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Histomorphological Patterns In Unusual Causes Of Small Bowel Obstruction: A Series Of Cases

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Abstract

Background: Small bowel obstruction is a frequent cause of hospitalization and surgical intervention representing 20% of all surgical admissions for acute abdominal pain. Here we present a series of 10 uncommon cases leading to small bowel obstruction.

Aim: To study the clinical, etiological factors and histomorphological findings of unusual causes of small intestinal obstruction.

Material & Methods: A prospective case series study was conducted in a tertiary care hospital for duration of 18 months consisting of 10 unusual causes of small intestinal obstruction presenting as an acute abdomen. Relevant clinical details, laboratory investigations, radiological findings and intraoperative findings were collected. Histopathological examination of specimens was carried out.

Results: The present study revealed various unusual causes of small intestinal obstruction ranging from enterolith, non neoplastic lesions to neoplastic lesions. Affected patients were from 30-80 years with equal sex incidence. Ileum was commonly involved in majority of the cases.

Conclusions: The causes of small bowel obstruction vary widely. However, some unusual causes of small intestinal obstruction are detected incidentally during surgical intervention. A thorough clinical, radiological and histopathological examination will help to identify the cause of obstruction.

Keywords: Carcinoid, enterolith, lipoma, lymphangiectasia, mesenteric vein thrombosis, pancreatic heterotopia

Introduction

Small bowel obstruction (SBO) refers to partial or complete blockage of the small intestine. It is a common clinical entity encountered in surgical emergency secondary to mechanical or functional obstruction of the small bowel, preventing normal transit of the contents. Small bowel obstruction accounts for 20% cases of surgical intervention presenting due to acute pain abdomen[1]. In this case series, herein we present 10 unusual causes of small bowel obstruction encountered in our hospital. The aim of this study highlights the need for careful evaluation of the underlying pathological cause for small bowel obstruction.

Material & Methods:

A prospective study of case series with 10 unusual causes of small bowel obstruction presenting as an acute abdomen was reviewed in our hospital from June 2019 to December 2020. Institutional ethical clearance was taken. Relevant clinical details, laboratory investigations, radiological findings and intraoperative findings were collected from case records with systematic review of pathological specimens. Haematoxylin and Eosin stained micro-

slides were examined thoroughly. Special stains are performed wherever necessary.

Statistical Analysis:

Demographic, clinical, laboratory data and pathological findings of each patient were entered in statistical forms. .

Results:

Case 1: A 60 year old female presented with pain abdomen and vomiting since one day. Computed Tomography scan suggested intestinal obstruction with hypodense, non enhancing thrombus in the superior mesenteric vein. Patient underwent jejunectomy which measured 63.5 cm in length with dilated segment, stricture and areas of blackish discoloration on the external surface (Fig.1a). Mucosa showed loss of mucosal folds. Histology showed extensive ulceration of jejunal mucosa with transmural ischemic changes and venous thrombi (Fig.1b, 1c, 1d) suggestive of acute necrotizing ischemic enteritis secondary to mesenteric venous thrombosis.

Case 2: A 38 year old male presented with non-specific pain abdomen since 1 month which aggravated since 1 day and was associated with vomiting. Clinical examination and computed tomography scan of the abdomen favored intestinal obstruction secondary to an intraluminal space occupying lesion in the terminal ileum. Patient underwent ileal resection which measured 45 cm with a circumferential indurated area measuring 6 cm in length. Mucosal surface showed a grey white lesion measuring 3x3 cm. Histology showed features of ischemic enteritis with adjacent wall thickening, hyperplastic muscle bundles and proliferating spindle and myofibroblastic cells (Fig.1e) suggestive of Inflammatory pseudotumor.

Case 3: A 65 year old female presented with gradual progressive diffuse abdominal pain associated with vomiting since 5 days which aggravated since 1 day. Computed tomography scan suggested acute Small bowel obstruction with multiple well defined radio-dense foreign bodies in the ileum and distal jejunum. Patient underwent jejunal and ileal resection which measured 88cms in length with two strictures and adjacent bowel dilatation (Fig.1f). Mucosal surface showed partial loss of mucosal folds with three black calculi largest measuring 2.5 x 1.5 cm. Histology showed extensively ulcerated mucosa with transmural ischemic changes suggestive of acute necrotizing ischemic enteritis secondary to enterolith.

