

Jejunal Adenocarcinoma: An Elusive Diagnosis

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Abstract Tubercular stricture of small bowel is a common cause of subacute intestinal obstruction in India. In a small subset of patients the cause of the intestinal obstruction could be adenocarcinoma of jejunum. It is difficult to diagnose preoperatively. The point of concern is compared to tubercular stricture, the treatment of jejunal adenocarcinoma is always surgical in the form of cancer directed surgery. The operating surgeon needs to have a very high suspicion for jejunal adenocarcinoma because the timely treatment offers the best survival in otherwise an aggressive disease with bleak prognosis.

Keywords Jejunal adenocarcinoma · Tubercular stricture

Introduction

Common causes of intestinal obstruction are intestinal adhesion, incarcerated hernia, malignant bowel obstruction, granulomatous diseases like crohns disease, intussuception, congenital lesions like meckels diverticulum, malrotation of

bowel, annular pancreas etc. Abdominal or intestinal tuberculosis (TB) is a cause uncommon in the world except India. [1–3]. However, a very small number of these obstruction could be because of strictures due to reasons like adenocarcinoma of small bowel, carcinoid, lymphoma etc. Adenocarcinomas of small bowel are only 1–2% of all gastrointestinal (GI) malignancies. The duodenal adenocarcinoma is most common, whereas adenocarcinoma of jejunum is still rarer. The clinical features of jejunal adenocarcinomas are often vague fitting into the spectrum of benign disease leading to misdiagnosis, delay and poor prognosis.

Case History

Case 1

A 20 years old laborer from rural India presented to our emergency with complaints of colicky pain abdomen, vomiting and abdominal distension for last two days. On investigation, Hb 8.6 gm%, serum sodium 136 meq/l, serum potassium 2.9 meq/l, TLC 10900/cumm, and DLC P82 L15 M2 E1 were found. He was taking anti tubercular therapy (ATT) for pulmonary tuberculosis for the last 3 months. A preoperative diagnosis of acute intestinal obstruction, cause intestinal tuberculosis was made and emergency exploration was done. Per-operatively, a stricture in jejunum approximately 2 ft distal to duodenojejunal junction (DJ), few enlarged mesenteric lymph nodes and rolled up omentum were found. Biopsy from the omentum and mesenteric lymph nodes were taken. Considering his young age and history of tuberculosis, possibility of tubercular stricture was considered and stricturoplasty, after freshening the margins was done. Postoperative period was uneventful and patient was discharged on ATT. Patient was lost to follow up until he turned up again in the surgery

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emergency after one month with biopsy report and complaints of colicky pain abdomen, distension and bilious vomiting. Biopsy report showed reactive hyperplasia of lymph nodes and metastatic adenocarcinoma in omentum. Contrast Enhanced Computed Tomography (CECT) abdomen reported dilated stomach, duodenum and proximal jejunum with enlarged mesenteric lymph nodes (Fig. 1). Patient was re-operated and a cancer directed surgery was done, that included wide excision of jejunum (Fig. 2) with wide excision of mesentery and omentum. Patient did well in the post-operative period and was discharged after 10 days. The histo-pathology of the strictured segment showed malignant epithelial tumor disposed in nests, sheets, acini and in cribriform pattern, reaching up to muscularis mucosa. Individual tumor cells were pleomorphic round to oval with hyperchromatic nuclei and increased nucleocytoplasmic ratio with fair number of mitotic figures. Intervening stroma shows desmoplastic and lymphocytic infiltration. Omental lymph nodes had tumor with similar morphology (T4 N1 M0). No adjuvant chemotherapy was given. Patient died after 9 months in follow up.

