INTRODUCTION

With a low annually reported incidence of 0.3%–2.3%, jejunal diverticulitis is rarely seen in a hospital setting, with most cases seen in male patients between 50 and 70 years of age.\(^1,2\) Although also infrequently encountered, asymptomatic jejunal diverticulosis is more commonly seen, with small bowel outpouchings usually found incidentally on computed tomography (CT) imaging.\(^2\) The pathophysiology behind jejunoileal diverticulosis is thought to be due to smooth muscle motor dysfunction resulting in disordered contractions. This motor dysfunction causes an increased intraluminal pressure, leading to herniation of the mucosa and submucosa through the mesenteric side of the bowel.\(^3\) These diverticula have the potential to become inflamed, resulting in jejunal diverticulitis, and cause complications. Most studies report the acute complications of these diverticula to be intestinal obstruction, bleeding, inflammation, and perforation.\(^1\) In this report, we present a case of delayed diagnosis of jejunal diverticulitis highlighting the diagnostic difficulty, as well as the need to maintain a high level of suspicion regarding future cases.

MATERIAL AND METHODS

An electronic database (PubMed) was searched by two separate researchers for published studies mapping to Medical Subject Heading (MeSH) terms jejunal diverticulitis, antibiotics, operative management, and nonoperative management. The data from the published articles regarding patient demographics, presentation, length of stay (LOS), and management were compiled and described.

CASE HISTORY

An 85-year-old man presented as a hospital transfer with leukocytosis, nausea, and worsening intermittent, sharp, periumbilical abdominal pain previously requiring multiple visits to an outside emergency room. The patient had been treated with oral antibiotics as an outpatient for suspected sigmoid diverticulitis but had failed outpatient management. During his third visit to the outside emergency department, a CT scan was obtained which demonstrated proximal small bowel diverticulosis and severe sigmoid diverticulosis, with no
diverticulitis noted. He also reported a bright red bowel movement prior to transfer. With the combination of periumbilical abdominal pain, bright red bowel movement, leukocytosis, and severe sigmoid diverticulosis demonstrated on CT scan, colonic diverticulitis was suspected. The patient was transferred to our facility and admitted to the emergency general surgery service, where he was initially treated conservatively with intravenous antibiotics and bowel rest. By hospital Day 4, he remained afebrile and hemodynamically stable but continued to endorse focal tenderness to palpation in the periumbilical region, and a second CT scan was obtained which demonstrated a prominent small bowel diverticulum with internal fecalization and newly seen wall thickening with adjacent fat stranding (Figure 1A,B). Redemonstration of extensive sigmoid diverticulosis was also seen on the repeat CT scan. On hospital Day 5, due to the lack of clinical improvement, the decision was made to proceed with operative intervention addressing the inflamed small bowel diverticula. A midline laparotomy was performed, and the small bowel was run from the ligament of Treitz to the ileocecal valve. The patient was found to have a 60 cm segment of jejunum, beginning 30 cm from the ligament of Treitz, with multiple small and medium diverticula and one large, inflamed diverticulum at the distal end of this segment (Figure 2A,B). Of note, there were no diverticula in the remainder of the small bowel. Given this anatomy, the decision was made to perform a segmental resection of this 60 cm jejunal segment with a primary anastomosis, which was completed without issue. The specimen was sent to pathology as a permanent specimen for gross and microscopic evaluation, which revealed diverticular disease with an associated organizing abscess and fibrosis. The remainder of the patient’s course was uncomplicated. He had return of bowel function and tolerated a regular diet by post-operative day five, at which time he was discharged home.

4  |  DISCUSSION

Jejunal diverticulitis is a rare disorder associated with a high morbidity and mortality, primarily due to the elderly age group of the patients most commonly affected. The aforementioned case demonstrates the symptomatic potential of the disease. Although the reported incidence rate of jejunal diverticulosis is low, some studies have shown 10%–15% of diagnosed cases required surgical intervention for sequelae of jejunal diverticulitis including perforation, obstruction, peritonitis, or gastrointestinal bleeding.1 Mortality rates of 40% can be seen in patients with perforation secondary to jejunal diverticulitis.4

