Abstract: Introduction Jejunal diverticuli are rare and usually asymptomatic. Most commonly they are found incidentally on Computed Tomography (CT) Abdomen, during enteroclysis, intraoperatively or at autopsy. Surgical intervention is mandatory for its complications such as bleeding, perforation, obstruction, malabsorption, diverticulitis, blind loop syndrome, volvulus and intussusceptions. Case report Here we report a case of a 49 yr old male who presented with symptoms of recurrent intestinal obstruction which did not improve with conservative management. Investigations revealed a mid-jejunal stricture with diverticulum. Diagnosis was confirmed by laparoscopy. Resection of the segment of jejunum including stricture and diverticulum cured the patient. Conclusion Jejunal diverticulosis is a rare disease with its complications being very rare. It should be considered as a differential diagnosis in the causes for intestinal obstruction. Though various investigatory methods are available, enteroclysis and CT Scan are time tested in the diagnosis of Jejunal Diverticulum. Laparoscopy has definitive diagnostic as well as therapeutic role based on the feasibility. Timely surgical intervention is mandatory for complicated Jejunal Diverticulum.

Keyword: Jejunal diverticulum, Laparoscopy, Resection anastomosis

INTRODUCTION
Diverticulosis of Jejunum is a very rare disease with <0.5% incidence and prevalent affection of males. Jejunal diverticulae are pseudo-diverticulae as they contain only the mucosa and submucosa. They are of pulsion variety arising due to increased intraluminal pressure and weakening of bowel wall. Mostly they are asymptomatic or present with non specific symptoms like vague abdominal pain. Few cases may present with complications. Hence its clinical awareness is important to track down the cause of various vague presentations such as Malabsorption, Intestinal Obstruction, Irritable Bowel Syndrome, Intestinal Bleeding, Perforation & Blind loop Syndrome and prompt surgical treatment be administered in acute complications.

We report a case of mid-jejunal diverticulum with stricture in a patient who presented with recurrent intestinal obstruction.

CASE REPORT
A 49 yr old Male presented with post prandial intermittent colicky epigastric pain and upper abdominal distension which relieved on bilious vomiting. No history of fever, melena & obstipation. Past history of Sub acute intestinal obstruction with melena 1 yr back which resolved on conservative management. No history of any comorbid medical illness or past surgical history. On general examination the patient was conscious, oriented, afebrile. There was mild pallor, no icterus, clubbing, cyanosis, or significant superficial generalised lymphadenopathy. Vital examination revealed PR – 93/min, BP – 100/70 mmHg with RR-18/min. The abdominal examination revealed distension of the upper part of abdomen with no visible gastric or intestinal peristalsis. There was diffuse tenderness in epigastric region with no organomegaly or palpable mass. Per rectal digital examination was normal.

Figure 1A: CECT Abdomen showing Long segment proximal Jejunal bowel thickening in the epigastric to umbilical region with adjacent mesenteric fat stranding & focal narrowing

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Basic investigations, CXR, X-ray Abdomen Erect, Tumor markers, Cardiac evaluation and Upper Gastrointestinal Endoscopy were within normal limits. Enteroscopy showed a mid-jejunal stricture. Biopsy from the stricture site was non-specific. CECT Abdomen showed long segment proximal jejunal bowel thickening in the epigastric to umbilical region with adjacent mesenteric fat stranding & focal narrowing - features suggestive of inflammatory lesion.

**DISCUSSION –**

Jejunal diverticulae, a kind of Non-Meckelian diverticulae, are commonly seen as acquired one. Unfortunately, there is still some uncertainty in naming the person who first described Jejunal Diverticulosis. Although the diverticulosis of the small bowel seems to be first reported by Sommering and Baillie in 1794, most refer to the book of Sir A. Cooper "The anatomy and surgical treatment of crural and umbilical hernia" published first in 1807. In 1881 W. Osler published the first clinical case of Jejunal Diverticulum, and In 1920, it was J. T. Case who first described the jejunal diverticulum in the radiological examination.[1]

