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Case Report

Surgical correction of mid gut volvulus presenting as acute intestinal obstruction and multiple jejunal diverticula with sealed off perforation- a case report

Raju Badipati[1]*, Kushal Gunturu[2], Samali Maity[3], Muralidharsai Maddasani[3], Farha N. Khatoon[4], Lakshmi D. Kasinikota[1], Geetha V. Panchakarla[5], Siyonu K. Sardena[2], Mounika Valluri[2]

[1]Department of Laparoscopic and Bariatric Surgery, Ramesh Hospitals, Guntur, Andhra Pradesh, India
[2]Department of Pharmacy Practice, Vignan Pharmacy College, Vadlamudi, Guntur, Andhra Pradesh, India
[3]Department of Cardio Thoracic Vascular Surgery, Ramesh Hospitals, Guntur, Andhra Pradesh, India
[4]Department of Radiology, Ramesh Hospitals, Guntur, Andhra Pradesh, India
[5]Department of Pathology, Ramesh Hospitals, Guntur, Andhra Pradesh, India

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***Correspondence:**
Dr. Raju Badipati,
E-mail: drrajukkd@gmail.com

ABSTRACT

Multiple diverticulosis of the jejunum is an uncommon pathology of the small bowel. The incidence of diverticulum of small intestine varies from 0.3 to 1.2%, out of which duodenal diverticula are common that jejunal. This rare jejunal diverticula is usually asymptomatic in course, which made it more difficult in establishing this diagnosis. This may rarely lead to complications such as perforation, haemorrhage, obstruction which may be due to adhesions, volvulus, and intussusception. We herein report a case of a 72-year-old female patient with no comorbidities presented to ER with complaints of abdominal distention, lower abdominal pain, vomiting for 3 days. Pre-op evaluation revealed midgut volvulus with intestinal obstruction. Explorative Laparotomy revealed multiple diverticula in jejunum. Midgut volvulus was operated by resection and anastomosis of small bowel.

Keywords: Multiple diverticula, Midgut volvulus, Intestinal obstruction, Malrotation

INTRODUCTION

The incidence of jejunal diverticulosis is illusive, ranging from 0.3% to 1.2% intra-operatively and 2.3% in post-mortem investigations. It could be inherited or acquired. It primarily affects patients in their sixth decade of life. Its incidence increases with age. Duodenal diverticulum is the most prevalent small bowel diverticulum, followed by jejunum and ileum.[1,2]

This condition is frequently asymptomatic, which poses a substantial obstacle in establishing its diagnosis, despite the use of several assessment modalities, such as Barium small bowel series, enteroclysis, and CT scans.[3,4]

However, it may produce persistent non-specific symptoms such as dyspepsia, chronic stomach pain, weight loss, malabsorption anaemia, and rarely consequences such as obstruction, bleeding, and perforation. Enterolith adhesions, intussusception, and volvulus are all potential causes of obstruction.[5]

In symptomatic instances, surgery is the primary treatment; however, it is debatable in asymptomatic cases.[6,7]

CASE REPORT

A 72-year-old female presented to the emergency unit with complaints of lower abdomen pain, abdominal distention, repeated episodes of vomiting over the course of three days, and intermittent fever over the course of five days. The patient has no other co-morbidities and is not currently taking any other medications.

There was no familial significance to her disease. Normal appetite and regular bowel movements were observed. Vital signs were stable and normal. Examination indicated central abdominal distention, a tense abdomen, soreness in the right and left iliac fossa, guarding around the umbilicus, and the absence of a local rise in temperature, a palpable mass, and amplified bowel sounds. Examining the rectum revealed that it was empty and dilated.

Blood tests revealed leucocytosis (17,000 /mm^3) and elevated levels of SGOT (58 U/l), ALP (220 U/l), and APTT (43.13 sec). Hyponatremia (131 mmol/l) and reduced levels of PRO-BNP II (122.6 pg/ml) were also present.

A plain abdomen CT erect was requested, which revealed various levels of air fluid in the jejunal area. CT abdomen (plain and contrast) revealed notably dilated jejunal loops with air fluid levels, minor swirling of mesenteric arteries, and dilated small bowel loops. There was a probability of midgut volvulus, fatty hepatomegaly, and a significant ileo-renal portosystemic collateral. The patient had a Ryle's tube and began receiving intravenous fluids (Figures 1 to 4).

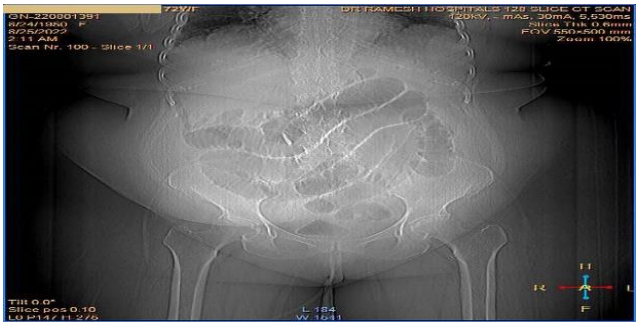

Figure 1: Erect CT showing air fluid levels.

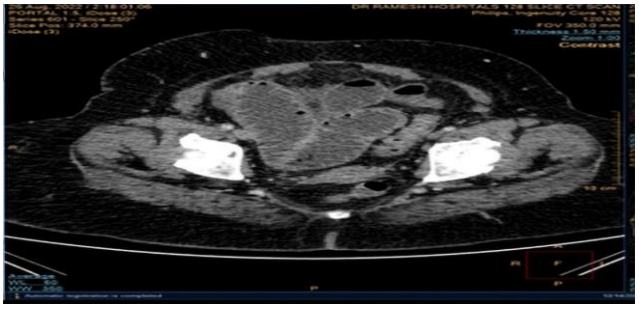

Figure 2: Jejunal loops with small bowel faeces sign.

Figure 3: Multiple dilated jejunal loops having maximum transverse obstruction with air fluid levels.

Figure 4: Jejunal loop diverticulum showing jejunal loop curling around superior mesenteric artery and superior mesenteric vein.

Under general anaesthesia, an emergency laparotomy was performed on the patient. Multiple dense omental adhesions are seen surrounding the dilated small intestine, causing mild rotation of the small bowel. Multiple small to large diverticula are adherent to one another on the loops of jejunal diverticula, with a sealed perforation in one diverticulum and necrosis across the small bowel wall. Adhesiolysis was performed, 32 cm of jejunum was excised, and end-to-end anastomosis was performed to the ileum (jejunoileal anastomosis) (Figure 5). After surgical peritoneal washing, the abdomen was closed in layers over a pelvic drain.

Figure 5: Intra-operative visualisation of diverticula.

Pathology characteristics suggest genuine diverticula, with minor perforation and serosal suppurative inflammation. Omentum has suppurative inflammatory foci (Figures 6 and 7).

Figure 6: Dissected jejunum showing multiple diverticula (diverticula are marked in red circles).

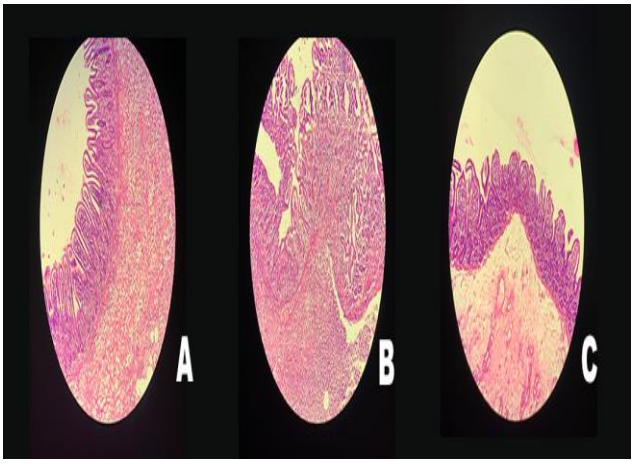

Figure 7 (A-C): Pathological slides showing various regions of the dissected jejunum (Gangrenous portion; perforated region and normal region).

After 8 days, the pelvic drainage was removed. The patient was discharged on the tenth post-operative day in satisfactory condition. After 3 months of continued monitoring, the patient remained symptom-free.

DISCUSSION

Small intestinal diverticula are more prevalent in the duodenum, followed by the jejunum, and then the ileum due to the larger size of the vasa recta. The reason for this condition is unknown. It is thought to be caused by intestinal dyskinesis (defined by motor failure of smooth muscle) and excessive intraluminal segmental pressure. The ensuing diverticula appear at the mesentery's border (i.e., sites where mesenteric vessels penetrate the small bowel).[8]

Diets low in fibre and rich in fat, increasing age, systemic sclerosis, visceral myopathy, visceral neuropathy, and connective tissue disorders such as Ehlers–Danlos syndrome and systemic sclerosis are risk factors.[9,10]

The majority of people with jejunal diverticulum are asymptomatic, and it is frequently an accidental discovery with chronic symptoms that are misinterpreted as IBS and Dyspepsia. The most common symptom is non-specific postprandial epigastric discomfort.[11,12]

Usually, patients present with the symptoms of complications, such as:[13] Intestinal obstruction, colicky abdominal pain, constipation, vomitings, obstruction may be due to volvulus, enterolith, adhesive band formation, perforation, fever, abdominal pain with or without signs of peritonitis, haemorrhage, melena, haematochezia, leading to iron deficiency anaemia, diverticulitis: Inflammation of the diverticulum, presents with fever and localised tenderness diverticular pain, abdominal pain in the absence of other complications, malabsorption, weight loss, anaemia and diarrhoea, flatulence

