



# ORIGINAL RESEARCH PAPER

## Surgery

### MULTIPLE JEJUNAL DIVERTICULOSIS PRESENTING AS INTESTINAL OBSTRUCTION: A CASE REPORT AND REVIEW OF LITERATURE

**KEY WORDS:** Diverticulosis, small intestinal obstruction

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#### ABSTRACT

Jejunal diverticulosis is a rare entity. It is usually asymptomatic and diagnosed incidentally at laparotomy or upper GI series. The clinical presentations of acquired jejunoileal diverticulosis are vague and diverse. Jejunal diverticulosis is a challenging disorder from a diagnostic perspective, with no truly reliable diagnostic tests. Epigastric cramping pain, bloating or abdominal fullness is usually encountered. Anemia due to iron deficiency and megaloblastic anemia have often been reported and commonly attributed to malabsorption, steatorrhea, and vitamin deficit. Here we present a case of multiple proximal jejunal diverticulosis presenting with acute intestinal obstruction due to multiple omental band adhesions arising from the base of one such diverticulum.

#### INTRODUCTION

Jejunal diverticulosis is a rare entity accounting for 0.5-2.3% of all small bowel contrast studies, 0.3-4.5% of autopsies, and 2.3% of enteroclysis. It is diagnosed incidentally at laparotomy and it is usually asymptomatic. Patients present with non-specific symptoms of chronic abdominal pain, distension, nausea, vomiting, diarrhea and malabsorption [1].

The prevalence of small intestinal diverticula on autopsy ranges from 0.06% to 1.3% [2]. Jejunal and jejuno-ileal localization is nearly three times less frequent than the duodenal, but of about four times likely to develop complications. Rarity of mild or chronic presentations explains the absence of clear consensus on therapeutic strategy and conservative management. The majority of jejunal diverticulosis cases are asymptomatic and discovered incidentally during radiological investigations [3]. The clinical presentations of acquired jejunoileal diverticulosis are vague and diverse. As a result, identification of the disorder can be quite difficult [2].

We report a case of multiple diverticulosis in proximal part of jejunum presenting as intestinal obstruction due to formation of multiple bands and adhesions.

#### CASE REPORT

A 40 year old male presented to the ER with chief complaints of diffuse pain in lower abdomen with multiple episodes of bilious non projectile vomiting for 4 days and recent onset obstipation.

On examination there was minimal abdominal distension with diffuse lower abdominal tenderness without guarding or signs of peritonitis. The bowel sounds were sluggish and the digital rectal examination was within normal limits.

The X-ray abdomen revealed multiple dilated jejunal loops with significant air fluid levels suggestive of intestinal obstruction. A CECT revealed a closed loop obstruction of jejunum with twisted mesentery. The bowel wall at the point of narrowing was thickened with adjoining lymph nodes.

The patient was subjected to midline laparotomy and the intraoperative findings revealed multiple wide mouthed diverticulae (Fig.1) in the proximal part of jejunum with a closed loop jejunal obstruction about 10 cm from DJ flexure due to multiple dense omental bands (Fig.2) arising from the base of a

diverticulum at the root of mesentery. Adhesiolysis was done, the bands were cut (Fig.3), the vitality of the obstructed segment of bowel was ensured, serosal repairs done, haemostasis attained and the diverticulae were left untouched (Fig.4). The abdomen was closed with a drain. The post operative recovery was uneventful.

The patient was followed up 30 days and 6 months after the procedure and was found to have no complaints.

#### DISCUSSION

Jejunoileal diverticulae (excluding Meckel's diverticulum) are pseudodiverticulae, resulting from herniation of mucosal and submucosal layers of the bowel through the muscularis layer of the bowel in places of minor resistance to the intraluminal pressure such as the anatomic points where blood vessels penetrate the intestinal wall [4]. This explains their typical location on the mesenteric side [5,6,7]. These diverticulae are mostly multiple with the number decreasing as we travel from the proximal to distal aspect of small intestine. They are more frequently located in the jejunum and in the terminal ileum and this is attributed to the larger size of the vasa recta at these areas [8]. Eighty percent of diverticulae occur in the jejunum, fifteen percent in the ileum and five percent in both [9]. Isolated jejunal diverticulosis coexists with diverticula of the duodenum (26%), of the colon (35%) and the esophagus (2%) [10]. The disease presents with a peak incidence in the sixth and seventh decades and the prevalence increases with the age with a male predominance [11]. The size of small bowel diverticula varies. Diverticula may measure from few millimeters up to more than 3 cm. Peristaltic abnormalities, intestinal dyskinesias and high segmental intraluminal pressures are believed to result in such pathology though the exact etiology is still unclear [12]. Jejunal diverticulosis is a challenging disorder from a diagnostic perspective, with no truly reliable diagnostic tests [8]. Vague and chronic, mainly post prandial, epigastric cramping pain, bloating or abdominal fullness is usually encountered. Anemias due to iron deficiency and megaloblastic anemia have often been reported and commonly attributed to malabsorption, steatorrhea, and vitamin deficit [13, 14]. The non synchronous peristaltic movement of the bowel, the stasis of the intestinal content, the dilation of the diverticula and the bacterial overgrowth in the dilated diverticulae are thought to be responsible for malabsorption [9, 15, 16, 17].

