

Surgical Resection of Proximal Jejunal Adenocarcinoma: A Rare Case Report

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ABSTRACT

Adenocarcinoma of the small intestine is a rare gastrointestinal malignancy (proximal jejunum). In India, its incidence is reported to be extremely rare, with lymphomas occurring as the commonest type of malignancy. Diagnostic challenges arise due to the vague, non-specific symptoms, thereby affecting treatment outcomes. Surgical resection remains the mainstay of treatment. Hereby, the authors report the case of a 71-year-old male who presented with continuous vomiting for one week. There was no history of haematemesis, haematochezia, haematuria, palpitations, or breathlessness. He had no known co-morbidities. Abdominal examination revealed a vague mass in the left hypochondrium with minimal tenderness. Laboratory investigations showed anaemia. Upper gastrointestinal endoscopy revealed a growth in distal duodenum (D3-D4) suggestive of proximal jejunal lesion. A Positron Emission Tomography and Computed Tomography (PET-CT) scan was performed to evaluate extent and staging, showing a metabolically active circumferential irregular asymmetrical endophytic ulcero-proliferative thickening involving the distal part of the duodenum and Duodenojejunal (DJ) junction/proximal jejunum with luminal narrowing. Contrast-Enhanced CT (CECT) confirmed a distal duodenal mass at the (D3-D4) DJ junction/proximal jejunum. Endoscopic biopsy was taken and histopathological examination confirmed the type of tumour as adenocarcinoma. The patient underwent radical segmental resection of the proximal jejunum with side-to-side duodenojejunostomy at the D2 level under general anaesthesia. The histological type was adenocarcinoma grade G1 (well-differentiated). After an initial stay in the Intensive Care Unit (ICU) for observation the postoperative period was uneventful and patient is shifted to ward. He was discharged on postoperative day 10 in stable condition, tolerating a soft diet with a healthy surgical wound. The patient is on one year follow-up with adjuvant chemotherapy course for six months Folinic acid, Fluorouracil, Oxaliplatin (FOLFOX).

Keywords: Intestinal obstruction, Proximal jejunal tumour, Rare tumour, Segmental resection, Small bowel adenocarcinoma

CASE REPORT

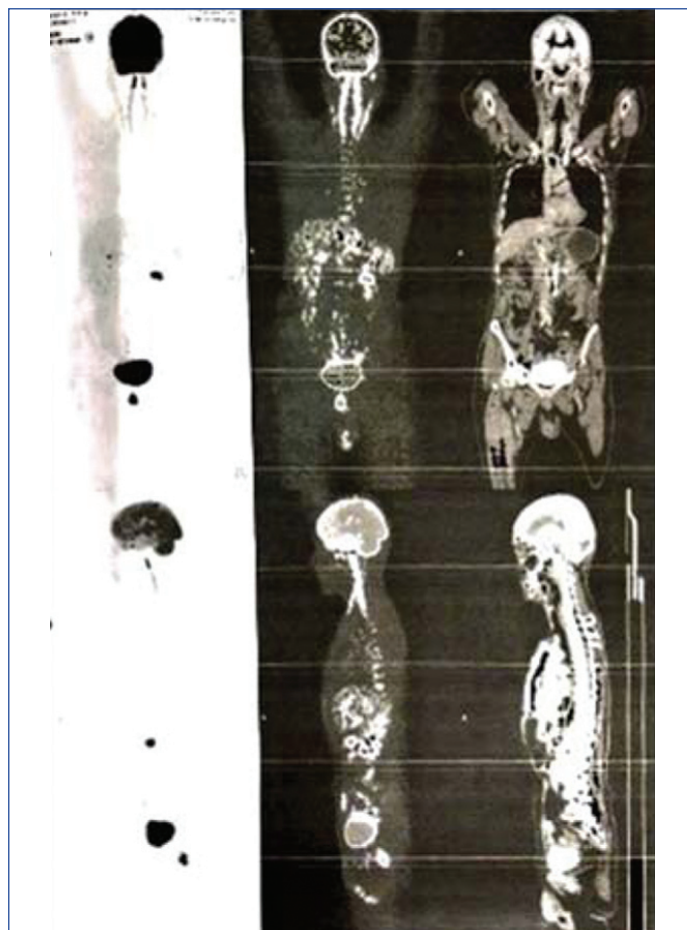
A 71-year-old male presented with continuous vomiting for one week. The patient was apparently normal one week back following which he developed vomiting with food particle as content, bilious, and associated with loss of appetite, not associated with significant weight loss. There was no history of haematemesis, haematochezia, haematuria, palpitations, or breathlessness. He had no known co-morbidities.

On examination, the patient was conscious and oriented. Vital signs were stable. Pallor was present. Abdominal examination revealed a vague mass in the left hypochondrium with minimal tenderness.

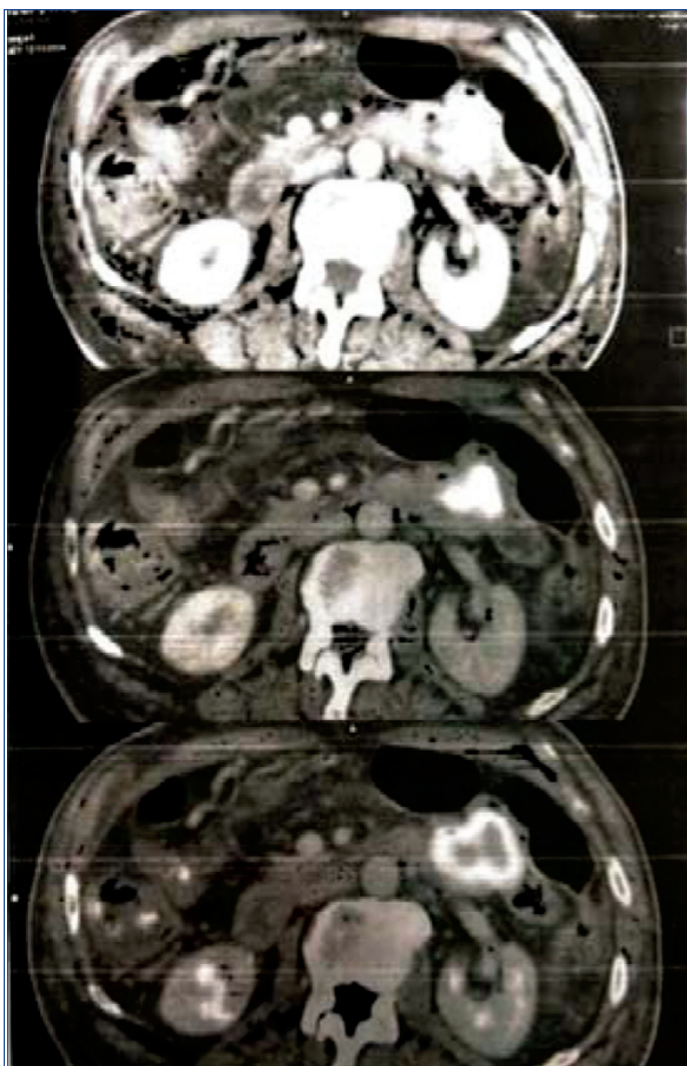
Laboratory investigations showed anaemia (haemoglobin 9.0 g/dL). Liver and renal function tests and coagulation profile were within normal limits. Viral markers such as Human Immunodeficiency Virus (HIV) I & II antibodies, Hepatitis B surface antigen (HBsAg), and anti Hepatitis C virus (HCV) were negative. Serum albumin was 3.1 g/dL preoperatively. Provisional diagnosis was intestinal tuberculosis.

Upper gastrointestinal endoscopy revealed a distal duodenal growth closer to DJ/proximal jejunum. To evaluate it further a PET-CT scan was done which revealed a metabolically active circumferential irregular asymmetrical endophytic ulcero-proliferative thickening involving the distal part of the duodenum which is DJ junction/proximal jejunum with luminal narrowing [Table/Fig-1]. CECT scan showed distal duodenal mass at the (D3-D4) DJ junction/proximal jejunum [Table/Fig-2]. Upper gastrointestinal endoscopy demonstrated a growth at the (D4) DJ junction/proximal jejunum [Table/Fig-3]. Biopsy confirmed adenocarcinoma [Table/Fig-4].

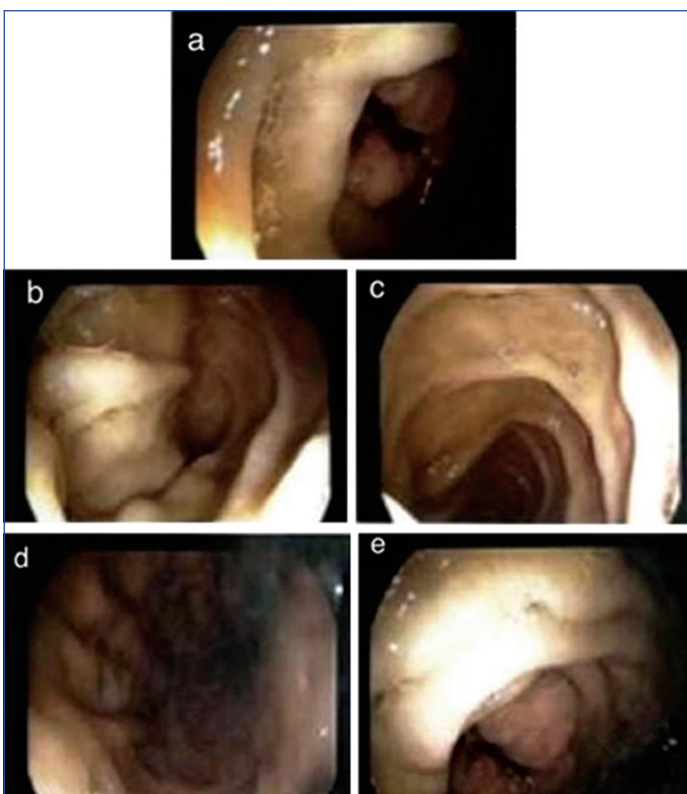
Histopathological examination findings: The specimen taken was of duodenum and jejunum with 20 lymph nodes. The tumour site was jejunum. The histological type of tumour was identified to be adenocarcinoma, with grade G1 and well differentiated. The tumour size at its greatest dimension was 3 cm and additional dimension 2x2



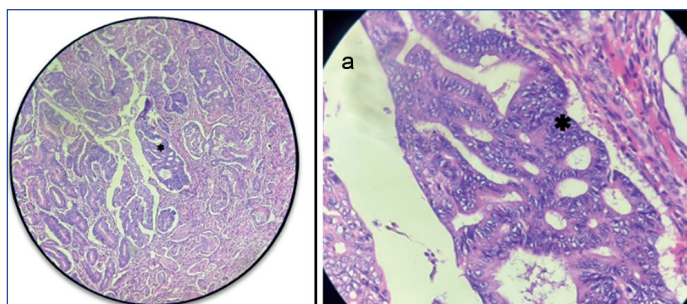
[Table/Fig-1]: Whole-body 18F-FDG PET-CT showing metabolically active distal duodenal lesion proximal jejunum.
18F-Fluorine-18; FDG- Fluorodeoxyglucose



[Table/Fig-2]: Contrast-Enhanced CT (CECT) scan showing distal duodenal mass at DJ junction/proximal jejunum.



[Table/Fig-3]: Upper gastrointestinal endoscopy showing growth: a) Endoscopic view of distal duodenum showing luminal narrowing; b) Ulceroproliferative growth at the DJ junction/proximal jejunum; c) Circumferential mucosal thickening causing partial obstruction; d) Irregular, friable mucosa with areas suspicious for malignancy; e) Close-up view of the lesion showing narrowed lumen and biopsy site.



[Table/Fig-4]: Histopathological image showing hyperchromatic areas which denotes adenocarcinoma of small intestine: a) high power image showing hyperchromatic area.

cm. The tumour invaded through muscularis propria into subserosa, extended into non peritonealised perimuscular tissue (mesentery or retroperitoneum) without serosal penetration. Lymphovascular invasion was observed to be present [Table/Fig-4]. All margins were negative for invasive carcinoma. The exact distance from invasive carcinoma to closest margin was found to be 4 cm (Proximal and radial margin). All margins were negative for carcinoma in situ (high-grade dysplasia)/adenoma, with regional lymph nodes present. Of the 20 lymph nodes examined two were found to be with tumour.

Pathologic Stage Classification (Note E): pT3pN1

pT Category: pT: Tumour invades through the muscularis propria into the subserosa, or extends into nonperitonealised perimuscular tissue (mesentery or retroperitoneum) without serosal penetration.

pN Category: pN1: Metastasis in one or two regional lymph nodes.

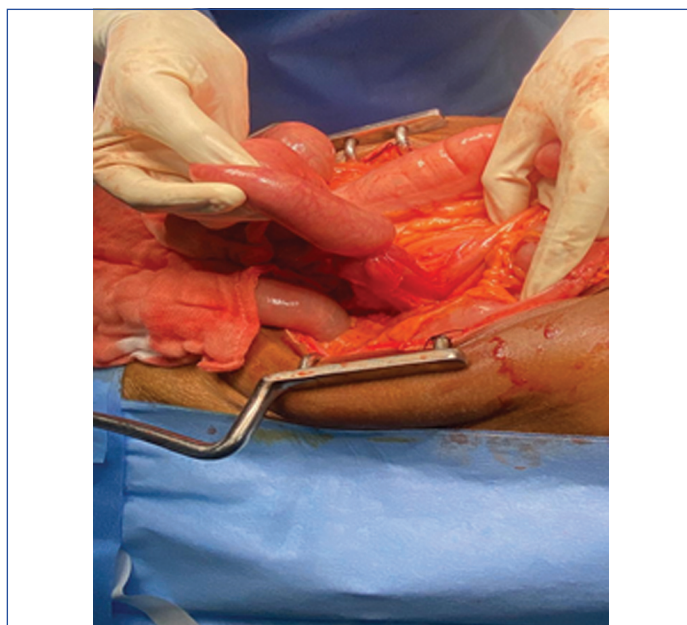
pM Category: pM cannot be determined from the submitted specimens: Not assessed (cannot be determined from the resection specimen).

Additional findings were granulomatous changes seen in one lymph node. So final tumour staging and diagnosis was pT3pN1 well differentiated adenocarcinoma.

Surgical Management

The patient underwent radical segmental resection of the proximal jejunum with side-to-side duodenojejunostomy at the D2 level under general anaesthesia.

The intraoperative findings: A stricturous growth was identified at T3 proximal jejunal area, approximately 15 cm distal to DJ flexure [Table/Fig-5]. Proximal jejunum and distal duodenum were dilated. Superior Mesenteric Artery (SMA) and Superior Mesenteric Vein



[Table/Fig-5]: Intraoperative image showing distal duodenal along with proximal jejunal lesion.

(SMV) were found to be free. Only a few regional lymph nodes (N1) were noted, with no liver metastasis or ascites observed.

The proximal duodenum and distal jejunum were resected with adequate margins. First jejunal vessels were ligated and divided. The specimen was removed [Table/Fig-6] and a side-to-side duodenojejunostomy was performed. Drains were placed bilaterally. One unit of packed red blood cells was transfused intraoperatively.



[Table/Fig-6]: Gross image of resected specimen showing jejunal segment with tumour-postoperative specimen.

The patient was monitored in the ICU initially. The postoperative period was uneventful. The patient was discharged on Postoperative Day (POD) 10 in stable condition, tolerating soft diet, with healthy surgical wound. The patient was placed on one year follow-up with adjuvant chemotherapy course for six months FOLFOX.

DISCUSSION

Adenocarcinoma at the proximal jejunum represents a rare subset of small bowel malignancies [1]. While the incidence of duodenal tumour is around 33%-45% of all small bowel tumours, its incidence is only around 0.3%-1% of all gastrointestinal malignancies [2,3]. In India, its incidence is reported to be extremely rare, with lymphomas occurring as the commonest type of malignancy [4,5]. Tumours located in the small intestine gain importance because of their vague symptoms- such as vomiting, weight loss, abdominal distension, melena, and pallor and difficulty in diagnosis, thereby affecting treatment outcomes [6]. The low incidence of these tumours is reported to be due to the liquid component of the ingested food which decreases the transit time, thereby decreasing the exposure, and also a low bacterial count in the small bowel which does not effectively convert bile acids into potential carcinogens [7].

The present case of a 71-year-old male with a T3N1 proximal jejunal adenocarcinoma, managed by side-to-side duodenojejunostomy, aligns with surgical strategies reported in recent literature emphasising curative resection with adequate margins [8,9].

Diagnosis becomes difficult due to the vague nonspecific symptoms, such as vomiting and loss of appetite as seen in the present case. This is similar to a case report of adenocarcinoma of DJ flexure in a 15-year-old that noted postprandial bilious vomiting and weight loss as the symptoms [8]. CT plays a major role in diagnosis. In our case, PET-CT revealed a metabolically active circumferential irregular asymmetrical endophytic ulceroproliferative thickening involving the distal part of the duodenum and DJ junction/proximal jejunum with luminal narrowing. Similarly, in the other case report, CT showed concentric heterogenous luminal narrowing at distal to DJ flexure with gross dilatation of the duodenum and stomach [8].

Cross-sectional imaging reveals masses or wall thickening in most cases [10]. However, endoscopy often fails beyond the segment as seen in patient of the present case and a reported fistula case where Magnetic Resonance (MR) enteroscopy uniquely identified an enteroenteric communication [6,11].

Duodenojejunostomy, as performed (15 cm proximal jejunum resected, SMA/SMV spared, N1 nodes), matches the cornerstone approach in recent reports: most of DJ tumors underwent S (side)-style duodenojejunostomy [12]. The fistula case adenocarcinoma with fistula required extended excision including colon (D3-jejunostomy, Hartmann's) while the paediatric adenocarcinoma case used identical D4-proximal jejunum resection with D2-jejunostomy (pT4N2) [6,8]. Intraoperative findings of dilated bowel without metastasis enabled R0 margins and uneventful recovery (discharge POD10), supporting segmental resection's feasibility over Whipple's.

CONCLUSION(S)

The current rare case of adenocarcinoma at the proximal jejunum records the challenges in managing small bowel malignancies amid their rising incidence in India. Though diagnostic challenges are present, we found CT playing a major role, and histopathological examination confirming the type of tumour. The findings support segmental resection's feasibility over Whipple's. This case report serves to emphasise that early diagnosis and management offer favourable outcomes.

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