CASE REPORT

Small bowel obstruction caused by multiple malignant strictures : an unusual presentation of malignancy of pancreaticobiliary origin

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Introduction

Malignancies causing small bowel obstruction [SBO] are rare [1]. Adhesions, inflammatory strictures and hernias are considered as common causes for SBO [2]. Although primary malignancy in the large bowel often presents with colonic obstruction, almost all malignant small intestinal obstructions reported are secondary to metastatic intussusception [3]. We report a rare case of acute small intestinal obstruction due to multiple metastatic jejunal strictures secondary to a malignancy of possible pancreatic-biliary origin.

Case presentation

A 65-year-old man, who has had abdominal discomfort and change of bowel habits for one month, presented with severe colicky central abdominal pain for three hours, with repeated vomiting. On examination, he was ill-looking, tachypneic and tachycardic. The abdomen was distended and was slightly tender. There were no palpable masses and bowel sounds were exaggerated. His rectum was empty. The patient was kept nil by mouth and NG tube decompression along with fluid resuscitation was initiated based on a tentative diagnosis of SBO.

Initial baseline blood investigations were essentially normal. Abdominal USS and CECT revealed dilated small bowel due to possible obstruction. Emergency exploratory laparotomy revealed two short segments of small bowel strictures at the distal jejunum with proximally distended bowel loops and a small amount of free fluid in the abdomen [Figure 1]. The rest of the abdominal organs appeared normal. A short segment of the small bowel with two strictures was removed and primary side to side stapler anastomosis was done. A specimen of resected small bowel segment was sent for histology. Post-operative recovery was uneventful. Upper and lower GI endoscopies and repeat CECT study of chest, abdomen and pelvis with the aim of locating the primary site were normal.

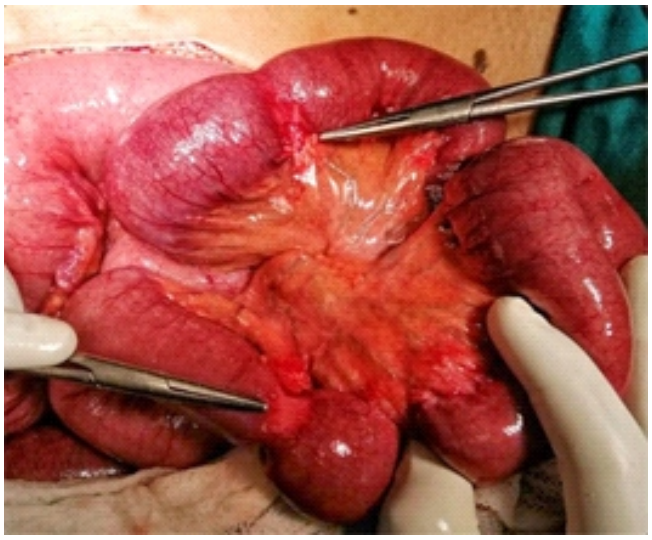

Figure 1. Intra-operative picture showing Jejunum with two strictures

Microscopically, the bowel wall at the stricture site showed an infiltrating tumour with submucosal fibrosis, sub-serosal congestion and vascular emboli. [Figure 2b] Malignant cells with multiple mitotic figures were noted within the cell nests. [Figure 2a] Mucosa over the stricture segment was normal. Lamina propria showed dense mixed inflammatory cell infiltrate favouring distant tumours infiltrating into small

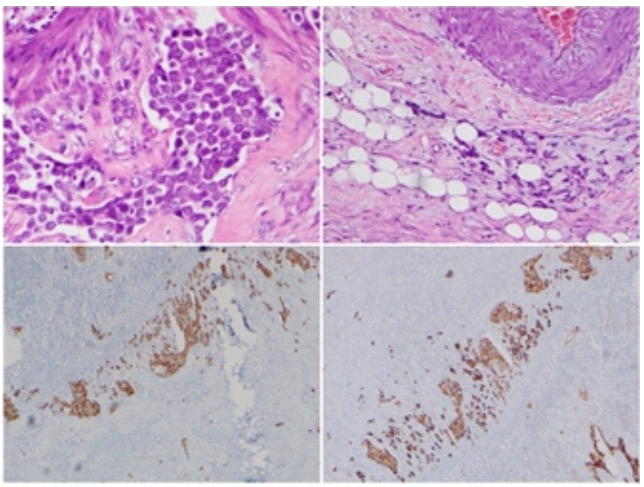

Figure 2. Histological appearance of stricture site [a] cells with pleomorphic irregular nucleoli and mitotic figures, [b] Congested sub-serosa tissue with vascular emboli, [c] Cells showing strong CK 7 positivity, [d] Cells showing strong CK19 positivity

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bowel forming strictures. Immunohistochemistry [IHC] showed strong diffuse cytoplasmic positivity for cytokeratin [CK] 7 and CK 19 and negative staining for CK 20, Thyroid transcription factor-1 [TTF 1] and prostate-specific antigen [PSA] [Figure 2c and d]. The morphological appearances and IHC profiles were suggestive of metastatic carcinoma with pancreatic-biliary primary.

Discussion

Three fourth of the SBO are due to adhesions, mostly secondary to past surgeries [2]. Malignancies causing SBO mostly occur as a part of peritoneal involvement with generalized spread of the disease. The commonest primary causes for malignant SBO include small bowel adenocarcinoma secondary to Crohn's disease, familial adenomatous polyposis, and peutz-jegher's syndrome [4]. However, cervix uteri, cutaneous melanoma and kidneys are identified as potential primary sites for small bowel metastasis [5].

Pancreatic - biliary cancer causing bowel metastasis and obstruction is rare. Literature reports, several cases of large intestinal metastasis secondary to pancreatic-biliary cancers. Bellows C et al reported a case of a 45-year-old man who underwent a right hemicolectomy for adenocarcinoma found to be having colonic metastasis from a primary pancreatic adenocarcinoma which is diagnosed pathologically by a panel of specific immune-histochemical stains [6]. However, Patients presenting with acute intestinal obstruction secondary to malignant small bowel strictures from the pancreatic-biliary primary was not reported in the literature.

Possible routes of small bowel metastasis involve direct extension, peritoneal seeding, lymphatic spread and haematogenous spread. 25% of the patients with colorectal cancer and 20 to 50% of patients with ovarian cancer can develop malignant large bowel obstruction [7].

Our reported case of small bowel obstruction secondary to secondary malignant stricture of the jejunum from pancreatic-biliary primary was detected by immunohistochemical assays. The stricture site showed strong cytoplasmic positivity for CK19 and CK7 with negative CK20, TTF1 and PSA. Pancreatic ducts are frequently positive for CK7 and CK19 [8].But neuroendocrine tumours of the pancreas are often negative for CK7 and CK 20 [9].

Differential diagnoses for CK7+ with CK20- profile include lung adenocarcinoma, ductal carcinoma of the breast, biliary and pancreatic adenocarcinoma [8]. Colorectal malignancies and their secondaries show consistent expression of CK20 with negative CK7 [10, 11]. Immunohistochemical profile of positive CK7 and CK19 with negative CK20 can exclude the possibility of primary bowel malignancy [12]. Furthermore, CK19 is normally expressed in gastrointestinal, pancreatic and hepato-biliary tracts [12]. It is known to show strong immune-reactivity in pancreatic-biliary malignancies [8]. The primary site of pancreatic-biliary cancers can be differentiated from its metastasis by using a pannel of immune markers will help to identify the origin pancreatic biliary adenocarcinoma with 98 percent specificity. However, the distinction between pancreatic and bile duct origin adenocarcinomas often lead to incorrect predictions because of the similar immune profiles.

Thyroid transcription factor 1 [TTF-1] is frequently used in the search for the primary origin of metastatic endocrine tumours and is found mainly in lungs while PSA immune-staining has high specificity for the prostate with great prognostic significance [13, 14]. Negative results for both aforementioned stains exclude the possibility of metastatic endocrine tumours, lung and prostate malignancies in our patient.

In summary, we report a 65-year-old patient who presented with acute small intestinal obstruction secondary to multiple malignant small bowel strictures. He was found to have a primary malignancy of possible pancreatic-biliary origin which was detected by a specific panel of immune-histochemical stains. Patients presenting with signs of small bowel obstruction without prior laparotomy, inflammatory strictures or abdominal hernia are high-risk candidates for malignant intestinal obstruction. Such possibility should always be considered early by clinicians to have an accurate plan of management.

Declaration of patient consent:

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his consent for his images and other clinical information to be reported in the journal. The patient understands his name and initials will not be published and due efforts will be made to conceal his identity, but anonymity cannot be guaranteed.

All authors disclose no conflict of interest. The study was conducted in accordance with the ethical standards of the relevant institutional or national ethics committee and the Helsinki Declaration of 1975, as revised in 2000.

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Learning Points:

- Multiple malignant strictures causing small bowel obstruction could be a bizarre presentation of malignancy of pancreatic-biliary origin.
- Patients presenting with signs of small bowel obstruction without prior laparotomy, inflammatory strictures or abdominal hernia are high risk candidates for malignant intestinal obstruction.
- Clinicians should have high degree of suspicion to have early diagnosis of patients with malignant small bowel obstruction to plan out their management accurately.