Case 2

A 35 years old housewife from rural background presented to surgery emergency with complaints of recurrent vomiting and obstipation for 2 days. She had history of previously treated pulmonary tuberculosis. Patient did well for 3 months and presented with sub-acute intestinal obstruction to a surgeon who once again started ATT. The symptoms were unrelieved, and she came to our emergency. She came with a week old small bowel contrast follow through study, which reported dilated stomach, duodenum and proximal jejunum with stricture in jejunum. Pre-operative diagnosis of tubercular stricture was made and



Fig. 1 Contrast enhanced computed tomography scan of case 1 showing dilated duodenum and proximal jejunum with arrow pointing on stricture in proximal jejunum

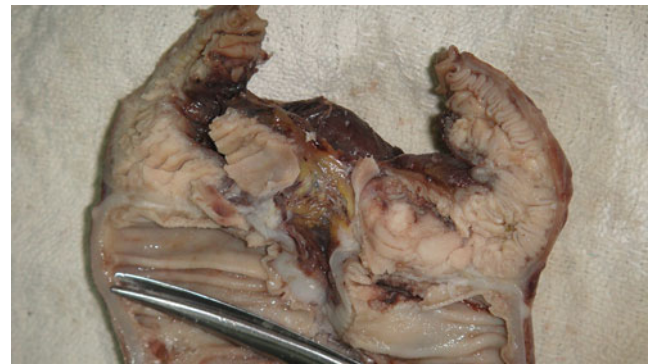


Fig. 2 Cut section of gross specimen of jejunal stricture of case 1 showing growth and dilated proximal portion of jejunum

exploratory laparotomy was done. There was a tight jejunal stricture about one foot distal to DJ with enlarged hard mesenteric lymph nodes (Fig. 3). Since the stricture was not passable and hard, along with hard lymph nodes and findings were against abdominal tuberculosis therefore, a cancer directed surgery was performed. Since the area was close to DJ junction a distal feeding jejunostomy was also done so as to have a route for enteral nutrition in case the anastomosis leaked. The postoperative period was uneventful. The histopathology report came to be adenocarcinoma of jejunum with both margins free and metastasis in one lymph node (T3 N1 M0). No adjuvant chemotherapy was given. Patient is in follow up for the last 4 months and is doing well.

Search Strategy

An English literature search was done in pubmed/medline using the keywords “jejunal adenocarcinoma”, “small bowel malignancy”, “tubercular strictures”, and “abdominal tuberculosis”.

Discussion

Tuberculosis accounts for about 3–20% of all cases of bowel obstruction in India [1–3]. The abdominal tubercu-



Fig. 3 Per-operative image of case 2 showing tight jejunal stricture about one foot distal to duodenojejunal junction

losis is a disease of young age [4]. History of pulmonary tuberculosis, past or present, creates bias in favor of abdominal tuberculosis in situations when the cause of obstruction is malignancy leading to delay in diagnosis and poor outcome.

Pathogenesis

Small bowel adenocarcinomas are only 1–2% of all GI cancers and jejunal are rarer. [5]. The environment of small bowel is anti neoplastic because of several features that include rapid transit of food, low bacterial content, presence of enzyme benzopyrene hydroxylase, rapid turnover of epithelial cells and IgA elaborating lymphoid tissue having protective effect [6]. However conditions and risk factors for small bowel malignancies include preexisting adenoma, crohns disease, celiac sprue, hereditary nonpolyposis coli, familial adenomatous polyposis, Peutz Jegher syndrome and red meat. However, these risk factors were absent in the cases discussed above. Surveillance, Epidemiology, and End Results (SEER) program data on small bowel malignancy from 2004–2008, reports that the incidence of small bowel malignancy is less among Asian/Pacific islanders as compared to whites and blacks (whites: 2.4 per 100,000 men/1.6 per 100,000 women, blacks: 3.5 per 100,000 men/2.7 per 100,000 women, Asian/pacific islanders: 1.4 per 100,000 men/0.8 per 100,000 women) which indicates that the incidence is less in Asia when compared to west. [7]

Clinical Features

The age of the patients of abdominal tuberculosis is between 21 and 40 years [4] whereas adenocarcinoma of the small bowel presents in the age between 50 and 70 years with a male preponderance with no specific mention for jejunal adenocarcinoma [8–11]. However, the dissimilarities between two conditions end here and majority of the clinical conditions are similar in both, viz, abdominal pain (50–75%), nausea/vomiting (33–72.5%), weight loss (38–52.5%), intestinal obstruction (31.3–44%), and gastrointestinal bleeding (23–33%) in the descending order [12–14]. In addition to above, abdominal tuberculosis patients may also presents with history of pyrexia. However, the preoperative findings may be little more different. The adenocarcinomas arise more often in duodenum and jejunum; the stricture is tighter and harder. The lymph nodes are also harder compared to abdominal tuberculosis. When opened up large tubercular lymph nodes may have caseous material. Small bowel carcinoid cause intense inflammatory reaction causing stricture and hence small bowel obstruction, closely mimicking small bowel adenocarcinoma. Small bowel carcinoids have propensity for

ileum and are multi centric. In the absence of clinical features and biochemical evidence the diagnosis of small bowel carcinoid is as difficult as that of small bowel adenocarcinoma [15]

Investigations

Scope of mode of investigation of small bowel tumors is vast and varied. Until recently, barium meal follow through was the only available and hence gold standard for the detection of small bowel carcinoma with the sensitivity of 60% [16, 17]. A very promising mode of investigation is enteroclysis but its wide use is limited due to sparse availability [18]. Push and double balloon enteroscopy have individually overcome the disadvantages of conventional endoscopic techniques by their ability to visualize the entire length of small intestine but they are again available only in specialized centers and are time consuming. Capsule endoscopy is the most advanced and encouraging investigation in the present time. In a meta-analysis of 32 studies 106 neoplasms were investigated with capsule endoscopy against a comparator technique (push enteroscopy, small bowel series or colposcopy with ileoscopy) and capsule endoscopy detected 81% while others detected 37% only [19]. But this technique has its own disadvantages, one being its inability to take biopsy and other being uncontrolled movement along the intestine. Diagnostic laparoscopy with frozen section, where available, albeit invasive, is the confirmatory investigation for small bowel carcinoma. CECT/Magnetic Resonance Imaging (MRI) are the best mode of investigations for loco-regional and distant metastasis but have questionable value in diagnosing the primary lesion with a sensitivity of 47–80% [20, 21]. Thus, because of shortcomings in the investigations and scarcity of there availability, it is usually diagnosed per-operatively or on histopathology later.

Management

The best overall survival is offered by cancer directed surgery. In jejunal adenocarcinoma the cancer directed surgery includes wide excision of jejunum along with mesentery and draining lymph nodes. This curative resection offers 50% chance of cure [13]. Chemotherapy does not seem to have significant effect on survival in most of the studies [14]. Fishman et al. in a retrospective review of 113 patients found that newer chemotherapy combination of gemcitabine and irinotecan fared better than older fluorouracil-based regimens [22]. Overman et al. observed that treatment with 5-FU and a platinum agent was highly effective, producing response rates of 41% and a median progression free survival of 8.7 months [23]. The prognosis of small bowel tumors is poor, with most series reporting a

5-years survival of 15–35%. After curative surgical resection this rate increases to 40–65% in most studies [24]. Several cases of jejunal adenocarcinoma are reported in the literature from Mayo clinic, Ireland [25], and a 22 case series from Hong et al. [26]. The information on duodenal adenocarcinoma is huge whereas it is little in jejunal adenocarcinoma. The available literature mentions only four cases of jejunal adenocarcinoma from India by three authors. Two out of these were of Peutz Jegher syndrome of which one presented with recurrent intestinal obstruction and the malignancy was diagnosed by endoscopic biopsy, while the other one presented as acute intestinal obstruction due to intussusception so the diagnosis of malignancy was later made by open biopsy on laparotomy [27, 28]. The other two cases were of adenocarcinoma at the level of ligament of treitz, one of which presented as recurrent upper GI obstruction and the other one as superior mesenteric artery obstruction [29]. In both the cases the diagnosis of malignancy was established by open biopsy on laparotomy. The treatment of all the cases was surgical excision and no chemotherapy was given. Since there is no series available in India, prognosis and survival rates cannot be commented upon.

Conclusion

While managing small bowel obstruction caused by strictures the possibility of adenocarcinoma should also be kept in mind. If there is suspicion of adenocarcinoma based on operative findings a cancer directed surgery seems to be rational surgical approach for a disease with a bleak prognosis. If the clinical condition of patient does not permit or there is doubt about the disease, biopsy of the suspicious lesion and a cancer directed surgery at later date is another reasonable option. The emergency surgeons should be wise enough to take decision based on above facts thereby preventing delay in diagnosis and poor outcome of an aggressive disease.

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