The Review Of
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Jejunal Diverticula

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ABSTRACT

Jejunal diverticula are uncommon outpouchings of the small intestine. It is usually asymptomatic and discovered accidently during surgery or imaging investigations. However, in fewer cases, some symptoms were reported. Symptomatic and complicated patients need long-term follow-up to discover recurrence and evaluate treatment efficacy. This is a case of a 72 years old female patient presented to the emergency department (ED) with generalized abdominal pain started 3 days ago, cramping, not radiating, aggrevated by eating food and not relieved by any mean, and associated with non-projectile vomiting. Comuterized tomography (CT) of the abdomen and pelvis with intravenous and oral contrast showed findings suggest a combination of inflammatory and degenerative changes affecting multiple organ systems. Patient went for emergency laparotomy and findings revealed ischaemic segment around in distal jejunum with 2 diverticule in jejunum.

INTRODUCTION

Jejunal diverticula are uncommon outpouchings of the small intestine affecting between 0.06% and 1.3% of people [1]. It could exist in two different types; true or false where true diverticula involve all walls of small intestine layers while false diverticula involve only the small intestine mucosa and submucosa [2]. Its exact etiology is unknown; however, certain factors are suggested for its occurrence such as motility disorders, raised intraluminal pressure, and intestinal wall weakness [3].

Its clinical presentation differs widely; being asymptomatic in most cases and discovered accidently during surgery or imaging investigations [4]. However, in fewer cases, some symptoms were reported include diarrhea, chronic abdominal pain, malabsorption and bloating. Furthermore, it may present as complicated severe cases with intestinal perforation, hemorrhage, diverticulitis, or intestinal obstruction [5].

For accurate diagnosis of jejunal diverticula, imaging modalities such as computed tomography (CT) scans with oral and intravenous contrast or barium studies should be made, to ensure the existence of the diverticula with their specific characteristics [6].

Treatment of Jejunal diverticula ranges from conservative therapy with modifications of diet and medical treatment with antibiotics for asymptomatic cases to surgical management for symptomatic/complicated cases [7].

Usually, asymptomatic jejunal diverticula patients possess favorable prognosis. However, symptomatic and complicated patients need long-term follow-up to discover recurrence and evaluate treatment efficacy. [8].

CASE DESCRIPTION

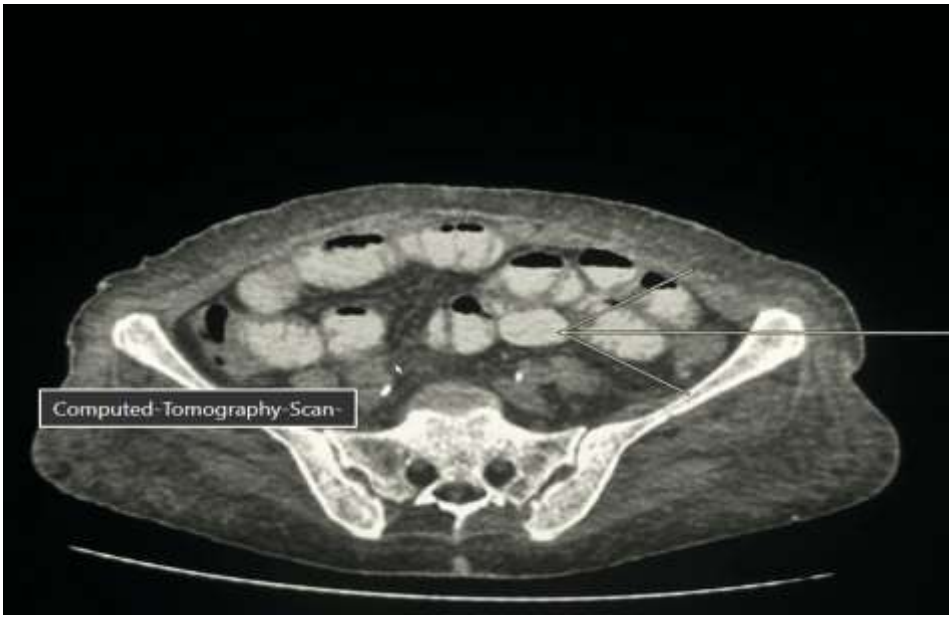
his was a 72 year old female patient with medical history of diabetes mellitus, hypertension and hypothyroidism presented to the emergency department (ED) with generalized abdominal pain started 3 days ago, cramping, not radiating, aggravated by eating food and not relieved by any mean, and associated with non-projectile vomiting, constipation lasting 4 days without blood or mucus in stools (her usual habit was 2 days).. No history of diarrhea. There was decrease in oral intake with history of subjective fever, weight loss and fatiguability. No history of night sweating was reported. No known history of allergy. With time, there was a decrease in the level of consciousness and oral intake. Regarding past surgical history, she had appendectomy, cholecystectomy and cesarean section. Concerning medications history, she was on levothyroxine 50 Mcg once daily, vitamin D 50 K weekly, perindopril 5 mg once daily, vitamin B12 injection weekly and metformin 500 mg once daily.

