Jejunal Diverticulitis, an Unusual Cause of a Surgical Abdomen

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Abstract

Uncommon and usually silent, small bowel diverticulosis (SBD) is rarely discussed in the surgical literature. Symptomatic SBD most commonly occurs in the jejunum and can lead to serious complications not readily elicited from the history and physical. Given its location within the mesentery, SBD is poorly visualized both radiographically and intraoperatively. We present the case of a 53 year old male who was initially misdiagnosed with bacterial enteritis on computed topography and admitted to Internal Medicine for bowel rest and antibiotic therapy. General surgery was consulted three days later for peritonitis and the patient was found to have jejunal diverticulitis. He successfully underwent surgical resection with primary anastomosis. In our review of the literature, few complications of SBD are correctly diagnosed pre-operatively. The result is a delay in diagnosis and increased morbidity and mortality. There have been mixed results regarding the use of antibiotics in these patients, therefore the authors feel strongly that resection of the diseased segment is still the gold standard for definitive treatment. This case illustrates several key challenges in the diagnosis and management of the disease.

ABBREVIATIONS

SBD: Small Bowel Diverticulosis

INTRODUCTION

Jejunal small bowel diverticulosis (SBD) is a rare disease and incidentally found in 0.3 – 4.5% of autopsy studies [1]. Although the condition has been documented for several hundred years, its natural process and clinical significance has been poorly understood. As such, a paucity of data exists regarding diagnosis and management apart from case reports and small retrospective series. Unlike Meckel’s diverticula which are congenital, these are pulsion diverticula that are acquired and involve only the mucosa and submucosal layers of small bowel. The pathophysiology is thought to be similar to colonic diverticular disease. The protrusion through muscularis occurs at the entry point of the vascular supply hidden within the mesenteric border. SBD occurs most frequently in the duodenum. Peristaltic disorders, dyskinesia and increased intraluminal pressure have all been associated with the condition. While most patients are asymptomatic, 6-20% will present with complications to include localized inflammation, abscess formation, perforation, obstruction, malabsorption, and bleeding [2,3]. Both the size and number of diverticula are strong risk factors for complications [4]. It can be challenging to properly diagnose symptomatic SBD as its presentation often mimics common surgical pathology such as peptic ulcer disease, sigmoid diverticulitis, appendicitis, and malignancy. This can translate into a delay in diagnosis leading to increased morbidity and mortality. Segmental resection with primary anastomosis is indicated in cases of complicated diverticulitis however there are several reports describing successful non-operative management as well [1]. We describe a case of a patient who failed antibiotic therapy ultimately requiring surgical resection.

CASE PRESENTATION

A 53 year old male presented to the hospital with a two day history of worsening pain just left of the umbilicus. He denied any associated nausea, emesis, constipation, or diarrhea. He had previously undergone a sigmoid colectomy two years prior for recurrent diverticulitis and had been asymptomatic since that time. On examination, he was diffusely tender without peritonitis. His laboratory values were remarkable for a white blood cell count of 11,800 cells/mm³. Computed topography (CT) with intravenous contrast of his abdomen demonstrated non-specific thickening of the proximal small bowel wall. He was admitted to the medicine service with suspected enteritis. Despite bowel rest, intravenous fluids, and antibiotic therapy the patient’s abdominal pain worsened and surgery was consulted. At that
time, he demonstrated localized peritonitis left of the umbilicus with guarding and rebound. Re-examination of his admission CT scan revealed several large diverticula in the proximal small bowel with adjacent mesenteric stranding (Figure 1A, 1B). The patient was taken for a diagnostic laparoscopy with suspected small bowel diverticulitis. Upon entry into the abdomen, 5-6 large diverticula were visualized just distal to the Ligament of Treitz, the largest measuring approximately 5cm in diameter with areas of patchy necrosis. The procedure was converted to an open procedure and a 30cm segment of small bowel containing the diverticula was resected (Figure 1C). A primary stapled anastomosis was performed. The remainder of small bowel to the ileocecal valve was examined and within normal limits. The patient recovered well and was discharged home on post-operative day #4. Pathology confirmed the diagnosis of diverticulosis with transmural necrosis and inflammation. At 6 months, the patient remains asymptomatic.

**DISCUSSION**

Over the past decade, multislice CT (MSCT) has gradually replaced barium studies and enteroclysis for the diagnosis of symptomatic small bowel pathology. Our patient obtained timely imaging on presentation but suboptimal interpretation led to a delay in diagnosis. Anatomically, the defects are often hidden within the mesenteric leaves, making them difficult to identify both intraoperatively and radiographically [2,5]. Midgut diverticulitis was correctly diagnosed in only 77% of admission CTs in a meta-analysis by Spasojevik et al. [6]. A critical eye and high clinical suspicion are key in establishing the diagnosis.

Our patient had disease isolated to the proximal jejunum. Duodenal diverticulosis is more common than jejuno-ileal disease (79% versus 18%) [2]. In a larger case series of 628 patients with small bowel diverticula, only eighty-six (14%) were localized to the jejunum [7]. Even so, the jejunum is at higher risk for complication compared to SBD at large. In a retrospective series of 208 patients, 20% of patients developed complications. However, in the subset of patients with jejuno-ileal disease, there was a 46% complication rate. Nearly all complications were the result of multiple diverticula. Our patient developed peritonitis secondary to diverticulitis which accounts for 33-53% of total complications in jejunal diverticulosis [2,8]. Perforations secondary to diverticulitis can be contained to the mesenteric border causing local inflammation and abdominal symptoms without overt radiographic evidence of perforation. Mortality in this setting can be as high as 40% which reflects how often there is a delay in diagnosis in this population [8].

Interestingly, our patient had a known history of sigmoid diverticulitis. On review of several case series, 50 - 75% of patients have associated colonic diverticula [2,8].

There are no clinical guidelines outlining the therapeutic management of patients with jejunal diverticulitis. Several case series successfully describe the use of non-operative management to include broad-spectrum antibiotics, bowel rest, IV hydration, and percutaneous drainage [1]. In a case series of 13 patients, Koger et al. [9], described 10 patients who were initially managed non-operatively but failed to respond. They observed a correlation between time to laparotomy and severity of intra-abdominal contamination, with the majority of spillage occurring after 72 hours. It would appear that a 24 to 48 hour trial of conservative management is acceptable in the absence of peritonitis, clinical instability, pneumoperitoneum, or free fluid. However, failure to respond within that time frame should prompt urgent surgical therapy. Certainly in our patient, the development of peritonitis signified failure of non-operative management and the need for surgical intervention. The operation is a segmental resection of grossly diseased small bowel with a primary anastomosis. It is
technically important that the repair incorporate only healthy and disease-free tissue. Data on follow-up and recurrence is lacking although patients who underwent incomplete resection were noted to re-present with complicated disease. In the setting of widespread SBD, some authors will recommend only resecting the area of concern to prevent short-gut syndrome [10]. This is unlikely without an extensive surgical history and every attempt should be made to remove diseased bowel. Diverticulectomy is not recommended and has been associated with increased mortality from anastomotic breakdown and intra-abdominal sepsis [10,11].

Jejunal diverticulitis remains a rare but clinically relevant etiology of acute abdominal pain. This case adds to the volume of literature that supports surgical resection with primary anastomosis in complicated patients. Despite several reports which show success using non-operative measures, a patient failing to improve after a trial of bowel rest, hydration, and intravenous antibiotics should undergo prompt surgical intervention. In high risk patients it may be reasonable to attempt non-operative management; however, the authors recommend a low threshold to move to the operating room.

REFERENCES