

# Challenges in Diagnosing and Treating Rare Duodenal Carcinoma: A Case Report

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**Abstract:** Duodenal carcinomas are uncommon compared to other areas of the GI tract. This rarity in location makes it less suspicious and thus delay in diagnosis. We report a case of well differentiated duodenal adenocarcinoma diagnosed after detailed evaluation and treated by surgical management. A 39 - year - old woman presented with abdominal pain, bilious vomitings, decreased appetite and anorexia since 5 months. She was evaluated with UGI scopy, barium follow through, followed by enteroscopy for diagnosis. A biopsy was taken for establishing the diagnosis and FDG PET - CECT was done for staging. After confirming Adenocarcinoma from D3, laparotomy with segmental resection of duodenum and duodeno jejunal anastomosis was planned and executed. Histopathology of the specimen revealed pT3N2 stage and the patient received adjuvant chemotherapy. This case is reported in view of rarity of the disease, difficulty in making a diagnosis with routine diagnostic methods and a big challenge for surgical resection due to lack of standard oncological surgical methods.

**Keywords:** Intestinal Obstruction, Neoplasm, Enteroscopy, Duodenal Resection

## 1. Introduction

Primary duodenal adenocarcinomas, (DA) is an uncommon entity. DA account for 0.3 - 1% of all gastrointestinal malignancies (1, 2, 3). Usual site of origin is peri ampullary area (D2) and the least common site is D1. Distal DA (D3 and D4) are rare, often present with vague and non - specific symptoms. They pose a significant diagnostic challenge causing delayed diagnosis and are unresectable by the time diagnosis is established.

## 2. Case Presentation

A 39 - year - old woman presented in the outpatient clinic with complaints of postprandial vomiting and significant weight loss since 5 months. She was evaluated at multiple centers earlier, and no diagnosis was made. She also complained of fatigue and loss of appetite. There is no history of pain in the abdomen, abdominal distension, jaundice or other symptoms of GI tract. Abdominal examination, showed peristalsis from left to right in the upper abdomen. She was admitted and evaluated further. Body mass index (BMI) at the time of admission was (BMI was 16.4 kg/m<sup>2</sup> at the time of admission).

Laboratory evaluation was normal, except for elevated TSH and low haemoglobin. On endoscopy, there was gross food residue, with a distended stomach and duodenum. Scope could not be passed beyond D2.

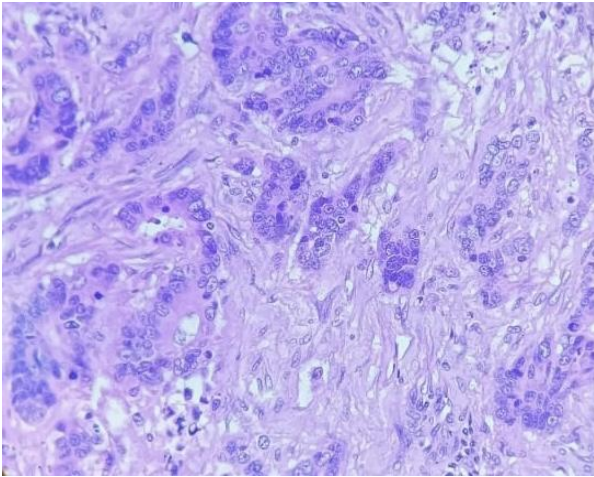
Since patient is having forgut obstruction based on symptomatology, barium meal follow through (BMFT) was performed. BMFT showed dialation of entire duodenum till D4 with minimal contrast paasage distalling suggestive of partial obstruction at the distal duodenum. Enteroscopy was done which showed a growth beyond D3 (Fig 1). Multiple biopsies were obtained. Histopathology was suggestive of well differentiated adenocarcinoma. FDG PET showed circumferential soft tissue thickening with luminal narrowing

and peri lesional stranding involving D4 segment. Wall thickening of DJ flexure and proximal jejunum was noted (1 cm). The fat planes were preserved with superior mesenteric artery and pancreatic parenchyma. FDG avid para duodenal nodes were observed.

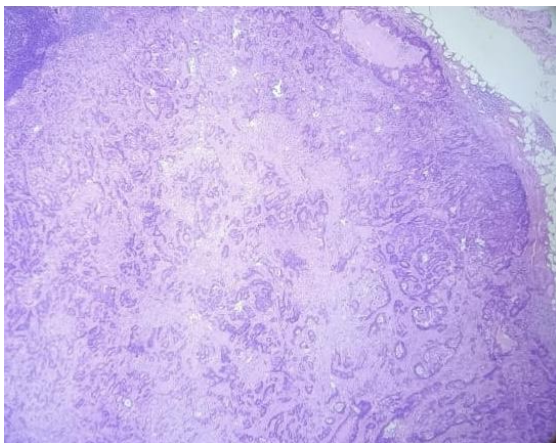
A surgical consultation was taken and patient evaluated and patient was prepared for surgery. Segmental resection of the duodenum was done from D3 - D4 junction proximally 15cms of the jejunum distally. A duodenojejunal anastomosis was performed between second part of the duodenum (D2) and jejunum in a side - to - side fashion using 3 - 0 PDS in single layer continuous fashion. Post operative (PO) period was uneventful. Enteral feeds started on PO Day 3 with liquids and progressed to soft solid diet. Patient was discharged on PO Day 6.



**Figure 1:** D3 growth



**Figure 2:** Histopathology of D3 segmental resection reveals well to moderately differentiated adenocarcinoma spreading into perimuscular soft tissue.



**Figure 3:** Histopathology of the lesion showed a well differentiated adenocarcinoma with both ends of duodenum free of tumour and evidence of lymphovascular invasion (Fig 2&3). There was no perineural infiltration. Two out of eight lymph nodes showed positive for micrometastasis. A diagnosis of distal duodenal adenocarcinoma - pT3N2M0 was made. Adjuvant chemotherapy was suggested 4 weeks after surgery.

### 3. Discussion

As per available data, small intestinal malignancies (duodeno, Jejunal and ileum) are relatively rare, accounting for only 2% of all gastrointestinal cancers. Most of the malignancies of small intestine arise in the ileum, followed by the duodenum and lastly the jejunum (4). While most tumors of the ileum are neuroendocrine in origin, adenocarcinoma is the most common duodenal cancer. One large population - based analysis found the duodenum to be the location of 55.7% of adenocarcinomas of the small bowel (5). The majority of DA arise in the second portion of the duodenum, followed by D3/D4, and lastly the first portion of the duodenum.

The causative factors for duodenal adenocarcinoma (DA) have not been clearly identified (6). Dietary factors, such as increased intake of bread, pasta, sugar, red meat and reduced intake of fruits and vegetables, are risk factors for small bowel adenocarcinoma (SBA). Ingestion of alcohol, coffee and use of tobacco are also considered as risk factors.

Nevertheless, the strength of these associations is small and the majority of cases of duodenal adenocarcinoma (DA) do not show with any known causative factors. However, duodenal adenomas, such as those that occur in familial adenomatous polyposis (FAP) and Gardner syndrome, are associated with elevated risk of DA (7). Similarly, patients with duodenal polyps are also at increased risk, although less investigated than colon polyps in view of decreased prevalence.

There would be a diagnostic difficulty in distal duodenal carcinoma as they are not usually accessible to upper GI endoscope. Imaging studies help in diagnosing and staging the lesion with a given clinical setting and advanced investigations like enteroscopy would help clinch the diagnosis with tissue biopsy (8, 9). Our patient had the same difficulty and had several investigations before referral to our center without a definite diagnosis. Enteroscopy was helpful in reaching the area of the lesion and biopsy confirmed the diagnosis. Surgical treatment of distal duodenal adenocarcinoma requires special care in view of restoring the intestinal continuity in the vicinity of several vital structures.

### 4. Conclusion

Distal duodenal adenocarcinomas are rare tumours and the clinical presentation is not helpful in making an early diagnosis. As the lesion is not easily accessible to routine diagnostic methods an early decision to utilize CT imaging and deep enteroscopy may be helpful in making a definitive diagnosis. Surgery is the treatment of choice in all operable lesions.

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