On examination, the patient was conscious well oriented. Blood pressure was 94/71 mmHg, oxygen saturation was 98%, heart rate was 114 beats/minute. Random blood sugar was 234 mg/dL Abdomen was soft and lax with mild suprapubic tenderness. Per-rectum examination revealed soft stool. Nasogastric tube was inserted and showed minimal output. Laboratory testing showed white blood count of 59 X10^3/uL, hemoglobin was 11 g/dL, creatinine was 181 umol/L, calcium was 2.66 mmol/L, phosphorus was1.48 mmol/L, total bilirubin was 31 umol/L, direct bilirubin was 8 umol/L, glycated hemoglobin (HbA1c) was 6.34%. Blood gases showed a PH of 7.23, bicarbonate of 10 mmol/L, carbon dioxide of 16 mmHg and lactate of 3.7 mmol/L.

Reference Range	Result	Parameter
11,000 – 4,500	X10^3/uL 59	White Blood Cells (WBC)
Females: 12 – 15.5 g/dl Males: 13.5 – 17.5 g/dl	g/dL 11	Hemoglobin (Hgb)
umol/L 110 - -6	umol/L 181	Creatinine
mmol/L 2.55 – 2,12	mmol/L 2.66	Calcium
mmol/L 1.45 – 0.97	mmol/L 1.48	Phosphorus
umol/L 17 – 5.1	umol/L 31	Total Bilirubin
umol/L 5.1 – 1.7	umol/L 8	Direct Bilirubin
mgl/dl 140>	mg/dL 234	Random Blood Sugar

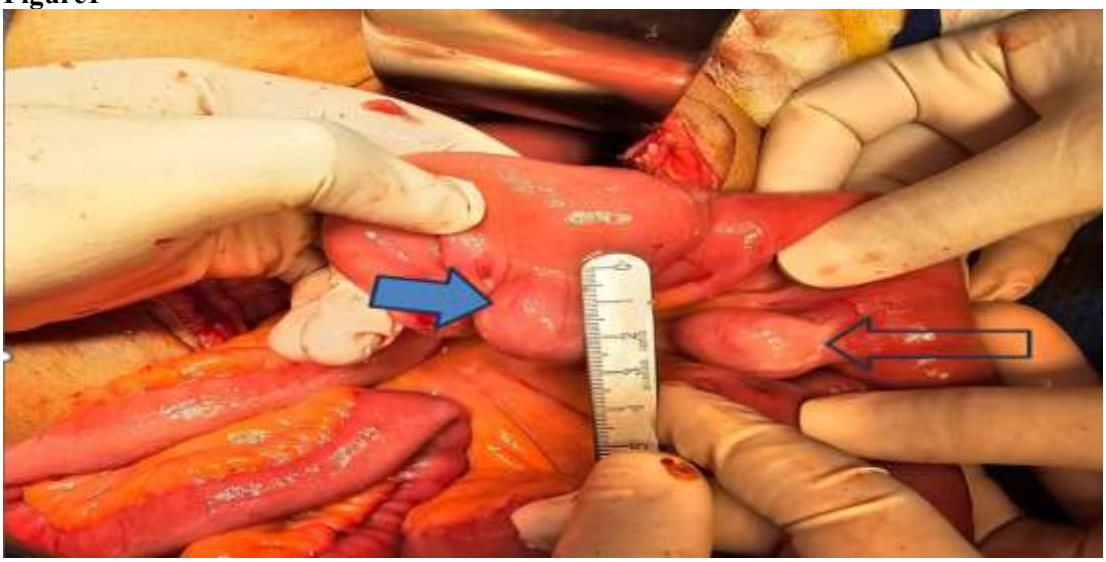
Computerized tomography (CT) of the abdomen and pelvis with intravenous and oral contrast showed no air under the diaphragm and no dilated bowel. The stomach, first, and parts of the second portion of the duodenum were distended/dilated. Small intestine showed multisegmented mural thickening from the second to fourth segments and proximal jejunal loops while distal jejunal loops showed edematous mural thickening and lack of wall enhancement. Edematous mural thickening involving the ascending, transverse, descending, and sigmoid colons with possible mucosal/submucosal enhancement with multiple diverticula are present in the descending colon, some containing hyperdense intraluminal contents. There was an abrupt transition in caliber between the distal sigmoid and rectum. Post-surgical changes of cholecystectomy are evident, spleen showed an irregular area lacking enhancement in both arterial and venous phases while pancreas exhibits atrophic changes. Both kidneys displayed linear/irregular areas of hypo enhancement/non-enhancement. Atherosclerotic changes and calcifications involving the aorta and its branches were noticed. Lungs showed bilateral scattered areas of linear atelectasis and lower lobar posterior dependent partial/minimal collapse were noted. Cardiomegaly was observed. Regarding musculoskeletal system, osteo-degenerative changes in the spine, lumbar dextroscoliosis with apex at L2, grade I anterolisthesis of L4 over L5 and multilevel degenerative disc changes and disc bulges involving the lumbosacral spine were noticed. Additionally, minimal free fluid in

the abdomen and pelvis, mostly seen at the left paracolic gutter with diffuse mesenteric fat stranding and diffuse subcutaneous edema were observed.
These findings suggest a combination of inflammatory and degenerative changes affecting multiple organ systems. The gastrointestinal findings may represent segmental enteritis or ischemic changes without vascular occlusion.



Patient went for emergency laparotomy and findings revealed ischemic segment around 30 cm, in distal jejunum, As shown in Figure1
Incidental Finding Of 2 diverticula in jejunum; the first was 35 cm while the second was 45 cm from DJ junction and mesentery twist.

Figure1



De-twist of mesentery was done, and resection of ischemic segment was made using endo GIA size 55 anastomosis done 2nd layer taken by vycril 2-0

DISCUSSION

Jejunal diverticulosis is a disorder affects mainly elderly persons; however, it rarely affects those below 40 years [9, 10]. In accordance with that, the present case aged 72 years. The exact etiology of Jejunal diverticula is still unknown, although some studies identified etiological factors such as elevated intraluminal pressure, abnormal peristalsis and intestinal dyskinesia [2, 11,12].

Uncomplicated cases of Jejunal diverticulosis have no specific symptoms such as nausea, vomiting, epigastric/periumbilical pain and abdominal discomfort, while complicated cases might be manifested by abdominal obstruction, intestinal perforation, hemorrhage peritonitis, abscess or fistulae [2, 13]. Among these symptoms, the only symptom presented in the present case was generalized abdominal cramping pain, aggravated by eating food and not relieved by any mean. This pain was not specific; thus, diagnosis was made through intraoperative evaluations. Pre-operative diagnosis of the condition is not usually achieved as it is reported in only 20% of cases and this was done using computed tomography (CT) scans that show protrusions of the intestinal wall that may contain either air, contrast material, or fecal contents and this is important particularly in emergency cases [2, 11-13].

It has been documented that Jejunal diverticulosis despite being asymptomatic in many cases, it can lead to a 40 % death rate, particularly among elderly patients, with comorbidities, diagnostic delays, or improper treatment [11]. Therefore, its early diagnosis and prompt management are of vital importance.

Treatment of jejunal diverticulosis varies according to the clinical presentation and development of complications. Medical therapy is recommended for non-perforated localized peritonitis and consists of antibiotics, rest of the bowel and percutaneous aspiration of localized intraperitoneal fluid collections [2, 11, 12].

Concerning the surgical management, the preferred approach; in case of failure of medical management is exploratory laparotomy with resection of the affected segment of the intestine and consequent anastomosis [2, 10-13]. In the present case, emergency laparotomy was done and findings revealed ischemic segment in distal jejunum and 2 diverticula in jejunum, thus, de-twist of mesentery, resection of ischemic segment, followed by primary anastomosis were done. Proactive surgical management, especially in patients with large diverticula is recommended to avoid complications and enhance patient`s recovery. [11, 12, 14].

CONCLUSION

Jejunal diverticulosis is asymptomatic in most cases and discovered accidently during surgery or imaging investigations. However, in fewer cases, some symptoms were reported. Early diagnosis through abdominal CT scans, and proper surgical management are of vital importance in such cases to avoid complications and promote patient recovery. Further research is warranted to better understand the risk factors, appropriate diagnostic approaches, and management planes for jejunal diverticula, given their rare existence and varied clinical characteristics.

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Figure 1
Figure 1: Intra-Operative Finding
2 diverticula in jejunum; the first (Arrow) was 35 cm while the second (Dense Arrow) was 45 cm from DJ junction