The least common type among the small bowel diverticulae is the jejunal diverticulum. There is a difference concerning the incidence and discrepancies in the data of different authors in dependence of the method of radiological examination with the incidence of the disease ranging from 0.5% [2] to 2.3% [3]. Jejunoileal diverticuli are commonly observed in patients aged 60-70 years [4] with a slight male preponderance [5]. It is characterized by herniation of mucosa and submucosa through the muscular layer at the point where blood vessels penetrate the intestinal wall which is characteristic of false diverticula. The exact etiology is uncertain, it is believed to develop as the result of abnormalities in peristalsis, intestinal dyskinesis, and high segmental intraluminal pressure [6]. Current hypothesis states on abnormalities in the smooth muscles or myenteric plexus [7,8]. Microscopic examination of jejunal specimens with diverticula has shown three types of abnormalities[9]: 1: Fibrosis and decreased numbers of normal muscle cells, consistent with progressive systemic sclerosis; 2: Fibrosis and degenerated smooth muscle cells, suggestive of a visceral myopathy and 3: Neuronal and axonal degeneration indicative of visceral neuropathy. Any of these abnormalities could lead to distorted smooth muscle contractions of the affected small bowel generating increased intraluminal pressure.
Consequently, mucosa and submucosa would pass through the weakest mesenteric site in the bowel wall with penetration induced by paired blood vessels from the mesentery.

Jejunal diverticuli are usually asymptomatic (80%) and are found incidentally during other surgeries or at the time of autopsy [3,10]. If symptomatic, they present with vague and chronic abdominal pain of varying severity, localized in the epigastric or periumbilical region, with a bloating sensation after food intake which is the frequent and earliest symptom [8,11]. Complications requiring surgical intervention occur in 8% - 30% of patients [9]. Common acute complications include diverticulitis, hemorrhage, perforation and intestinal obstruction[10]. Mechanical intestinal obstruction occurs in 2.3-4.6% of cases and may arise from enterolith formation, intussusception or volvulus [7,11]. Chronic complications include abdominal pain, dyskinesia, chronic haemorrhage and malabsorption [10].

Lobo et al., reported that dynamic intestinal obstruction is the most frequent complication of jejunal diverticulosis necessitating surgery and may be due to enteroliths, adhesions secondary to diverticulitis, volvulus, or intussusception[12].

The investigatory work up in symptomatic patients includes plain abdominal X-ray that would show distended jejunal loops and gas-fluid levels in the diverticulum. Small bowel Barium enema study reveals the diverticulum as a contrast-filled outpouching located on the mesenteric border of the jejunal with a junction-fold pattern. The enteroclysis and enteroscopy are the best imaging modalities of choice [4], however, their utility in emergency situations is limited. Computed tomography is indicated in case of complications.

Asymptomatic diverticulum that are found incidentally on routine contrast studies or at laparotomy do not need resection [13,14]. However, some authors have suggested surgical treatment for the incidental large diverticulum with dilated hypertrophied bowel loops that represent a progressive form of the disease [15]. Treatment of acute complications of jejunal diverticulosis is mostly operative and nonspecific. Due to higher complication rate associated with jejunal diverticulosis, less conservative approach to its management may justify. Diagnostic laparoscopy is very useful in evaluating patients with a complicated course. It ensures an accurate diagnosis and avoids the risk of unnecessary laparotomy if not indicated [8]. Conclusive diagnosis in our patient was made by diagnostic laparoscopy followed by laparotomy, resulting in prompt and appropriate surgical treatment.

The recommended treatment for jejunal diverticulosis, often performed emergently, is segmental intestinal resection and anastomosis even in case of perforation or peridiverticular stenosis, in order to avoid further complications [5,14]. A simple diverticulectomy by wedge excision is most commonly used for symptomatic or bleeding diverticulum. The diverticulum is simply excised, and the bowel is closed longitudinally or transversely, ensuring minimal luminal stenosis. Obstruction due to an enterolith is managed either conservatively by performing the manual breakage of all intradiverticular blocking stones and pushing their fragments to the colon or through an enterotomy which is made in a less edematous segment of proximal small bowel [11,16]. The outcome is influenced by patient’s age, nature of complications, and time of intervention.

**Conclusion :** Jejunal diverticulosis is an uncommon disease and usually asymptomatic. Manifestation as complications like intestinal obstruction is very rare. It should be considered as a differential diagnosis in the causes for intestinal obstruction. Though various diagnostic investigatory methods are available, enteroclysis and CT Scan are time tested. Laparoscopy has definitive diagnostic as well as therapeutic role based on the feasibility. Timely surgical intervention is mandatory for complicated Jejunal Diverticulum.

**REFERENCES**