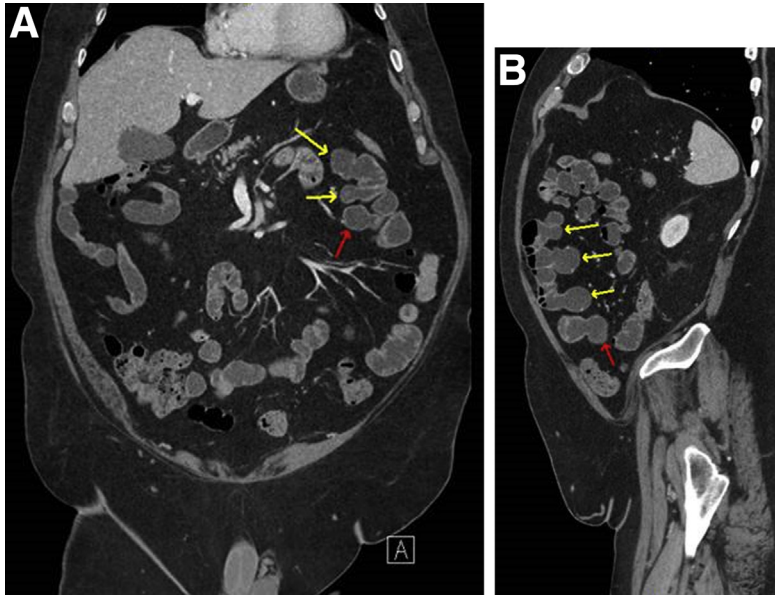


Bilal Hameed, Uma Mahadevan, and Kay Washington, Section Editors

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 (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?

See the *Gastroenterology* web site (www.gastrojournal.org) for more information on submitting your favorite image to Clinical Challenges and Images in GI.

Conflicts of interest

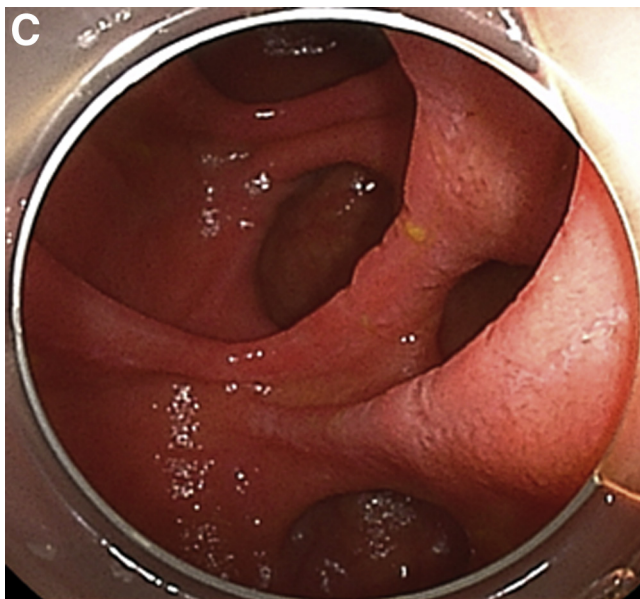
The authors disclose no conflicts.

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117 Answer to: Image 2: Extensive Jejunal Diverticulosis Resulting in Small Intestinal Bacterial
 118 Overgrowth 175
 119 176
 120 177



178 CT enterography demonstrated extensive jejunal diverticu-
 179 losis (Figure A, B) and 1–2 small jejunal polyps. An antero-
 180 grade balloon enteroscopy was then performed for further
 181 evaluation of polyps. Several 5–10 mm semisessile jejunal
 182 polyps were seen and polypectomies were performed and
 183 pathology was consistent with an inflammatory polyp
 184 without dysplasia. Additionally, the antero-
 185 grade balloon enteroscopy demonstrated small and large jejunal
 186 diverticula (Figure C). The patient was continued on cyclical
 187 antibiotic therapy with close monitoring of iron and vitamin
 188 levels as well as thyroid function, all of which normalized
 189 with antibiotic therapy.

190 Diverticular disease commonly occurs in the colon and
 191 affects the elderly population. Factors associated with
 192 colonic diverticulosis include a low-fiber and high-fat diet,
 193 physical inactivity, obesity, and smoking. Small bowel
 194 diverticulosis is a rare entity that is usually asymptomatic
 195 and discovered incidentally. Duodenal involvement is most
 196 common accounting for nearly 80% of cases with jejunal or
 197 ileal involvement occurring in <20% of cases.¹ Duodenal
 198 diverticula are more likely to be asymptomatic (90%)
 199

141 compared with jejunoileal diverticula (40%).² Common presenting symptoms include epigastric pain, bloating, or vomiting.
 142 Associated complications include diverticulitis, bleeding, sepsis, perforation, obstruction, malabsorption, and bacterial
 143 overgrowth.¹ 200
 201

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