A Set Up for Small Intestinal Bacterial Overgrowth

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Question: A 61-year-old man was seen for evaluation of bloating. His past medical history included hypothyroidism, iron deficiency anemia, and vitamin D deficiency. He was on oral thyroid hormone replacement therapy and was requiring escalating doses despite taking the medication as directed. He was also recently diagnosed with iron deficiency anemia, initially treated with oral iron replacement and subsequently transitioned to intravenous iron replacement, owing to failure to normalize iron levels. He denied any symptoms of nausea, vomiting, abdominal pain, diarrhea, constipation, or weight loss.

At presentation, laboratory studies (normal value ranges in parenthesis) revealed hemoglobin 13.8 g/dL (12–15.5 g/dL), MCV 93.5 fL (81.2–95.1 fL), alkaline phosphatase 71 U/L (37–98 U/L), aspartate aminotransferase 22 U/L (37–98 U/L), alanine aminotransferase 22 U/L (7–45 U/L), total bilirubin 0.2 mg/dL (<1.2 mg/dL), and creatinine 0.8 mg/dL (0.6–1.1 mg/dL). In the past, his symptoms had improved with oral antibiotics administered for suspected small intestinal bacterial overgrowth for which no obvious etiology or risk factor was identified. A computed tomography (CT) enterography was obtained to evaluate structural causes for his symptoms with representative images highlighted in Figure A, B.

What anatomic condition demonstrated by CT enterography predisposed this patient to developing small intestinal bacterial overgrowth?

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Conflicts of interest
The authors disclose no conflicts.

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0016-5085/S36.00
https://doi.org/10.1053/j.gastro.2019.01.005
CT enterography demonstrated extensive jejunal diverticulosis (Figure A, B) and 1–2 small jejunal polyps. An antegrade balloon enteroscopy was then performed for further evaluation of polyps. Several 5–10 mm sessile jejunal polyps were seen and polypectomies were performed and pathology was consistent with an inflammatory polyp without dysplasia. Additionally, the antegrade balloon enteroscopy demonstrated small and large jejunal diverticula (Figure C). The patient was continued on cyclical antibiotic therapy with close monitoring of iron and vitamin levels as well as thyroid function, all of which normalized with antibiotic therapy.

Diverticular disease commonly occurs in the colon and affects the elderly population. Factors associated with colonic diverticulosis include a low-fiber and high-fat diet, physical inactivity, obesity, and smoking. Small bowel diverticulosis is a rare entity that is usually asymptomatic and discovered incidentally. Duodenal involvement is most common accounting for nearly 80% of cases with jejunal or ileal involvement occurring in <20% of cases.1 Duodenal diverticula are more likely to be asymptomatic (90%) compared with jejunoileal diverticula (40%).2 Common presenting symptoms include epigastric pain, bloating, or vomiting. Associated complications include diverticulitis, bleeding, sepsis, perforation, obstruction, malabsorption, and bacterial overgrowth.1

In patients presenting with bloating, small intestinal bacterial overgrowth (SIBO) should be suspected if predisposing factors are present. Structural gastrointestinal abnormalities allow for bacterial proliferation and overgrowth due to bacterial stasis and overgrowth.3 Bacterial overgrowth is known to be associated with jejunal diverticulosis.4 The diagnosis of SIBO can be made with a positive carbohydrate breath test or a small bowel aspiration with bacterial concentration greater than 10^5 CFU/mL. The mainstay of treatment involves antibiotics to reduce the bacterial count and correction of nutritional deficiencies. Despite treatment with antibiotics, a significant patient population has persistent or recurrent symptoms. In patients with SIBO without known risk factors, small bowel imaging can potentially reveal an underlying structural cause.

References