Abdominal or chest radiographs may demonstrate evidence of

perforation, such as free air under the diaphragm or free peritoneal air, evidence of intestinal obstruction, or evidence of ileus, including multiple air-fluid levels and bowel dilatation. CT may identify thickening or inflammation of the jejunum or localized abscess formation [8]. Multi-slice CT is very useful to make the diagnosis of jejunal diverticulosis and is clearly superior to conventional imaging studies like enteroclysis for small intestine diseases [18].

In cases of bleeding, a diagnostic and therapeutic approach with Tc<sup>99</sup> RBC and mesenteric angiography seems to be specific [19]. Upper GI endoscopy can identify diverticula to the second portion of the duodenum while double-balloon enteroscopy appears to be helpful in diagnosing small bowel disorders; however, emergency conditions such as obstruction or diverticulitis are significant limitations [20]. Capsule enteroscopy is a new hopeful technique for the detection of small bowel diseases, predominantly used in cases of occult intestinal bleeding [21]. Diagnostic laparoscopy becomes a valid approach for complicated cases, it is rapidly convertible to laparotomy and it can function as a guide in order to avoid unnecessary laparotomies [22].

The complications of jejunoileal diverticulosis are chronic abdominal pain, malabsorption, hemorrhage, diverticulitis, obstruction, and perforation, and occur in 10%-30% of the patients [15]. Complications requiring surgical intervention occur in 8%-30% of the patients [2].

Exploratory laparotomy and resection of affected intestinal segment with primary anastomosis is warranted in case of perforation, abscesses and obstruction. The extent of the segmental resection depends on the length of the bowel affected by diverticula. If diverticula involves a long intestinal segment, as commonly happens, the resection should be limited to the perforated or inflamed intestinal segment in order to avoid a short bowel syndrome [23, 24]. The diverticula may recur in a patient who has undergone a segmental intestinal resection for diverticulosis since the mechanism of diverticula formation (neuropathy, myopathy etc.) still remains [25, 26]. Optimal treatment of these lesions requires an understanding of their anatomy and the disease process they produced.

Jejunal diverticulosis in the elderly can lead to significant morbidity and mortality and so it should be suspected in those presenting with crampy abdominal pain and altered bowel habits [27].

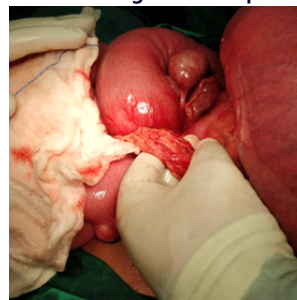
## CONCLUSION:

Jejunal diverticulosis is more common than reported, affects usually older patients and must be considered in the differential diagnosis in patients with acute or chronic abdominal symptoms. A high degree of suspicion is necessary in view of the high mortality and morbidity rates resulting from a delayed diagnosis of the disease. The treatment of choice is surgical excision of the affected jejunal segment but the wide mouthed diverticulae can be left alone if the risk of short gut syndrome due to extensive resection is substantially high,

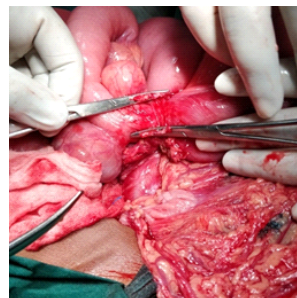
**Fig. 1- jejunum with multiple diverticulosis**



**Fig. 2 omental band causing closed loop obstruction**



**Fig. 3 adhesiolysis**



**Fig.4 serosal repairs**



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