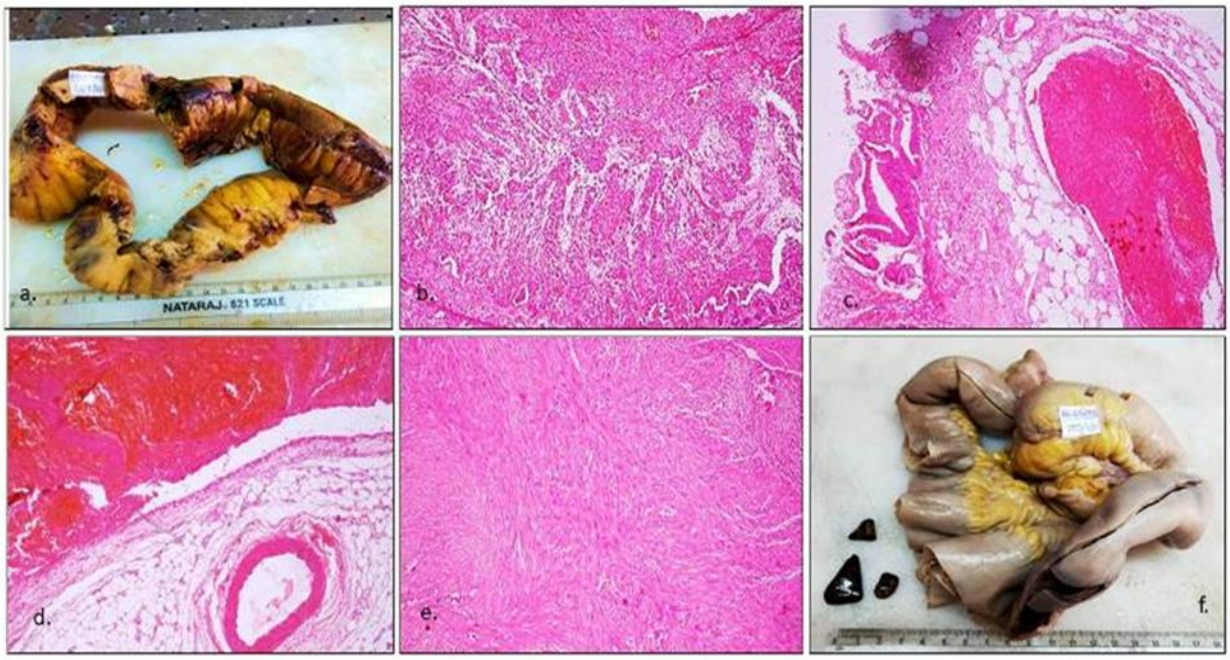

Figure 1: **Mesenteric vein thrombosis**: a. Segment of ileum with areas of blackish discoloration on the external surface. b. Small intestine showing extensive ulceration covered with fibrinopurulent exudate (H&E, 10x). C. Mesenteric fat showing congestion, hemorrhage and venous thrombi (H&E, 40x). d. Single unpaired artery (H&E, 40x). e. **Inflammatory pseudotumor** showing proliferating spindle and myofibroblastic cells (H&E, 40x). f. **Ischemic enteritis with Enterolith.**

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Case 4: A 65 year old female presented with loose stools and abdominal pain since 2 weeks, aggravated since 1 day, associated with one episode of vomiting. Clinically, diagnosis of subacute intestinal obstruction was made. Patient underwent segmental resection of jejunum which measured 12.5 cm with a stricture on the external surface (Fig.2a). Mucosal surface showed a yellowish white lesion at the stricture measuring 2x1.5 cm. Histology showed a submucosal lesion composed of tumor cells arranged in insular, organoid and peritheliomatous pattern having stippled chromatin, infiltrating deep into the muscularis propria (Fig.2b) and mitotic figures 2-3/10 HPF suggestive of Well differentiated neuroendocrine tumor (NET Grade1).