Due to its uncommon nature, diagnosis can often be delayed or missed. If jejunal diverticulitis is suspected, an abdominal acute series can be obtained with attention to any free air under the diaphragm indicating perforation, or signs of obstruction indicated by dilated loops of
| Management | First named author | Year | Demographics | Presentation | Imaging technique | LOS (days) | Treatment |
|------------|-------------------|------|--------------|--------------|------------------|------------|-----------|
| Operative  | Allyeva\(^5\)    | 2020 | 64 year, F   | LLQ abdominal wall abscess 2/2 enterocutaneous fistula | CT scan     | NA         | Robotic SBR |
|            | Harbi\(^6\)       | 2021 | 40 year, M   | RLQ pain, fever | CT scan     | NA         | Open SBR   |
|            | Prough\(^7\)      | 2019 | 65 year, M   | LLQ pain, nausea, fever | CT scan     | 5          | Open SBR   |
|            | Staszewicz\(^8\)  | 2008 | 88 year, M   | RLQ pain | CT scan | 12         | Open SBR   |
|            | Franca\(^9\)      | 2010 | 75 year, M   | LLQ pain, rebound tenderness | US, CT scan | 6          | Unknown approach, SBR |
|            | Gurala\(^1\)      | 2019 | 76 year, F   | Epigastric pain, confusion, nausea, vomiting, anorexia | Acute Series, CT scan | 6          | Laparoscopic SBR |
|            | Vayzband\(^10\)   | 2021 | 71 year, M   | LUQ pain, fever, rigors | CT scan | 3          | Open SBR   |
|            | Leigh\(^2\)       | 2020 | 59 year, F   | Generalized abdominal pain, nausea, fever | CT scan | 7          | Open SBR   |
|            | Saberski\(^11\)   | 2012 | 85 year, M   | RLQ pain, nausea, vomiting | Acute Series, CT scan | 8          | Diagnostic Laparoscopy |
|            | Carmo\(^12\)      | 2021 | 76 year, M   | Abdominal pain, fever, tachycardia | CT scan x2 | 17         | Laparoscopic SBR |
| Non-operative | Matli\(^13\)    | 2022 | 41 year, M   | Epigastric pain | Acute Series, CT scan | 2          | IV Piperacillin/Tazobactam (Abx duration: NA) |
|            | Samuel\(^14\)     | 2018 | 68 year, M   | Acute abdominal pain and distention | CT scan | 2          | IV Ciprofloxacin and Flagyl (Abx duration: NA) |
|            | Alam\(^15\)       | 2014 | 40 year, M   | LLQ pain | US, CT scan | 3          | IV Ceftriaxone (Abx duration: NA) |
|            | Alam\(^15\)       | 2014 | 70 year, M   | Left flank pain, fever, vomiting | CT scan | NA         | IV Ceftriaxone and Flagyl (Abx duration: NA) |
|            | Kagolanu\(^16\)   | 2018 | 91 year, M   | Bilateral flank pain, nausea, vomiting, anorexia | Acute Series, CT scan | NA         | IV Ciprofloxacin and Flagyl (Abx duration: NA) |
|            | Ejaz\(^17\)       | 2017 | 87 year, M   | Fever, LLQ pain | Acute Series, CT scan | 5          | IV Piperacillin/Tazobactam (Abx duration: 10 days) |
|            | Ejaz\(^17\)       | 2017 | 76 year, M   | Post-prandial abdominal pain, nausea, vomiting | Acute Series, CT scan | 2          | IV Ciprofloxacin and Flagyl (Abx duration: 14 days) |
|            | Dungan\(^18\)     | 2021 | 64 year, F   | Epigastric pain, constipation, fever, anorexia | CT scan | NA         | IV Piperacillin/Tazobactam (Abx duration: 14 days) |
|            | Levack\(^19\)     | 2014 | 77 year, M   | RLQ pain | CT scan | 5          | IV Ampicillin, Ciprofloxacin, and Flagyl (Abx duration: 14 days) |

Abbreviations: Abx, antibiotics; CT, computerized tomography; F, female; IV, intravenous; LLQ, left lower quadrant; M, male; NA, not available; RLQ, right lower quadrant; SBR, small bowel resection; US, ultrasound.
bowels with air-fluid levels. CT scanning can provide additional detail and information regarding the segment of bowel affected, as well as additional lesions, and evidence of inflammation, such as thickening of the bowel wall and fat-stranding.

The treatment of choice for complicated jejunal diverticulitis is an exploratory laparoscopy or laparotomy with resection of the diverticulum or segmental resection of small bowel. Non-surgical management, with intravenous fluids, antibiotics, and bowel rest, has shown to be useful in acute uncomplicated cases. Knowledge of the possibility of conservative management of these stable patients is of great importance, as not all patients with jejunal diverticulitis require a laparotomy.1 With a disease prevalent amongst an elderly population, conservative management of acute uncomplicated cases could reduce the morbidity and mortality associated with a large surgery.

Table 1 summarizes recent literature of jejunal diverticulitis case reports and details the demographics, presenting symptoms, imaging modality used, LOS, and management. The average age of presentation from all reviewed case reports, including the patient in our case report, was 70 years with a female to male ratio of 1:4. Abdominal pain was the most common presenting symptom. A CT scan was obtained in each case report, whether as the first imaging modality, or to follow-up findings seen on an acute series or ultrasound. There is a large range in LOS between the summarized studies, but it appears that non-operative management has an overall shorter LOS. There was a wide variety in reported LOS between cases presented in Table 1, likely driven by various patients’ underlying comorbidities, treatment approaches, and responses to therapy.

5 | CONCLUSION

In summary, jejunal diverticulitis is an uncommon disease that can cause serious morbidity and mortality. A review of the literature demonstrates a mix of operative and non-operative management for this disease. The reported case details the progression of symptoms leading to surgical intervention. Early initiation of treatment with intravenous antibiotics could potentially prevent a morbid surgical procedure in the elderly population, where jejunal diverticulitis is most often seen.

AUTHOR CONTRIBUTIONS

D. Scheese conceived the idea for the document and contributed to writing and editing of the manuscript. Y. Alwatari contributed to writing and editing of the manuscript. J. Khan contributed to writing and editing of the manuscript. A. Slaughter reviewed and edited the manuscript. All authors read and approved the final manuscript.

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CONFLICT OF INTEREST

None.

DATA AVAILABILITY STATEMENT

None.

ETHICAL APPROVAL

Ethical approval was not required and patient identifying knowledge was not presented in the report.

CONSENT

Published with written consent from the patient.

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