Small Bowel Diverticulosis and Malrotation: A New Spin on SIBO

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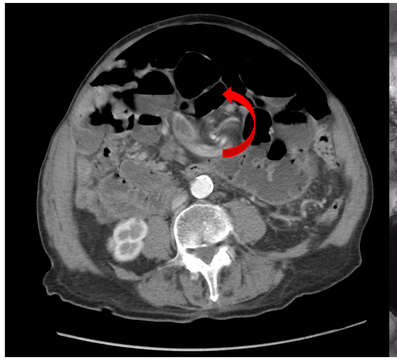
INTRODUCTION

- Small bowel diverticula are far less common than colonic diverticulosis.
- Proposed formative mechanisms include abnormal peristaltic activity and high intraluminal pressures, but genome-wide association studies have made this topic controversial.
- Small bowel diverticula are commonly seen incidentally via imaging studies in asymptomatic patients. These structural abnormalities are associated with bacterial overgrowth, bleeding, or even perforation.
- Small intestinal bacterial overgrowth (SIBO) is defined by an abnormal abundance of bacteria in the small bowel, associated with abdominal pain, bloating, and diarrhea. This can commonly be misdiagnosed as functional bowel syndromes.
- When appropriately recognized and treated, symptoms associated with bacterial overgrowth can be exquisitely responsive to antibiotic therapy. Herein, we present a case of SIBO successfully treated in an elderly patient with significant small bowel diverticulosis.

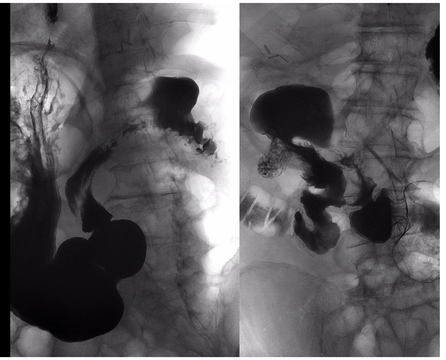
CASE

- A 93-year-old man with ten years of chronic abdominal bloating, fullness, distension, watery stools, and intermittent, focal postprandial epigastric pain - diagnosed as irritable bowel syndrome.
- Colonoscopy, esophagogastroduodenoscopy, stool studies and computed tomography (CT) scan were unremarkable. Evidence of malrotation, and multiple areas of focal caliber change on CT (1A). No small bowel transition point was identified. Mesenteric vascular flow appeared intact on contrast CT.
- Upper gastrointestinal series revealed a corkscrew appearance of the duodenum, 6.3-centimeter proximal post-bulbar duodenal diverticulum, and decompression of the distal duodenum (1B, 1C).
- Multiple jejunal and ileal large diverticula noted similar in caliber to the small bowel lumen. Diverticula were only seen clearly on barium small bowel follow through.
- Real-time fluoroscopic exam of barium traversing the duodenum revealed preferential filling of the large duodenal diverticulum rather than the true duodenal lumen (1B, 1C).
- Small bowel diverticular disease was postulated to cause secondary bacterial overgrowth and focal epigastric discomfort, given the degree of contrast stasis within the duodenal diverticulum, jejunal, and ileal lesions. A Ladd procedure was performed to prevent progression of malrotation; symptoms did not improve post-procedure.
- Started on 10-day trial of rifaximin with prompt and dramatic improvement in his bloating, distension, and diarrhea. He experienced recrudescence of his symptoms every few months and was ultimately managed with courses of rifaximin every two months with good symptomatic control. The focal postprandial epigastric pain responded to a liquid diet intended to minimize duodenal diverticular distension noted on barium study.

FIGURE 1



1A - Axial computed tomography (CT) of the abdomen with intravenous contrast demonstrating splanchnic swirling.



1B - Real-time barium swallow with view of the esophagus, stomach, pylorus, and proximal duodenum with large diverticulum.
1C - Oblique view of large proximal duodenal diverticulum with preferential filling and contrast stasis.

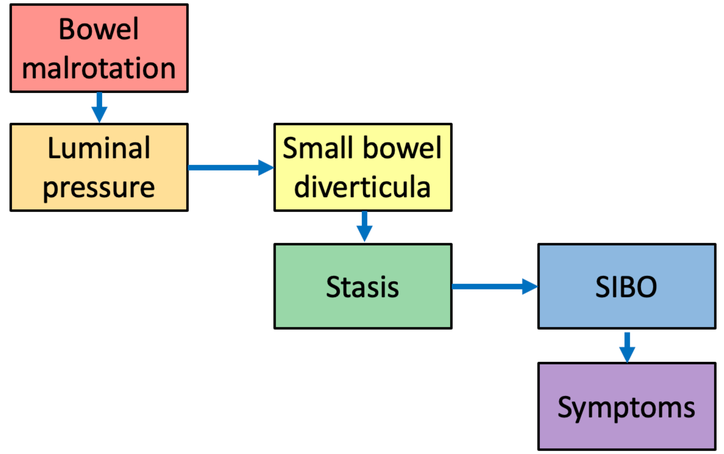
1D - Abdominal x-ray with delayed oral contrast medium showing innumerable small bowel diverticula.

1E - Coronal CT of the abdomen with oral contrast with large proximal duodenal diverticulum.

DISCUSSION

- Although generally found incidentally, small bowel diverticula can be associated with SIBO.
- Our patient's anatomy and symptomatology suggest a linear causality that started with anatomic malrotation leading to intermittent increases in luminal pressures. This predisposed him for small bowel diverticula formation, which ultimately lead to stasis and a nidus for SIBO.
- There are isolated case reports of an association between malrotation and extensive small bowel diverticulosis. We present this case to alert physicians that "incidentally" found malrotation may be associated with symptomatic physiologic sequelae including SIBO.

PROPOSED MECHANISM



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