CASE REPORT
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Emergency surgery for Acute Intestinal Obstruction due to Carcinoma of the Transverse colon

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ABSTRACT

Colo-rectal cancer (CRC) is the second most common cause of cancer death in the United Kingdom. Approximately one-third of these tumors are in the rectum and two-thirds in the colon. Acute intestinal obstruction due to cancer is a serious condition that can lead to severe complications like bowel perforation, peritonitis, and even death. An emergency surgery is needed to relieve the obstruction and prevent these complications. Emergency surgeries are associated with higher risks of complications and mortality compared to elective procedures. Here, we report a case of acute intestinal obstruction due to carcinoma of the transverse colon. There was closed loop intestinal obstruction due to carcinoma with stricture at transverse colon, impending to gangrene and perforation of caecum and ascending colon. In the present case, the tumor in the transverse colon is causing a blockage, preventing the normal passage of intestinal contents. There was blood stained ascitic fluid about two liters, multiple metastatic lesions on the surface of liver, gut, greater omentum, mesentry and pelvic peritoneum. Right hemi-colectomy with ilio-transverse anastomosis was done as a palliative emergency surgery. His postoperative period was uneventful. He was referred to oncologist for adjuvant therapy.

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INTRODUCTION

An emergency surgery is needed for an acute intestinal obstruction due to carcinoma of the colon to relieve the obstruction and potentially remove the cancerous tumor. The surgery may involve techniques like resection and anastomosis, depending on the extent of the obstruction and the overall health status of the patient. Obstructive colon cancer requiring emergency surgical or procedural intervention accounts for 10%-18% of patients initially diagnosed with colon cancer.[1]

Bowel obstruction is one of the principal non-traumatic causes of general surgery emergencies in worldwide.[2] The principal etiologies of bowel obstruction that generally affect the small bowel are adhesions, while those affecting the large intestine tend to be inflammatory processes (ulcerative colitis and Crohn's disease) or tumor development.[3] The most common symptoms in cases of obstruction affecting the large intestine

are diffuse abdominal pain, abdominal distension in 65% of cases and associated with constipation. The abdomen may be hyper-tympanic in physical examination. In cases of mechanical obstruction, the possibility of malignancy must be taken into consideration; therefore attention should be paid to associated wasting symptoms such as weight loss, anorexia and weakness.[4,5] Tumors of the left side of the colon usually present with a change in bowel habit or rectal bleeding, while proximal lesions typically present with iron deficiency anaemia or a mass. Patients may present with metastatic disease.[6] A careful family history should be taken. A first-degree relative who has developed colorectal cancer before the age of 50 years may indicate one of the colorectal cancer familial syndromes. Emergency presentation occurs in 20% of cases and is associated with a considerably worse prognosis, even when matched for disease stage.

The operation of choice for acutely obstructed carcinoma of the left colon with a massively distended and fecal-loaded colon with ischemic lesions and serosal tears or perforation on the cecum is controversial. If the ileocecal valve is competent, colonic distention is greater, which increases the risk of ischemia and perforation. The cecum is the most common site of perforation in patients with distal large bowel obstruction in the setting of a competent ileocecal valve. Subtotal or total colectomy with anastomosis is indicated in patients with right-sided concomitant tumors or ischemic lesions or serosal tears on the cecum. Performing subtotal or total colectomy for left bowel obstruction without these indications is seen as controversial.[7]

The objective of this study was to describe a case of an adenocarcinoma of the transverse colon resulting in closed-loop obstruction and palliative right hemi-colectomy with ilio-transverse anastomosis was done as an emergency surgery in a tertiary level hospital.

The Case

A male of 75 years old farmer was admitted in North Bengal Medical College Hospital with severe continuous pain in the whole abdomen for 20 days associated with progressively increasing abdominal distention, vomiting and absolute constipation. His pain initially was colicky in nature then it became continuous which was aggravated by taking food but not relieved by medication. He also noticed a lump in the abdomen. He had history of weight loss about 15 kg for last six months. He had no history of trauma, tuberculosis (TB), diabetes mellitus. There was no family history of TB.

He was anaemic, dehydrated with poor nutrition. On abdominal examination, it was distended, visible peristalsis in step ladder pattern and tenderness in the whole abdomen. There was an intra-abdominal lump about 40x20 cm in size occupying from right iliac fossa to epigastrium which was tender, soft in consistency and dull on percussion. On digital rectal examination: rectum was empty and collapsed. Pelvic deposit was found. Other systemic examinations were normal.

His haemoglobin-10.8 gm/dl of blood and ESR was 19 mm in 1st hour. Serum creatinine, serum electrolytes, liver function tests were normal limit. Serum albumin 3.6gm/dl, CEA 51.56 ng/ml. Chest x-ray, ECG and Echo were normal. