CASE REPORT

PERFORATED JEJUNAL DIVERTICULITIS AS AN UNCOMMON CULPRIT OF ACUTE ABDOMEN: A CASE REPORT AND REVIEW OF LITERATURE

Umar Maqbool[1]✉, Muhammad Fayzan Mehmood[1], Abdullah Maqbool[2], Ahsan Qadeer[1], Muaz Loon[1], Saad Masood[1]

[1]King Edward Medical University Lahore-Pakistan
[2]Rashid Latif Medical College Lahore-Pakistan

Small intestinal diverticula are rare compared to colonic diverticula. Jejunal diverticulosis can occur in older men. These diverticula are usually asymptomatic but can present with acute abdomen when symptomatic. Complicated cases can present with perforation, peritonitis, and abscess formation. CT scan is the ideal imaging modality to diagnose perforated jejunal diverticulitis. Complicated cases warrant surgical intervention. A high clinical suspicion is necessary for the timely diagnosis of perforated diverticulitis. We are presenting a case of a 45-year-old who presented with an acute abdomen in a surgical emergency. Perforated jejunal diverticulitis was revealed as the cause of his symptoms during surgery. This case signifies the importance of varied clinical presentations of perforated jejunal diverticulitis and keeping it in the differentials of acute abdomen. Perforated diverticulitis has a high mortality rate, so timely management is of utmost importance.

Keywords: Perforated jejunal diverticulitis; Small bowel diverticula; Surgical management of perforated diverticula

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INTRODUCTION

Intestinal diverticula are outpouchings of the intestinal mucosa and submucosa. These are false diverticula, as the outpouching does not involve the entire intestinal wall thickness. These diverticula commonly affect the large intestine. Small intestinal diverticula are rare. Their incidence ranges from 0.06–2.3%.[1] Small intestinal diverticulitis is a rare but important cause of acute abdomen.[2] Among small intestinal diverticula, duodenal diverticula are the most common, followed by diverticula of jejunum or ileum. The annual incidence of jejunal diverticulosis is around 0.3–2.3%.

Small intestinal diverticula are usually found incidentally in the CT scan of the abdomen or during the surgical intervention. These are usually asymptomatic. Only 29% of affected people present with symptoms such as nausea, abdominal pain, and malabsorption.[3] Complications can occur in cases of diverticulitis. These include gastrointestinal bleeding, perforation, peritonitis, adhesions, fistula formation, and localized abscess. These complications are reported in only 10% of cases.[4]

Non-complicated diverticulitis is usually managed conservatively with intravenous fluids, bowel rest, and antibiotics.[5] Complicated diverticulitis invariably requires surgical intervention. Complicated diverticulitis has a high mortality rate if there is a delay in the diagnosis and intervention. Timely diagnosis is of paramount importance for saving a patient's life. We present a case of a middle-aged adult presenting with right iliac fossa pain and tenderness that was clinically diagnosed as perforated appendicitis. During surgery, he was found to have a perforated jejunal diverticulum.

CASE PRESENTATION

A 45-year-old Asian male, a bank clerk by profession, presented to the surgical emergency of Mayo Hospital Lahore on 18th November 2022, complaining of pain in the umbilical region. The patient was brought in by ambulance. He was treated at a local dispensary, where his pain did not settle. He was then referred to Mayo Hospital Lahore. He had an insignificant past medical and surgical history. He was a non-smoker and had no co-morbidities. His family history was also insignificant.

On examination, there was generalized tenderness in the lower abdomen. His pulse was 118/min, and his BP was 90/60 mmHg. There was guarding and rebound tenderness in the right iliac fossa. The Rovsing sign was also positive. Suspecting appendicitis, Alvarado's score was calculated, which came out to be 9/10. The pain started 1 day back. It was sudden in onset and localized to the umbilical region. The pain progressively worsened and became generalized to the lower abdomen. The patient was treated at a local dispensary suspecting constipation. It

was associated with high-grade fever (101℃), anorexia, nausea, and 2 episodes of vomiting. There was no history of abdominal pain, gastritis, constipation, per-rectal bleeding, or diarrhoea. The patient did not complain of any dysuria, urinary urgency, or testicular pain. At his presentation in Mayo Hospital emergency, he was given painkillers after drawing blood samples.

The patient's complete blood counts showed leucocytosis ($15.1\times10^{\wedge3}$ /uL). Abdominal ultrasonography showed mild pelvic ascites. A supine abdominal X-ray showed air in gut loops (Figure-1). An erect chest X-ray showed no air under the diaphragm (Figure-1).

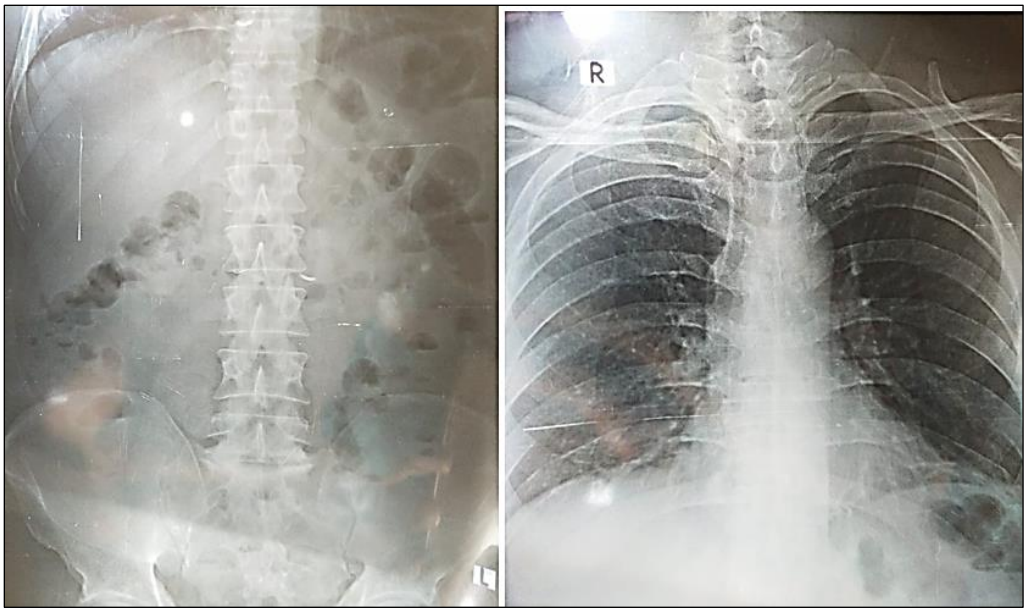

Figure-1- Supine abdominal X-ray showing air in gut loops. An erect chest X-ray shows no air under the diaphragm

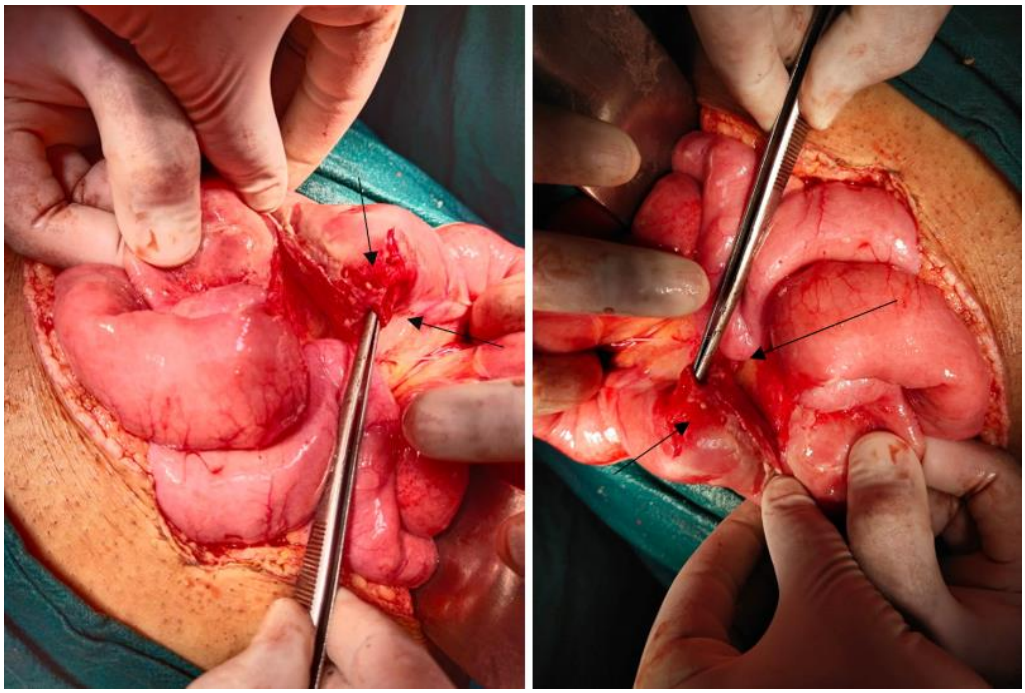

Figure-2- Intraoperative images showing perforated jejunal diverticulum 1.5 feet distal to the duodenojejunal junction and extraluminal inflammation of the jejunum

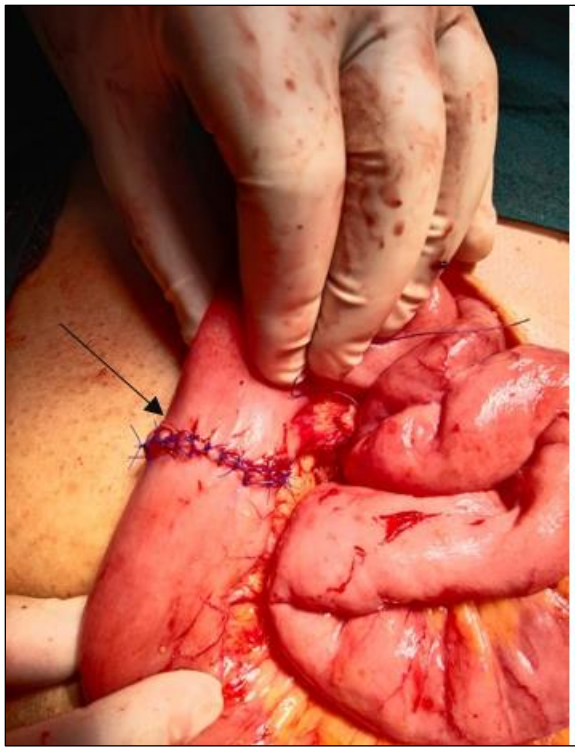

Figure-3: End-to-end anastomosis of the jejunum

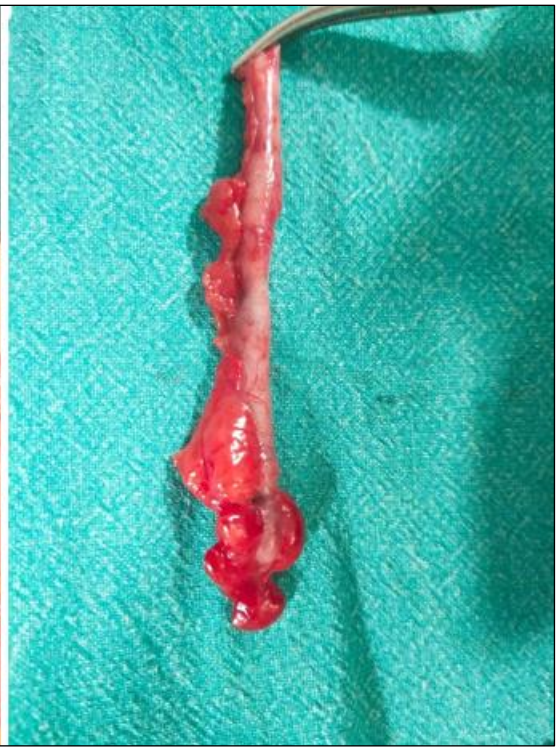

Figure-4: Resected jejunal segment

Based on these investigations, a clinical diagnosis of perforated appendicitis was made. Other differentials considered were urinary tract infection, gastroenteritis, subacute intestinal obstruction, and caecal mass. The history, examination findings, and investigations pointed toward perforated appendicitis and excluded other causes. So, a surgical treatment of appendicitis was decided.

The patient was started on IV fluids, IV antibiotics, and IV analgesics. His BP was optimized. Surgical management was decided as perforated appendicitis was suspected. He was shifted to the emergency operation theatre. Lanz incision was given, and the abdominal wall was opened layer by layer. Purulent fluid appeared on opening the peritoneum. The appendix was identified at the junction of the taenia coli. There was frank pus around it but it was not inflamed, the appendiceal base was healthy, and there was no perforation. About 200 ml of purulent fluid was removed by suction. Mesoappendix was ligated, and appendectomy was done. Suspecting a different cause of abdominal pain as there was no perforated appendix, a pelvic drain was placed. Purulent fluid began to appear in the drain a few minutes later. The Lanz incision was extended to the midline to have better access to the pelvis. Gauze pieces were placed in the pelvis and were found to be soaked in pus. Now, gauze pieces were pushed upwards to the small gut and were found to be stained with pus. At this time, it was decided to do an exploratory laparotomy to determine the cause of the pelvic abscess. A midline laparotomy incision was given, and the abdominal wall was opened layer by layer. The duodenum was examined at first to rule out duodenal perforation. The small intestine was examined throughout its length, starting from the duodenum. Multiple jejunal diverticula were found 1.5 feet distal to the duodenojejunal junction. A perforated, inflamed jejunal diverticulum was found with a streak of pus going down the length of the intestine (Figure-2).

The abdominal cavity was washed thoroughly with warm saline. The gut segment containing the perforated diverticulum was resected, and end-to-end anastomosis of the two ends of the jejunum was performed with a Prolene 3.0 round body suture (Figure-3,4). Hemostasis was secured, a drain was placed, and the abdominal cavity was closed layer by layer. The procedure was performed by the consultant general surgeon of the surgical team.

A nasogastric tube was passed, and the patient was shifted to the ward. He was kept NPO for 5 days. Injectable antibiotics (ceftriaxone and metronidazole) were started. The patient was mobilized the next day. His drain showed no output after 3 days and was subsequently removed. Incentive spirometry was encouraged. Oral intake was started 5

days later with a liquid diet. The patient tolerated the oral diet and showed good post-operative recovery.

He was discharged after 8 days and followed up in OPD at 2 weeks and 4 weeks post-op. He had normal bowel function, and there were no post-operative complaints. Histopathological examination of the resected specimen showed intestinal mucosa. There was no evidence of a parasitic infestation, inflammatory bowel disease, or malignancy. He had no post-operative complications or adverse events.

DISCUSSION

Jejunal diverticulosis is a rare condition affecting only 0.3–2.3% of the population. These diverticula are formed by the outpouchings of the mucosa and submucosa through the muscularis propria of the small intestinal wall at areas where vasa recta pierce the muscular wall. These are potentially weak areas in the muscular propria. Where the aetiology involving colonic diverticula includes constipation, decreased dietary fiber in the diet, and old age; the small gut diverticula are formed due to intestinal dyskinesias, abnormal peristalsis, and high intraluminal pressures.[6] Jejunal diverticulosis predominantly affects men in their advanced age. The initial imaging modality is an erect chest X-ray which shows air under the diaphragm in case of perforation. However, X-rays have a limited significance in diagnosing jejunal diverticulitis, where most patients present with acute abdominal pain. The gold standard imaging modality is the abdomen CT scan, which can accurately diagnose the jejunal diverticula and its complications. On CT scan, jejunal diverticula look like round structures outside a small gut lumen containing air and debris.[7] The management strategies depend upon the presenting case. There are no definite treatment guidelines for jejunal diverticulitis. Non-complicated cases where a patient presents with acute abdominal pain are usually managed conservatively with IV fluids, bowel rest, and antibiotics. Most cases of diverticulitis resolve with conservative management, and surgical intervention is unnecessary. Complicated cases where intestinal perforation and peritonitis occur require surgical intervention.[8]

This case was typically interesting as the affected patient was 45 years old, and his clinical features mimicked perforated appendicitis. The patient usually has upper abdominal pain or signs of generalized peritonitis. Our patient presented with right iliac fossa pain and localized tenderness, leading to a clinical diagnosis of perforated appendicitis. This case signifies the importance of keeping perforated diverticulitis as an important differential in the acute abdomen, the varied clinical presentations of this pathology, and employing a CT scan to reach an accurate diagnosis preoperatively. This case represents an atypical and rare clinical presentation of perforated jejunal diverticulitis. Our case had a pelvic abscess secondary to perforation. There is a reported case of an abdominal wall abscess secondary to perforated jejunal diverticulitis.[9] The perforated diverticulum had penetrated the abdominal wall leading to an abdominal mass. The perforated diverticulum can also be the source of bacterial thromboembolism. A case reports the death of an adult female with an infected right atrial thrombus and pulmonary emboli secondary to a perforated jejunal diverticulum.[10] The diverticulitis in a patient with jejunal diverticulosis can occur secondary to enterolith.[11] It can obstruct the lumen predisposing to inflammation. Jejunal diverticulosis is also reported to form secondary to a gastrointestinal stromal tumor.[12] Histopathological examination of the resected specimen is necessary to rule out any malignancy. There is a case reporting jejunal diverticulosis in a patient with systemic lupus erythematosus. There is no evidence linking SLE with the underlying aetiology of jejunal diverticulosis, and further research is necessary.[13] Although jejunal diverticulosis typically presents in older adults, complicated cases have been reported in a 37-year-old female and an 11-year-old child.[14,15] Our case further reiterates the importance of keeping perforated jejunal diverticulitis in mind while assessing middle-aged patients presenting with acute abdomen.

CONCLUSION

Perforated jejunal diverticulitis is a rare disease with varied clinical presentations and a high mortality rate. The disease can present in relatively young patients and can mimic perforated appendicitis. High clinical suspicion and employment of CT scan modality are necessary to reach an accurate diagnosis. Complicated cases should be managed with timely surgical intervention. Histopathological examination of resected specimens should be done to rule out any malignancy.

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Address for Correspondence:

Umar Maqbool, House No. 767, Street No. 1, New Garden Town, Jhang Road, Toba Tek Singh-Pakistan
Cell: +92 302 541 9295
Email: umarmaqbool597@gmail.com