Case 5: A 53-year male presented with intermittent abdominal pain, distention and vomiting since 15 days. Clinical examination revealed epigastric tenderness. Computed tomography scan showed mixed density mass measuring 4x3 cm, closely associated with jejunum. Patient underwent jejunal resection which measured 32 cm. Mucosal surface showed a grey white mass measuring 4×3 cm. Microscopy showed nests of pancreatic ducts and acini in the submucosa (Fig.2c) and muscularis propria suggestive of pancreatic heterotopia.

Case 6: A 35 year old female presented with severe colicky pain in the right lower abdomen accompanied with vomiting for 2 days. Patient gave similar history over the last one month. Clinical examination revealed a tender mass in the right lower quadrant of abdomen. Contrast enhanced- computed tomography abdomen revealed typical target sign suggestive of intussusception with an intraluminal homogenous hypodense lesion at the apex of intussusception. Patient underwent ileal resection which measured 42 cm. Mucosa showed a yellowish submucosal lesion measuring 5x4 cm with intact mucosa (Fig.2d). Histology showed submucosal encapsulated lesion composed of mature adipocytes arranged in sheets and lobules, separated by thin fibrous septa (Fig.2e) suggestive of submucosal lipoma.

Case 7: 45 year old male presented with progressive intermittent diffuse abdominal pain, unintentional weight loss and intermittent diarrhea since 2 weeks. Clinical examination revealed diffuse abdominal tenderness and distention with shifting dullness. Computed tomography of abdomen revealed thickened terminal ileum and a part of caecum with ascites and right lower quadrant lymphadenopathy. Patient underwent ileocaecal resection which measured 24 cm in length with stricture on external surface. Mucosal surface showed an ulceration measuring 3x2 cm. Microscopy showed epithelioid cell granulomas surrounded by lymphocytes, fibrosis, foreign body and langhans type giant cells in the wall (Fig.2f) suggestive of Granulomatous enterocolitis of Koch's etiology positive for acid fast bacilli.

