A case series of acute intestinal obstruction due to jejunal adenocarcinoma

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ABSTRACT

Background: Though tuberculosis strictures are the most common cause of acute intestinal obstruction, in rare patients, malignant strictures are found in the jejunum causing acute intestinal obstruction and biopsy of these strictures came out to be jejunal adenocarcinoma.

Case Presentation: In this case series, we presented three cases of jejunal adenocarcinoma who presented in the emergency department with sign and symptoms of acute intestinal obstruction and peritonitis. All were operated and samples were sent for histopathology which shows jejunal adenocarcinoma in all three cases. Patients were sent to oncology department for adjuvant radiotherapy. Fortunately, all patients responded well to radiotherapy and post op follow up was satisfactory.

Conclusion: Although a rare entity, the operating surgeon should keep a high suspicion for malignancy in cases of acute intestinal obstruction if strictures are found in jejunum and cancer directed surgery technique should be followed because this timely treatment is the best survival offer for the patient in otherwise aggressive disease.

Keywords: Case series, jejunum, small intestine, adenocarcinoma, obstruction, oncology.

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Background

Small bowel obstruction is a common presenting complaint of patients presenting in the emergency department around the globe [1]. There are many causes of small bowel obstruction the most important of which are adhesions due to previous operation, tuberculous stricture, and incarcerated hernia. In low economic and developing countries like Pakistan where tuberculosis is still endemic, most of the acute obstruction cases are found due to tuberculosis stricture. These strictures can be found in jejunum as well as in the ileum. Among the malignancies of small intestine, adenocarcinoma of small bowel is a rare entity and it accounts for only 1%-2% of the gastrointestinal malignancies. In developing nations with high incidence of poverty and illiteracy, patients cannot be screened at the first place [2]. Furthermore, once screened, other factors like poverty and social status cannot allow them to afford costly treatment. Therefore, such patients present very late in the emergency department of different hospitals when the tumor invades the whole circumference of the jejunum and patients experienced the sign and symptoms of small bowel intestinal obstruction [3]. Also, the clinical features of jejunal adenocarcinoma are often very vague resembling to the sign and symptoms of benign disease which is also a cause of misdiagnosis, delay in the treatment and poor prognosis [4].

Here, we present a case series of three patients who presented in the emergency department with small bowel obstruction and later their biopsy came to be adenocarcinoma of the jejunum.

Case Presentation

Case no 1

A 28-year-male worker in plastic factory presented in the emergency department of EAST Surgical ward of MAYO hospital Lahore in March 2020, with history of absolute constipation and vomiting for 1 day. On examination, he had tense and tender abdomen with absent bowel sounds and resonant percussion note. His X-ray abdomen showed multiple air fluid level with dilated small bowel loops. Diagnosis of acute intestinal obstruction was made and patient was resuscitated and consent for exploratory laparotomy under general anesthesia was taken from the patient. On exploration of abdomen through midline umbilical saving incision, small gut about 1.5 feet distal to duodenojejunal junction was dilated, a 5 × 5 cm mass was

observed obstructing the lumen of jejunum completely (Figure 1). Resection of this mass along with 5 cm normal margin proximal and distill to mass was done and end to end anastomosis was done in single layer extra mucosal fashion. Surgery and post-operative period remained uneventful. Biopsy came out to be grade II moderately differentiated adenocarcinoma (Figure 2). Three out of six lymph nodes were involved by tumor and resection margins were clear of tumor. Patient was then sent to oncology department where he received five cycle of radiotherapy in 3 months. Response to radiotherapy was satisfactory and assessed by Computerized tomography Scan (CT) of chest abdomen and pelvis after 3 months.

Case no 2

A 40-year-male laborer presented to the emergency department of EAST Surgical ward of MAYO Hospital Lahore in April 2020 with vomiting, absolute constipation and abdominal distension for 4 days. He had positive family history for pulmonary tuberculosis. On examination, he had tense and tender abdomen with board like rigidity and dull percussion notes. Patient was resuscitated, nasogastric tube and foleys catheter was passed. His chest X-ray showed free gas under right hemidiaphragm and abdominal X-ray showed ground glass appearance. The diagnosis of tuberculosis stricture perforation was made and consent for exploratory laparotomy under general anesthesia with stoma formation was taken from the patient. After opening of abdomen with midline umbilical saving incision, 3 Liters of purulent fluid was aspirated from abdomen. A circumferential stricture was found 2 and half feet distal to duodenojejunal junction was noted with perforation just proximal to it and multiple enlarged lymph nodes in the jejunal mesentery (Figure 3). The stricture completely occluded the lumen of the jejunum causing grossly distended proximal jejunum. Part of jejunum containing stricture was resected with 5 cm normal healthy margins and double barrel jejunostomy was made. Surgery and post-operative period remained uneventful and patient was discharged on 4th post-operative day. Biopsy was followed and it came out to be poorly differentiated adenocarcinoma. Six out of eight lymph nodes were positive for