Jejunal diverticulosis can be radiographically detected by CT Abdomen (IV Contrast), which reveals pouching of the mesenteric bowel border in uncomplicated instances and intestinal wall thickening in cases with diverticulitis (complicated cases of diverticulosis). A double contrast barium meal with enteroclysis is also beneficial for diagnosis, but is contraindicated in cases of acute diverticulitis or perforation.[14]

Small intestinal disease appears to be more diagnosable with multi-slice CT than with enteroclysis. In cases of intestinal obstruction, an abdominal x-ray can reveal dilated small bowel loops and air-fluid levels, whereas pneumoperitoneum is revealed by air pressure under the diaphragm in cases of perforation.[15]

In cases of bleeding, Tc ^{99}RBC and mesenteric angiography are particular diagnostic and therapeutic methods. Wireless capsule endoscopy, a novel and promising technology, may be used to diagnose diverticulosis and associated consequences, such as bleeding, but is contraindicated in cases of acute diverticulitis perforation and intestinal obstruction.[15]

Recently, double balloon enteroscopy has shown effective for diagnostic and therapeutic purposes in cases of jejunoileal diverticulosis including intestinal haemorrhage.[15]

Lastly, the diagnosis of jejunoileal diverticulosis should be verified by histopathology.

Asymptomatic diverticula are often treated with a conservative approach. The majority of acute complications of jejunoileal diverticulum necessitate surgical treatment. The ideal method for treating

jejunoileal diverticulum and related consequences is intestinal resection and end-to-end anastomosis.[6]

CONCLUSION

In cases of midgut volvulus, jejunal diverticulosis is usually difficult to diagnose and a delay in diagnosis may lead to an increase in mortality.

Jejunal diverticulum is an uncommon disorder that manifests as intestinal obstruction with midgut volvulus; in terms of treatment, always include all large diverticula in the resected specimen and perform end-to-end anastomosis.

Small diverticula can be left untreated because the risk of complications is quite minimal.

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REFERENCES

1. Mohi RS Ms, Moudgil A Ms, Bhatia SK Ms, Seth K Ms, Kaur T Ms. Complicated Jejunal Diverticulosis: Small Bowel Volvulus with Obstruction. Iran J Med Sci. 2016;41(6):548-51.
2. Chugay P, Choi J, Dong XD. Jejunal diverticular disease complicated by enteroliths: Report of two different presentations. World J Gastrointest Surg. 2010;2(1):26-9.
3. Ilangovan R, Burling D, George A, Gupta A, Marshall M, Taylor SA. CT enterography: review of technique and practical tips. Br J Radiol. 2012;85(1015):876-86.
4. Kołodziej M, Annabhani A, Sąsiadek M. CT enteroclysis in the diagnostics of small bowel diseases. Pol J Radiol. 2010;75(2):66-72.
5. Kaya M, Sakarya MH. A rare cause of chronic abdominal pain, weight loss and anemia: abdominal actinomycosis. Turk J Gastroenterol. 2007;18(4):254-7.
6. Chung D. Jejunal diverticulosis - A case series and literature review. Ann Med Surg (Lond). 2022;75:103477.
7. Näslund O, Skoglund T, Farahmand D, Bontell TO, Jakola AS. Indications and outcome in surgically treated asymptomatic meningiomas: a single-center case-control study. Acta Neurochir (Wien). 2020;162(9):2155-63.
8. Mantas D, Kykalos S, Patsouras D, Kouraklis G. Small intestine diverticula: Is there anything new? World J Gastrointest Surg. 2011;3(4):49-53.
9. Nightingale JMD, Paine P, McLaughlin J, Emmanuel A, Martin JE, Lal S. Small Bowel and Nutrition Committee and the Neurogastroenterology and Motility Committee of the British Society of Gastroenterology. The management of adult patients with severe chronic small intestinal dysmotility. Gut. 2020;69(12):2074-92.
10. Castori M. Ehlers-danlos syndrome, hypermobility type: an underdiagnosed hereditary connective tissue disorder with mucocutaneous, articular, and systemic manifestations. ISRN Dermatol. 2012;2012:751-68.
11. Noddin L, Callahan M, Lacy BE. Irritable bowel syndrome and functional dyspepsia: different diseases or a single disorder with different manifestations? Med Gen Med. 2005;7(3):17.
12. Khsiba A, Bradai S, Mahmoudi M, Mohamed AB, Bradai J, Bouzaidi K et al. Jejunal diverticulitis as a rare cause of abdominal pain: a case report. Pan Afr Med J. 202241:222.
13. Diseases of the Alimentary Tract: Nonruminant. Veterinary Med. 2017;175-435.
14. Destigter KK, Keating DP. Imaging update: acute colonic diverticulitis. Clin Colon Rectal Surg. 2009;22(3):147-55.
15. Falidas E, Vlachos K, Mathioulakis S, Archontovasilis F, Villias, C. Multiple giant diverticula of the jejunum causing intestinal obstruction: report of a case and review of the literature. World J Emerg Surg. 2011;6:8.

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