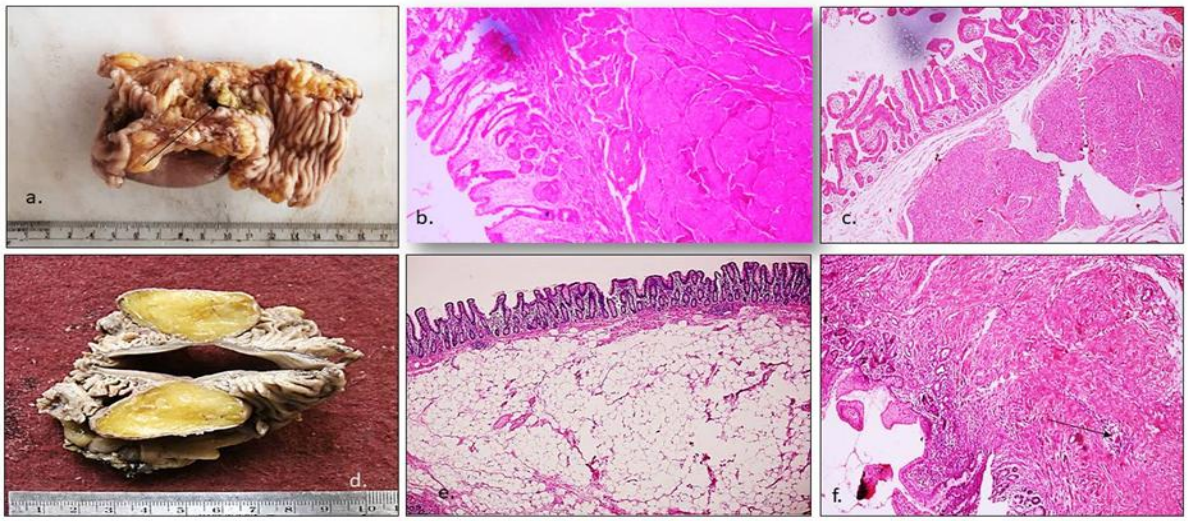

Figure 2: **Neuroendocrine tumor**: a. Inner surface of segment of jejunum showing yellowish white lesion (Arrow). b. Tumor cells arranged in nests and organoid pattern (H&E, 4x). c. **Pancreatic heterotopia:** showing nests of pancreatic ducts and acini in the submucosa. d. **Submucosal lipoma:** Segment of ileum showing an elevated yellowish lesion. e. Microscopy showing a submucosal lesion composed of mature adipocytes arranged in lobules (H&E, 4x). f. **Granulomatous enteritis:** showing epithelioid cell granulomas surrounded by lymphocytes and langhans type giant cells (Arrow).

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Case 8: An 80 year female presented with vomiting, hematochezia and abdominal pain for 2 days. She gave a family history of inflammatory bowel disease. Computed tomography scan revealed pancolitis and small bowel intussusception. Endoscopy showed a subepithelial lesion in the duodenum causing luminal narrowing and obstruction. Patient underwent duodenectomy which measured 12 cm in length. Mucosa showed a yellow-tan nodule measuring 5x4 cm. Microscopy showed villous blunting and erosion of duodenal mucosa with multiple dilated lymphatics filled with scattered lymphocytes in the lamina propria and submucosa (Fig.3a,3b) suggestive of Intestinal lymphangiectasia.

Case 9: A 30 year female presented with abdominal pain, nausea and vomiting. Clinical examination revealed abdominal tenderness. Computed tomography scan showed an infiltrating mass in the jejunum extending into the pancreatic capsule and mesentery. Patient underwent jejunectomy which measured 23 cm in length. Mucosa showed an ulceroinfiltrative lesion measuring 10x6 cm. Histology showed a transmural, infiltrative tumor composed of epithelioid cells having eosinophilic cytoplasm within variably hyalinized edematous stroma (Fig.3c) with mitotic count >5/50 HPF suggestive of epithelioid type of Gastrointestinal stromal tumor (GIST) of intermediate grade.

Case 10: A 55 year old female presented with intermittent abdominal pain and loss of appetite since 1 month. Computed tomography scan revealed a circumferential growth involving the small bowel and presence of free fluid in the peritoneal cavity. Patient underwent ileal resection which measured 28 cm. Mucosa showed an irregular grey white ulceroinfiltrative mass measuring 7 x 4.5 cm. Microscopy showed an infiltrating tumor with dysplastic mucosa composed of pleomorphic tumor cells arranged in clusters, cribriform pattern, glandular pattern and singles (Fig.3d) surrounded by desmoplasia suggestive of Moderately differentiated adenocarcinoma.

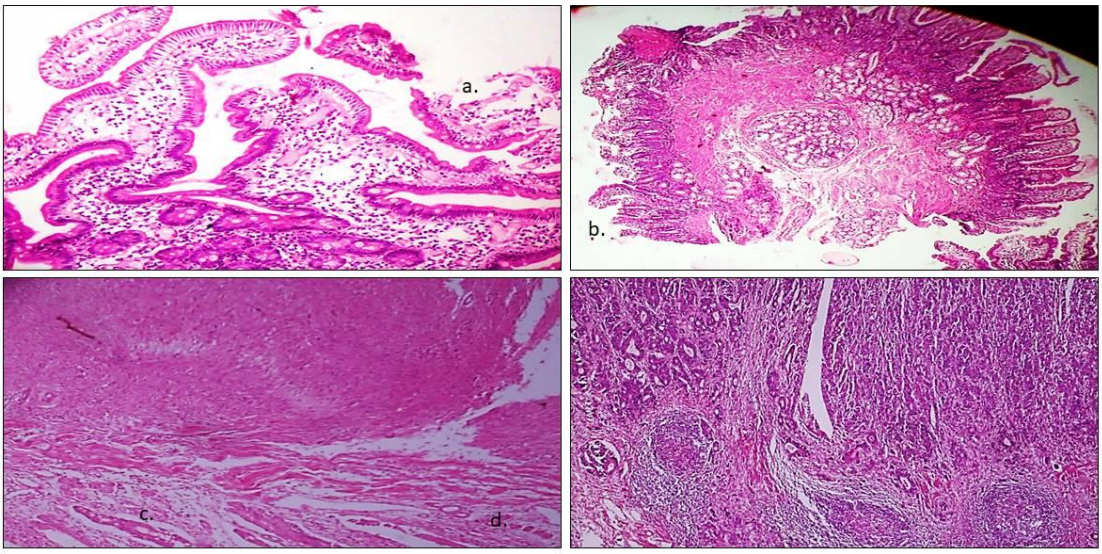

Figure3: a. **Intestinal lymphangiectasia:** showing many dilated lymphatics in the lamina propria and submucosa (H&E, 40x). b. **Intestinal lymphangiectasia** showing villous blunting, erosion of duodenal mucosa with dilated lymphatics in the lamina propria (H&E, 10x). c. **GIST:** showing epithelioid cells having eosinophilic cytoplasm within variably hyalinized edematous stroma (H&E, 10x) d. **Adenocarcinoma:** showing dysplastic epithelium with an infiltrating tumor with pleomorphic cells arranged in clusters, glandular pattern and singles (H&E,10x).

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Table 1: Distribution Of Cases

SL NO	AGE	SEX	SITE	CLINICAL DIAGNOSIS / RADIOLOGICAL DIAGNOSIS	HISTOPATHOLOGICAL DIAGNOSIS
1.	60	Male	Jejunum	Superior mesenteric vein thrombosis	Acute necrotising ischemic enteritis secondary to Mesenteric venous thrombosis
2.	38	Male	Terminal ileum	Intestinal obstruction due to an intraluminal space occupying lesion	Inflammatory pseudotumor with Ischemic enteritis
3.	65	Female	Ileum	Acute small bowel obstruction due to multiple well defined radio dense foreign bodies	Acute necrotising ishchemic enteritis with Enterolith
4.	65	Female	Jejunum	Subacute intestinal obstruction	Neuroendocrine tumor
5.	53	Male	Jejunum	Subacute intestinal obstruction	Pancreatic heterotopia
6.	35	Female	Ileum	Subacute intestinal obstruction	Submucosal lipoma
7.	45	Male	Ileum	Subacute intestinal obstruction	Granulomatous enteritis
8.	80	Male	Duodenum	Small bowel obstruction	Intestinal lymphangiectasia
9.	30	Female	Jejunum	Intestinal obstruction	Gastrointestinal stromal tumor
10.	55	Female	Ileum	Intestinal obstruction	Adenocarcinoma

Discussion:

Small intestine is the long major portion of alimentary tract that extends from pylorus to the ileocecal valve and is about 6 meter long. The most common cause of small bowel obstruction is intra-abdominal adhesions, accounting for approximately 65% to 75% of cases, followed by hernias while large bowel obstructions are most often due to tumors and volvulus[1,2]. Causes for small intestinal obstruction may be divided into intrinsic, extrinsic and intraluminal. Intrinsic causes include benign or malignant tumors, crohn's disease and radiation enteritis. Extrinsic causes are adhesions, fibrous bands, endometriosis and tumors. While intraluminal causes include swallowed foreign bodies, gall stones, trichobezoars or phytobezoars[1,3].

In our study, the age group ranged from 30-80 years with the equal sex predominance. Out of the 10 uncommon conditions leading to small bowel obstruction, 5 cases were seen in ileum, 4 cases in jejunum and 1 case in duodenum with various underlying non-neoplastic and neoplastic pathology.

