antibodies. However, past studies have suggested that IgE is not the only mediator in certain symptoms related to food allergy. It is thought that these symptoms may instead be IgG

mediated.² Normally, IgG antibodies do not form in the digestive tract because the epithelium creates a barrier that is impermeable to antigens. However, antigens can bypass the epithelium and reach immune cells in states of inflammation where the epithelium is damaged. This contact with immune cells provides an opportunity for development of IgG antibodies.³ Successive interactions with these antigens leads to defensive and inflammatory processes that manifest as food allergies.

Rather than the typical IgE-mediated presentations (eg, urticaria, anaphylaxis), patients with IgG-mediated allergies experience more subtle symptoms, such as nausea, abdominal pain, diarrhea, flatulence, cramping, bloating, heartburn, cough, bronchoconstriction, eczema, stiff joints, headache, and/or increased risk of infection.⁴ One study showed that eliminating IgG-sensitive foods (eg, dairy, eggs) improved symptoms in migraine patients.⁵ Likewise, a separate study showed that patients with irritable bowel syndrome experienced improved symptoms after eliminating foods for which they had high IgG sensitivity.⁶

■ **Casting a wider net.** Whereas scratch testing only looks at IgE-mediated allergies, serum IgG food antibody testing looks for both IgE- and IgG-mediated reactions. IgE-mediated food allergies are monitored via the scratch test as a visual expression of a histamine reaction on the skin. However, serum IgG food antibody testing identifies culprit foods via enzyme-linked immunosorbent assay.

Furthermore, the serum antibody test also identifies allergenic foods whose symptoms have a delayed onset of 4 to 72 hours.⁷ Without this test, those symptoms may be wrongfully attributed to other conditions, and prescribed treatments will not treat the root cause of the reaction.⁸ The information provided in the serum antibody test allows the patient to develop a tailored elimination

diet and eliminate causative food(s) faster. Without this test, we may not have identified onions as the allergenic food in our patient.

THE TAKEAWAY

Recent guidelines emphasize that IgG testing plays no role in the diagnosis of food allergies or intolerance.¹ This may indeed be true for the general population, but other studies have shown IgG testing to be of value for specific diagnoses such as migraines or irritable bowel syndrome.^{5,6} Given our patient's unique presentation and lack of response to traditional treatments, IgG testing was warranted. This case demonstrates the importance of IgG food antibody testing as part of a second-tier diagnostic workup when a patient's gastrointestinal symptoms are not alleviated by traditional interventions. **JFP**

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