Case Report

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Perforated isolated jejunal diverticulum: a rare cause of acute abdomen

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ABSTRACT

A 45-year-old female presented with pain in peri-umbilical region for past one day along with history of non-bilious vomiting and non passage of stool and flatus for past one day. On physical examination, patient was afebrile, mild dehydration was present, tachycardia of 102 beats per minute with normal blood pressure. On clinical examination, the abdomen was diffusely tender with rebound tenderness. Bowel sounds were absent. Laboratory investigations revealed leucocytosis. An erect plain chest X-ray was done, didn't reveal any gas under the diaphragm. Contrast enhanced computed tomography abdomen was done which showed a hollow viscus perforation with intra-abdominal free air and pelvic free fluid. Patient was resuscitated with IV fluid, broad-spectrum antibiotics were started and immediately taken up for exploratory laparotomy. Three jejunal diverticula identified at mesenteric border, with pinhead perforation in one of the diverticula. Small bowel resection including the three diverticula and primary end-to-end anastomosis was performed. Post-operative period was uneventful. Patient discharged on satisfactory conditions. This case stresses the importance to consider this entity in cases of unexplained gastrointestinal symptoms because any treatment delay may lead to unsuccessful clinical outcome.

Keywords: Jejunal, Diverticulum, Perforation

INTRODUCTION

Diverticular disease of the jejunum is a rare entity amongst all diverticula occurring from stomach to rectosigmoid. More commonly seen in males as compared to females, 58% compared to 42% in a reported series. They are most commonly located on the mesenteric border of the jejunum and depicted in 2% of the small bowel enteroclysis and 5% in post-mortem studies.^{2,3} They usually co-exist with diverticula of colon but isolated jejunal diverticula are rare. Jejunal diverticula develops as a result of out-pouching of mucosa and submucosa through the weakest part of the muscularis mucosa of the intestinal wall. Majority of jejunal diverticula are asymptomatic however, they can present with non-specific complaints ranging from diarrhoea, mal-absorption, postprandial flatulence to complications like intestinal obstruction, perforation, haemorrhage or diverticulitis etc.

CASE REPORT

A 45-year-old female presented to surgery emergency with complaint of pain in peri-umbilical region for past one day along with history of non-bilious vomiting and non passage of stool and flatus for past one day.

On physical examination, patient was afebrile, mild dehydration was present, tachycardia of 102 beats per minute with normal blood pressure. On clinical examination, the abdomen was diffusely tender along with rebound tenderness. Rigidity was present. Bowel sounds were absent.

Laboratory investigations revealed leucocytosis. Rest of the haematological, biochemical and coagulation profile were within normal limit. An erect plain chest x-ray and abdominal X-ray was done and didn't reveal any gas under the diaphragm. contrast enhanced computed tomography abdomen was done which showed a hollow viscus perforation with intra-abdominal free air and pelvic free fluid.



Figure 1: Three jejunal diverticula with perforation.



Figure 2: Histopathology evaluation of diverticula.

Patient was resuscitated with fluids and broad-spectrum antibiotics were started and immediately taken up for exploratory laparotomy. Intra-operatively 300 ml of pyoperitoneum present. Three jejunal diverticula identified at mesenteric border around 20 cm, 40 cm and 55 cm distal to ligament of Treitz along with pin-head perforation in diverticula located at 40 cm distal to ligament of Treitz (Figure 1). Rest of the small and large bowel was normal. Copious peritoneal lavage was given. Patient underwent small bowel resection including the three diverticula and primary end-to-end anastomosis was performed. Post-operative period was uneventful. On post-operative day 5 oral feeds were started with fluid nutrients. On day 7 she was discharge from the hospital

after removal of abdominal drain. Histopathology of the resected specimen confirmed the presence of jejunal diverticula (Figure 2).

DISCUSSION

Jejunal diverticula are uncommon, acquired lesions which are usually asymptomatic. They are first described by Sommering and Baillie in 1794 and later by Sir Astley Cooper.⁴ The overall incidence is less than 1%. The prevalence increases with age and the disease presents most commonly at sixth and seventh decade with male predominance.⁵ Jejunal diverticula affect proximal jejunum in 75%, distal jejunum in 20% and the distal ileum in 5% of cases. 6 Co-existing diverticula may be present in colon (30-75%), duodenum (15-42%), stomach (2%) and oesophagus (2%). The exact patho-physiology behind the formation of jejunal diverticula is not clearly understood however, they are thought to arise from the motor dysfunction of the gastrointestinal smooth muscle or myenteric plexus which results in increased intraluminal pressure causing herniation of mucosal and submucosal layers through weakened areas of the bowel.

The majority of jejunal diverticula are asymptomatic therefore difficult to identify in general population. They are usually found incidentally on small bowel follow-through studies, CT enteroclysis, during surgery and autopsy. Patients mostly present with non-specific complaints like diarrhoea, abdominal discomfort, bloating, mal-absorption and steatorrhea due to bacterial overgrowth seen in 10-30% cases. Only 15% of cases develop acute complications like intestinal obstruction, haemorrhage, diverticulitis and as seen in our case study, perforation. §

Clinical diagnosis of jejunal diverticula perforation is difficult as the symptoms mimic other causes of acute abdomen like appendicitis, perforated peptic ulcer, sigmoid diverticulitis and ischemic bowel disease. The literature has shown computed tomography scan has a variable reliability, while barium swallow is gold standard in making diagnosis. Computed tomography scan may identify localised collection, intestinal wall thickening due to oedema and inflammation, free fluid in abdomen and free intra-abdominal air.

Complications of jejunal diverticula require urgent surgical intervention. Though non-operative management of a perforated jejunal diverticulum with bowel rest, IV fluids and broad spectrum antibiotics with or without CT guided drainage can be performed in stable patients with localised abdominal signs and symptoms. Surgical exploration, thorough abdominal lavage and segmental resection and primary anastomosis is the mainstay of treatment. 12,13

Alternative surgical modalities include primary closure, diverticulectomy and invagination are associated with high morbidity and mortality and should be avoided. If the diverticula are extensive, resection may have to be limited to avoid short gut syndrome and malabsorption. 8,14,15

CONCLUSION

It is seen that complicated jejunal diverticula are rare and perforation (incidence 2.3-6.4%) being the most common amongst all complications. The mainstay of treatment is segmental resection and anastomosis. It is important to consider this entity in cases of unexplained gastrointestinal symptoms because any treatment delay may lead to unsuccessful clinical outcome.

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