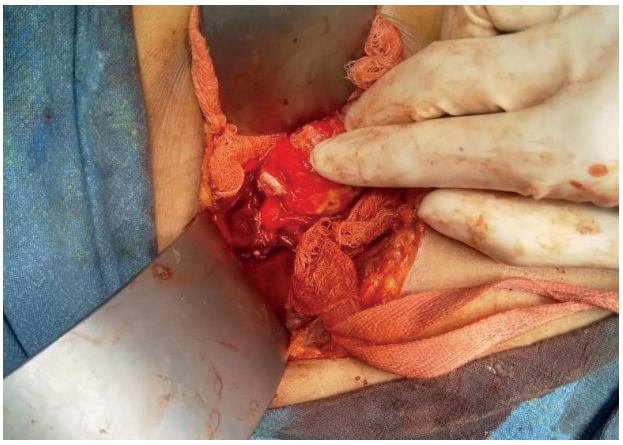

Figure 1. *5 × 5 cm mass obstructing the jejunum.*

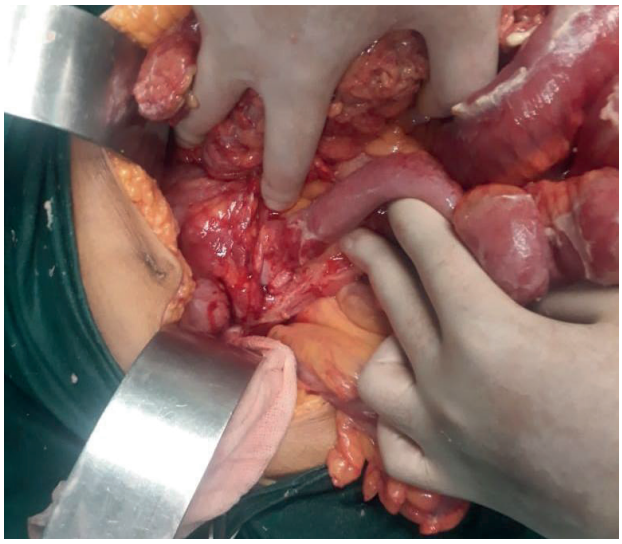

Figure 3. *A circumferential stricture around jejunum 2 and half feet distal to duodenojejunal junction.*

Microscopic Description and Diagnosis

Histologic Type: Adenocarcinoma.

Histologic Grade: Grade II, moderately differentiated

Microscopic Tumor Extension: Tumor invades through the muscularis propria into serosa

Margins:

Nearest resection margin: 2.2 cm

Distant resection margin: 6 cm

Figure 2. *(Biopsy Report) - The microscopic description and diagnosis of the specimen were Grade II Moderately differentiated Adenocarcinoma with tumor invades through the muscularis propria into the serosa. the nearest resection margin is 2.2 cm and the distant resection margin is 6 cm.*

malignant cells and margins were free of tumor. Patients was sent to oncology department where he received four cycles of radiotherapy and was later assessed CT chest abdomen and pelvis. He was declared tumor free after 7 months by oncology department and reversal of jejunostomy was done in November 2020 and patient was discharged after 3 days.

Case no 3

A 67-year-old male presented to emergency department of EAST Surgical ward of MAYO Hospital Lahore in June 2020 with chief complaint of relative constipation and vomiting for 3 days with history of weight loss. On examination, his abdomen was tender in the umbilical region and bowel sounds were negative. X-ray erect abdomen showed multiple air fluid levels. Diagnosis of acute intestinal obstruction was made and consent for exploratory laparotomy under general anesthesia was taken from the patient. On opening abdomen jejunum was grossly distended with a 6 × 7 cm mass with overlying omentum over it (Figure 4). Mass was occluding the jejunum lumen completely. Resection of mass done along with jejunal mesentery and end to end anastomosis was done. Surgery and post-operative period was uneventful and patient was discharged on 5th post-operative day. Biopsy was followed and it came out to be poorly differentiated adenocarcinoma with two out of five lymph nodes were positive for malignant cells. Patholgical TNM classification (pTNM) was pT4a, pN1b (Figure 5). Patient was sent to oncology department where he received adjuvant radiotherapy of five cycles in 3 months and followed by CT chest abdomen pelvis after 3 months when he was declared as tumor free.

