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DUODENOJEJUNAL FLEXURE AN UNUSUAL SITE FOR ACUTE INTESTINAL OBSTRUCTION: A REPORT OF TWO CASES

General Surgery

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ABSTRACT

Duodenojejunal flexure is located anterolateral to aorta at the level of the upper border of the second lumbar vertebra. Duodenojejunal flexure is suspended from the ligament of Treitz, which serves as surgical landmark. Duodenojejunal flexure pathologies is a rare entity, the presenting features of which are vague and non-specific. Any pathology in this area is difficult to deal surgically because of this proximity to many important vessels and viscera. We report two such cases, adenocarcinoma of duodenojejunal flexure and SMA Syndrome both presenting as acute intestinal obstruction.

KEYWORDS

Duodeno jejunal flexure, Adenocarcinoma of duodeno jejunal flexure, Ligament of Treitz, Segmental resection, SMA syndrome.

INTRODUCTION

Duodenojejunal flexure in an important surgical landmark. The duodenojejunal flexure pathologies is a rare entity. They attain importance because of vague symptoms at presentation, rarity of location and difficulty to deal surgically. Malrotation of midgut, SMA syndrome, malignancies are some of the common condition occurring in this region, although very rare.

Adenocarcinoma of the duodeno jejunal flexure is an extremely rare condition and its presentation is delayed due to vague symptomatology and difficulty in establishing the diagnosis. It poses a unique challenge in terms of pre-operative diagnosis, treatment plan and post-operative management. It is usually diagnosed by CECT abdomen and intra operative findings. Due to the vague symptomatology the condition is usually detected in a locally advanced stage or with distant metastasis. Segmental resection of the duodeno jejunal flexure is the surgical treatment of choice. Post-operative chemotherapy improves the performance status.

SMA syndrome also known as Wilkie's syndrome, cast syndrome, chronic duodenal ileus, vascular compression of the duodenum and aorto mesenteric duodenal compression, is a rare condition of high intestinal obstruction due to the narrow angle between the abdominal aorta and the superior mesentery artery causing compression of the 3rd part of the duodenum. Here in we report two rare cases, adenocarcinoma of duodeno jejunal flexure and SMA syndrome both involving duodenojejunal flexure and both presenting as acute intestinal obstruction.

CASE ONE:

A 35 years old male presented with complaints of postprandial epigastric pain, vomiting, anorexia and loss of weight since 1 months. Physical examination revealed poor nourishment, upper abdominal distension and decreased bowel sounds. Laboratory investigations were within normal limits. Plain X-ray abdomen showed a grossly distended stomach.

Abdominal ultrasonogram revealed grossly distended stomach. CECT abdomen revealed SMA syndrome based on decreased aorto mesenteric angle and decreased aorto mesenteric distance. (Fig.1&2).

With a diagnosis of SMA syndrome, a laparotomy was done which revealed a stricturous lesion in DJ flexure measuring around 3*3 cms encasing the superior mesenteric artery. The distal jejunal loops were normal (Fig.3). Multiple mesenteric lymph nodes were seen and were sent for HPE. Resection of the tumour was attempted and was not possible because the tumour was encasing the superior mesenteric artery. Side to side Duodeno-Jejunal anastomosis by passing the obstruction site.

Post-operative upper GI endoscopy showed narrowing at distal D3 and patent duodenojejunostomy site (Fig.4). Biopsy was taken from the lesion site and was sent for HPE.

HPE reports were suggestive of moderately differentiated adenocarcinoma.Postoperative period was uneventful. Patient received six cycles of adjuvant chemotherapy and at one year of follow up is doing well.

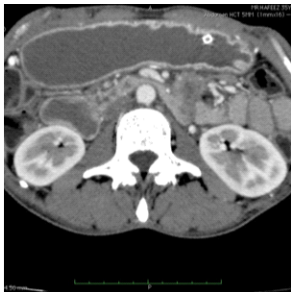

Fig-1: CECT showing distended stomach, D1, D2 and compression of D3

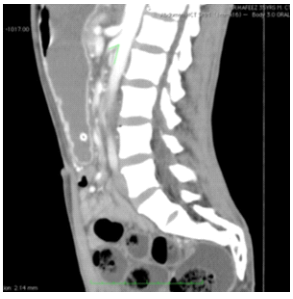

Fig-2: CECT showing decreased aorto mesentric angle

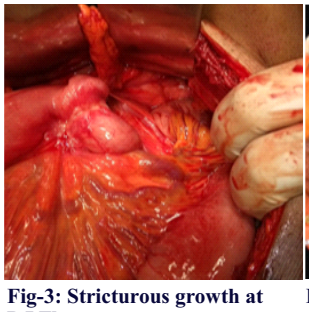

Fig-3: Stricturous growth at DJ Flexure

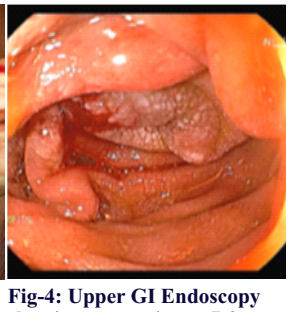

Fig-4: Upper GI Endoscopy showing narrowing at D3

CASE TWO:

A 62 Year female patient presented with complaints of upper abdominal distension and repeated episodes of bilious vomiting along with undigested food particles since one day. The patient denies any history of having abdominal pain or any recent history of weight loss.

Abdominal examination showed strikingly peculiar clinical features with gross distension of the upper abdomen. Ryle's tube was inserted immediately which drained around 500 ml of bilious aspirate mixed with food particles. Intravenous fluids and antibiotics were started as primary management.

An Erect X ray of the abdomen was done and it showed grossly

distended Stomach shadow. CECT of abdomen was done, which showed a massively dilated stomach and 1st & 2nd part of duodenum secondary to the compression of 3rd part of duodenum between SMA and Aorta with Aorto-mesenteric angle 16.92° and Aorto-Mesenteric distance 3 mm suggesting SMA syndrome (Fig-1 & 2)

Exploratory Laparotomy was done. Stomach and Proximal Duodenum were found to be grossly dilated. The distal portion of the 3rd part of duodenum was found to be compressed between the abdominal aorta and the overlying SMA (Fig-3).

Side to side duodeno–jejunostomy was performed and the anastomotic site was ensured to be intact and non-leaky (Fig-4).

Patient tolerated the procedure well. Post-operative recovery was uneventful and patient was discharged after suture removal.

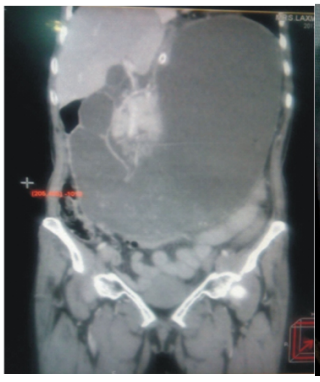

Fig. 1 CECT Abdomen showing massive dilated stomach1st and 2nd part of duodenum

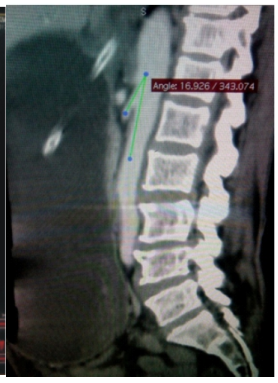

Fig. 2 Saggital reconstruction of CT angiography demonstrating an aorto – mesenteric angle of 16.92⁰

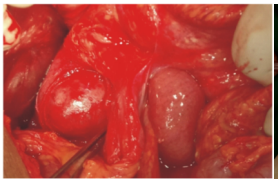

Fig. 3 : Superior mesentric artery compressing 3rd part of duodenum

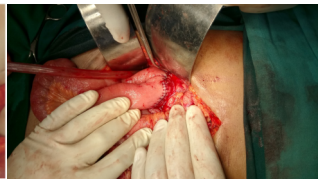

Fig. 4. Side to side Duodenojejunostomy

DISCUSSION

Small bowel cancers are a rare entity. The small bowel comprises 80% of the length of gastrointestinal tract, yet it counts for only 1% of all GIT malignancies [1]. In a study of 129 patients with primary small bowel cancer by Tocchi et al [2], 33% were adenocarcinoma, 29% were carcinoids and 19% were lymphoma. Half of all adenocarcinoma occurs in the duodenum 20% in the jejunum, 10% in the ileum and 145 in unspecific site [2]. Duodenal adenocarcinoma, accounts for < 0.4% of all GIT tumours and 56% of all duodenal malignancies [3,4]. True incidence of adenocarcinomas occurring at ligament of Treitz is unknown.

Mean age of presentation is 6th and 7th decade [2]. Risk factors that are associated with small bowel adenocarcinoma include familial adenomatous polyposis coli, Gardners and Turcots syndrome, Crohns disease, Coeliac disease, Lynch syndrome, immunosuppression, Etc [2] .

Due to their vague and nonspecific presenting symptoms, a delayed diagnosis or misdiagnosis is common. The most common presenting complaint is intermittent pain due to partial intestinal obstruction. 5-10% patients present with manifestation of hemorrhage like melena and anemia. Other presentations included anorexia, weight loss, abdominal distension, jaundice and diarrhea [4,6]. The mean duration of symptoms before presentation is 10 months (range, 0-24 months) [5]. There is no specific investigation to diagnose these tumour in an early stage. Capsule endos and the double ballon enteroscopy are the newer diagnostic modalities. Double ballon enteroscopy was described by Yamamoli et al [7] helps in diagnosis of small bowel lesions along with biopsy taking. CECT abdomen remains the investigation of choice.

In our case the patient was in 3rd decade and had no predisposing factors. He presented with symptoms of acute proximal small bowel obstruction, the cause of which was initially discerned as SMA syndrome based on contrast enhanced computed tomography (CT).

In the present case, in addition to causing subtotal obstruction, the carcinoma of the duodeno jejunal flexure region resulted in cachexia with consequent reduction in mesenteric fat pad culminating in SMA syndrome, which further exaggerated the symptoms of upper GIT obstruction.

Duodenal first and second part tumors are treated by Whipples' procedure. For resectable cancers of third and fourth part of duodenum, segmental resection is the treatment of choice [8]. Duodenojejunal segmentectomy is the treatment of choice for duodeno jejunal flexure tumors with lymph node clearance, though lymph node positivity does not preclude resection, and the prognosis of these tumors is good. In a multivariate analysis [9] of 101 patients nodal metastases, positive margins and stage were significant prognostic predictors. [9]. Survival by stage is 65 % for stage I, 48 % for stage II, 35 % for stage III, and 4 % for stage IV [10]. Factors affecting the outcome are tumour diameter, histological grading and serosal involvement.

Post-operative 5-FU is the mainstay chemotherapy. FOLFOX (oxaliplatin, 5-FU, and leucovorin) and FOLFIRI (irinotecan, 5-FU, and leucovorin) regimens significantly improve the performance status and progression-free survival in the treatment of metastatic small bowel adenocarcinoma [11,12].

SMA syndrome is an uncommon syndrome, with an incidence of 0.1 to 0.3%, characterized by compression of the 3rd part of duodenum between the superior mesenteric artery and aorta resulting in recurrent mechanical duodenal obstruction [13]. The normal aortomesenteric angle and aortomesenteric distance is 25° -60 ° and 10-28mm respectively. The 3rd part of duodenum courses posterior inferiorly in relation to SMA. Any loss in the retroperitoneal fat might reduce his angle and leads to SMA syndrome. SMA syndrome is also known as Wilkie's syndrome, cast syndrome, chronic duodenal ileus, vascular compression of the duodenum and aortomesenteric duodenal compression. The condition most commonly affects underweight individuals with a history of rapid weight loss as in - catabolic states such as cancer, surgery, trauma, burns, dietary disorders like anorexia nervosa (or) malabsorption. Surgical intervention that distorts the anatomy can lead to the syndrome. Corrective spinal surgery for scoliosis and oesophagectomy are among the causes. Congenital short ligament of Treitz also been reported in the literature[14].

Female aged 30 to 40 years are commonly affected [15]. In our case patient was in 7th decade and did not have any of the above mentioned predisposing factors.

Conformation of SMA syndrome requires radiographic procedures such as upper gastrointestinal series, hypotonic duodenography and contrast CT scanning. The CT criteria for the diagnosis of the are aortomesenteric angle of < 22° and aortomesentric distance of < 8mm which were evident in the current case [16,17]. More recently EUS and PET scan are also options for diagnosis. Successful treatment of SMA Syndrome requires identification and removal or reversal of the precipitating cause. Initial conservative management, comprising of adequate nutrition and nasogastric decompression, is recommended. Following failure of the above treatment, surgical procedures like duodenojejunostomy, gastrojejunostomy or division of Ligament of Treitz may be required.

CONCLUSION

- Duodenojejunal flexure pathologies is a rare entity, the presenting features of which are vague and non-specific. Any pathology in this area is difficult to deal surgically because of this proximity to many important vessels and viscera.
- Primary duodenojejunal flexure adenocarcinoma and SMA syndrome although very rare should be considered as the differential diagnosis of small bowel obstruction, when evaluation of the upper and lower GI tract is unremarkable or misleading.
- Computed tomography scan has a high accuracy in detecting the disease and its metastatic spread, to stage the disease.
- In case one, duodenojejunal adenocarcinoma is considered as the

etiological factor of SMA syndrome due to obstruction close to DJ flexure causing tumor induced cachexia.

- Duodeno jejunal segmentectomy with lymph node clearance is the treatment of choice in duodeno jejunal adenocarcinoma.
- Duodenojejunostomy done by open or laparoscopic approach is the operation of choice of SMA syndrome.

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