Mesenteric Vien Thrombosis (MVT):

Mesenteric venous thrombosis (MVT) is an uncommonly increasing recognized cause of intestinal ischemia. MVT are categorized into acute, subacute or chronic depending on the extent and rapidity of thrombus formation[4]. It frequently involves the superior mesenteric vein followed by inferior mesenteric vein or portal veins. It is important to look for the predisposing factors such as intra-abdominal inflammatory process and pro-thrombotic states following the diagnosis of MVT. It has a better prognosis compared to other causes of mesenteric ischemia[5]. In our case, histopathological examination of the resected segment revealed venous thrombi in the blood vessels which was similar to a case reported by Al-Taee et al[4].

Inflammatory Pseudotumor:

Inflammatory pseudotumor/inflammatory myofibroblastic tumor (IMT) commonly occurs in lungs and extrapulmonory sites like retroperitoneum and pelvis. It presents as a localized mass in the gut, most frequently in the gastric antrum and is not accompanied by allergies or eosinophilia. A very small number of IMTs have been reported in the small intestine. Maryam Rezaii Salim et al reported a

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case in terminal ileum which was similar to our case[6]. Ali Koyuncuer reported a case of IMT in the small bowel mesentry and William et al reported a case in first part of the duodenum[7,8].

Enterolith:

Enterolithiasis is an uncommon cause of intestinal obstruction and can occur in patients of all age groups. Gut hypomotility and stasis is thought to be the most important cause for the formation of enterolith [9]. Primary enterolith is stone formed within the bowel leading to hypomotility and stasis[10] whereas secondary enterolith are formed outside the bowel (associated organs like gall bladder) [9]. Primary enteroliths are further classified into true or false types based on the chemical composition of stone and their location. False enteroliths are fecoliths, almond pits, fruit skin, oat stones, trichobezoars and foreign bodies that clump together. On the other hand, true enteroliths are formed de novo as a result of precipitation and deposition of substances from the alimentary chime[9,10].

In our case, enterolith was formed due to formation of stricture which on histopathological examination showed features of acute necrotizing ischemic enteritis. In two cases reported by Ashish Lal Shrestha, histopathology of the resected small bowel showed no specific finding[10].

Neuroendocrine Tumor:

Neuroendocrine tumors (NET) are neoplasms of enterochromaffin cells which show neurosecretory activity resulting in carcinoid syndrome[11]. They cause a spectrum of symptoms ranging from chronic intestinal obstruction to systemic symptoms like sweating, diarrhoea and right side heart failure[12]. They are commonly seen in terminal ileum, appendix and less common in jejunum and ileum. The mean age at diagnosis of NETs is around 60 years according to Niederle B, which was concordant with our case. Archith et al reported NET in ileum whereas in our case the tumor was found in jejunum, which is a less common site.

Pancreatic Heterotopia:

Autopsy incidence of pancreatic heterotopia ranges from 0.5%–13.7%[13]. Heterotopic pancreas is a congenital anomaly in which pancreatic tissue is anatomically separate from the main gland without vascular or ductal continuity. Most patients are asymptomatic and are commonly found in proximal gastrointestinal tract, duodenum followed by stomach and jejunum[14]. Heterotopic pancreas is classified into four histologic types by Heinrich in 1909 and modified by Fuentes in 1973 based on histological components[13].

Tuberculous Enteritis:

Gastrointestinal (GI) tuberculosis (TB) caused by Mycobacterium tuberculosis accounts for 1% to 3 % of all TB cases worldwide[15]. There are three gross morphological forms of tuberculous enteritis: Ulcerative, hypertrophic and ulcero-hypertrophic and Fibrous stricturing. The ulcerative type commonly affects the ileum and jejunum and is characterized by a single or multiple transverse ulcers. The healing of ulcers leads to stricture formation, perforation, bleeding or fistulas. The hypertrophic and ulcero-hypertrophic types commonly affect the ileocecum and cause obstruction or present as a mass. Fibrous stricturing type will lead to fibrosis and stricture formation resulting in intestinal obstruction. Tuberculosis may be primary, from ingestion of the organisms or secondary to pulmonary Tuberculosis. Primary intestinal tuberculosis without pulmonary disease often results in hypertrophic mucosal changes[16,17].

Submucosal Lipoma:

Lipomas of the gastrointestinal tract (GIT) are rare. Most common submucosal lipomas of GIT are present in the colon (65-75%), small intestine (25%) and rarely in stomach or jejunum. In the small intestine most common site being the ileum. Submucosal type is most common followed by intermuscular and serosal types[18]. Lesions < 1 cm rarely cause any symptoms while 75% of those > 4 cm in size invariably lead to intussusception. Small intestinal lipomas produce symptoms more often than colonic lipomas, irrespective of the size of the tumor.

Intestinal Lymphangiectasia:

Lymphangiectasia is a rare, benign cystic malformation of the lymphatic system, characterized by focal or diffuse dilatation of the mucosal, submucosal and subserosal lymphatic vessels. Commonly occurs in children in the first few years of life with predilection to neck and axilla. Other sites are lung, mediastinum and abdomen. Primary small

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intestinal Lymphangiectasia has rarely been described and is characterized by dilated intestinal lacteals leading to loss of lymph into the lumen resulting in hypoproteinemia, hypoalbuminemia, hypogammaglobulinemia and lymphopenia[19]. A segmental area of edema and wall thickening leads to localized obstruction and occasionally resulting in a segmental intestinal resection[20].

Gastrointestinal Stromal Tumor:

Gastrointestinal stromal tumors (GISTs) are the most common mesenchymal tumors of the gastrointestinal tract which accounts for 1 - 3% of all GI neoplasms[21]. Their origin is traceable to interstitial cells of Cajal, which are dependent on stem cell factor receptor interaction. Stomach is the most common site (60%) followed by small bowel - jejunum and ileum (30%) and duodenum (4 - 5%). Three morphologic types - spindle (70%), epithelioid (20%) and mixed (10%) varieties are identified.

Jejunal GISTs are usually symptomatic and presents with abdominal pain, symptoms secondary to obstruction or haemorrhage as reported in our case[22]. Prognosis depends on the anatomic location, size of tumor, age of the patient, histomorphology, immunohistochemistry and molecular genetics. In a study conducted by Lei Zouh et al, majority of the cases were seen in jejunum and were of spindle cell type [21]. Epithelioid type of GIST was reported by Safi Khuri et al which was similar to our case[22].

Adenocarcinoma:

Small bowel cancer comprises less than 5% of all gastrointestinal malignancies[23]. Adenocarcinoma comprises 30–40 % of small bowel cancers, the rest being carcinoid tumor, lymphoma and sarcoma. Duodenum (55-82%) is the most common site of adenocarcinoma in the small intestine followed by jejunum (11-25%) and ileum (7-17%)[24]. Li et al reported Adenocarcinomas in the small bowel in the advanced stage of disease with nonspecific symptoms of abdominal discomfort and intestinal obstruction as similar to presentation of our case. No good screening techniques are available for the early diagnosis of these cases.

Conclusion:

A comprehensive approach in the diagnosis of small bowel obstruction to know the underlying cause of obstruction will help the surgeon to delineate individual treatment**.**

References:

1. Silva AC, Pimenta M, Guimaraes LS. Small Bowel Obstruction: What to Look For? Radiographics 2009; 29(2):423–439.
2. Gore RM, Silvers RI, Thakrar KH, Wenzke DR, Mehta UK, Newmark GM, Berlin JW. Bowel obstruction. Radiologic Clinics of North America. 2015; 53 (6): 1225–40.
3. Fitzgerald JE. Small Bowel Obstruction. Emergency Surgery. Oxford: Wiley-Blackwell. 2010; 74–79.
4. Al-Taee A, Ahmed Z, Dhedhi A, Giacaman M. Mesenteric Venous Thrombosis Masquerading as Small Bowel Obstruction. ACG Case Rep J. 2019 Sep 3;6(9):e00210.
5. Oldenburg WA, Lau LL, Rodenberg TJ, Edmonds HJ, Burger CD. Acute Mesenteric Ischemia: A Clinical Review. Arch Intern Med. 2004; 164(10):1054–1062.
6. Salim MR, Vahedi H, Salimi Z, Froutan H, Sotoudeh M. Inflammatory Myofibroblastic Tumor of the Small Bowel: A Case Report.Middle East J Dig Dis.2011;3(2):134-7.
7. A. Koyuncuer. Inflammatory myofibroblastic tumor of the small-bowel mesentery:A case report of nonspecific clinical presentation and a review of theliterature. Int J Surg Case Rep. 2014; 5(12): 1214–1217.
8. Campbell WL, Green WM, Seaman WB. Inflammatory pseudo tumor of the small intestine. 1974, 305-311.
9. Shrestha AL, Shrestha P. Recurrent Enterolithiasis Small Bowel Obstruction: A Case Seldom Described. Case Reports in Gastrointestinal Medicine. 2017; 1-4.
10. Singhal BM, Kaval S, Kumar P, Singh CP. Enterolithiasis: An unusual cause of small intestinal obstruction. Arch Int Surg. 2013; 3(2): 137-141
11. Gupta A, Gupta J, Mardi K, Sharma A. Neuroendocrine Tumour of the Ileum Presenting As Intestinal Obstruction in a 23 year Old Female: A Case Report and Literature Review. JMSCR. 2017; 5(2):13387-92.
12. Ganesan M, Samuel N, Karthikeyan D, Raja A. Small bowel obstruction caused by a carcinoid

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tumour. Int J Med Res Health Sci. 2014; 3(2):491-493
13. Rezvani M, Menias C, Sandrasegaran K, Olpin JD, Elsayes KM, Shaaban AM. Heterotopic Pancreas: Histopathologic Features, Imaging Findings, and Complications. Radiographics. 37(2): 484-499
14. Ulrych J, Fryba V, Skalova H, Krska Z, Krechler T, Zogala D. Premalignant and malignant lesions of the heterotopic pancreas in the esophagus: a case report and review of the literature. J Gastrointestin Liver Dis 2015;24(2):235–239.
15. Chakinala RC, Khatri AM. Gastrointestinal Tuberculosis. 2021 Jul 25. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2022 Jan–. PMID: 32310575
16. Tabrisky J, Lindstrom RR, Peters R, Lachman RS. Tuberculous enteritis. Review of a protean disease. Am J Gastroenterol. 1975; 63(1):49-57
17. Engin G, Balk E. Imaging findings of intestinal tuberculosis. J Comput Assist Tomogr. 2005; 29(1):37-41.
18. Vagholkar K, Chavan RK, Mahadik A, Maurya I. Lipoma of the Small Intestine: A Cause for Intussusception in Adults. Hindawi Publishing Corporation. 2015; (1): 1-3.
19. Zafar Y, Gondi KT, Tamimi T, Colson J, Lankachandra K, El-Halawany H. Primary Intestinal Lymphangiectasia Causing Intussusception and Small Bowel Obstruction. ACG case reports journal. 2019; (6):1-3.
20. Freeman HJ, Nimmo M. Intestinal lymphangiectasia in adults. World J Gastrointest Oncol 2011; 15; 3(2): 19-23.
21. Zhou L, Liao Y, Wu J, Yang J, Zhang H, Wang X, Sun S. Small bowel gastrointestinal stromal tumor: a retrospective study of 32 cases at a single center and review of the literature. Therapeutics and Clinical Risk Management 2018; 14: 1467–1481.
22. Khuri S, Gilshtein H, Darawshy A, Bahouth H, Kluger Y. Primary Small Bowel Gastrointestinal tumor Presenting as a Life-Threatening Emergency: A Report of Two Cases. Hindawi Case Reports in Surgery. 2017; Article ID 1814254, 1- 5.
23. Li J, Wang Z, Liu N, Hao J, Xu X. Small bowel adenocarcinoma of the jejunum: a case report and literature review. World Journal of Surgical Oncology.2016; 14:177.
24. Halfdanarson TR, McWilliams RR, Donohue JH, Quevedo JF. A single-institution experience with 491 cases of small bowel adenocarcinoma. Am J Surg. 2010; 199(6):797-803.

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