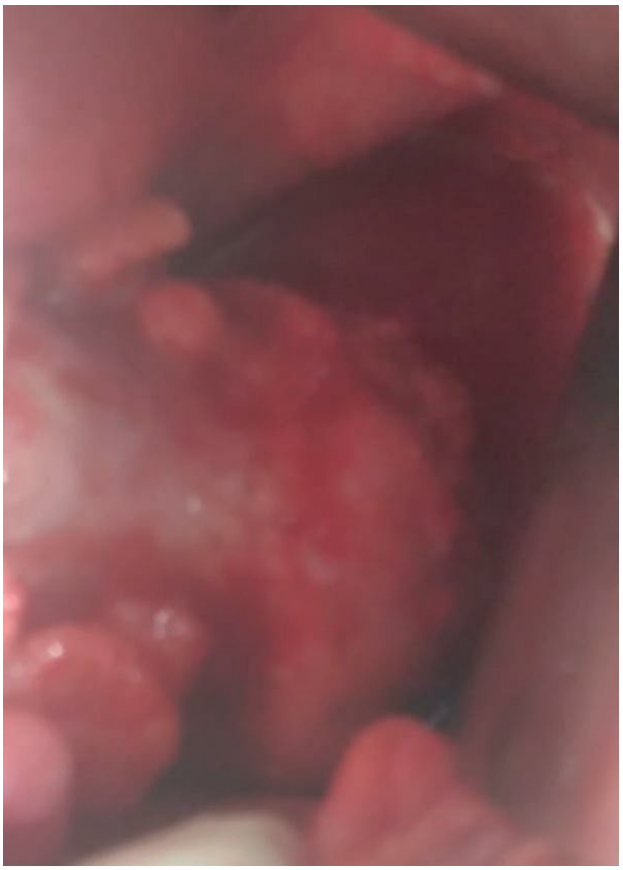

Figure 4. *6 × 7 cm mass in jejunum 2 ft distal to duodenojejunal junction.*

Discussion

The incidence of adenocarcinoma in the small bowel is very rare. They account for only 1%-2% of all gastrointestinal cancers [5]. Because of several anti-neoplastic features of the small bowel which includes rapid transit of food, rapid turnover of epithelial cells and presence of IgA lymphoid tissue, it is very rare for production of malignant cells in small intestine. However, there are some conditions which favor the occurrence of carcinoma in the small intestine which include preexisting adenoma and Crohn's disease [6]. None of these features were assessed in our patients as all were presented in emergency department and emergency surgery was the appropriate treatment at that time. It has been reported that small bowl malignancy is less common among Asian population as compared to Whites and blacks (whites: 2.4 per 100.000 men/2.7 per 100,000 women, Asian: 1.4 per 100,000 men/0.8 per 100,000 women) [7].

In the literature, most of cases reported were between the age of 40 and 70 years while our case No 1 was just 28 years of age when he developed adenocarcinoma of jejunum. Male are affected more as compared to females. In a study done by Agarwal et al. [8] most cases of adenocarcinoma present with abdominal pain (50%-75%), nausea and vomiting (33%-72.5%), weight loss (38%-52.5%), intestinal obstruction (31.3%-44%), and gastrointestinal bleeding (23%-33%). In this case series, Case No 1 and 3 presented with sign and symptoms of intestinal obstruction while case No 2 presented with sign and symptoms of peritonitis due to hollow viscus perforation. Adenocarcinomas are mostly found in duodenum as compared to jejunum.

Until recently barium follow through was the gold standard for detection of small bowl lesions with sensitivity of 60%. Capsule endoscopy is the most advanced and promising investigation in present time. In a meta-analysis of 32 studies, 106 neoplasms were investigated with capsule endoscopy. It was compared with other imaging techniques like push enteroscopy, and it was found that capsule endoscopy detected 81% while other detected only 37% of small bowel lesion [9]. But capsule endoscopy had its

Biopsy Report - The pathological TNM stage

pTNM: pT4a, pN1b

Figure 5. *(Biopsy Report) - The pathological TNM stage of the tumor was pT4a,pN1b.*

own disadvantage like inability to take biopsy. Magnetic resonance imaging is very useful in loco-regional and distant metastasis with sensitivity of 47%-80%.

The best treatment for small bowel malignancy is cancer directed surgery. This includes wide excision of jejunum along with mesentery and lymph nodes. Surgery offers 50% of cure. Chemotherapy had no role in small bowel malignancy. Prognosis of small bowel malignancy is poor with most case series reported a 5-year survival of 15%-35% [10].

Conclusion

Although rarely found, while managing small bowel obstructions the possibility of adenocarcinoma of jejunum must be kept in mind. When suspicion of malignancy is high, cancer directed surgery should be done during the first operation for better prognosis. If surgery not possible due to poor patient conditions biopsy and radiotherapy can play an important role in increasing the life expectancy of the patient.

List of Abbreviation

CT Scan	Computerized Tomography scan.
pTNM	Pathological Tumor,Nodes and Metastasis classification.

Conflict of Interests

The authors declare that there is no conflict of interest regarding the publication of this article.

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Consent for publication

Written consent was obtained from the patients.

Ethical approval

Ethical approval is not required at our institution to publish an anonymous case report.

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Summary of the case

1	**Patient (gender, age)**	28/40/67 years, male
2	**Final diagnosis**	Intestinal obstruction
3	**Symptoms**	Absolute constipation, vomiting
4	**Medications**	Broad spectrum antibiotics
5	**Clinical procedure**	Exploratory laparotomy
6	**Specialty**	General surgery, gastroenterology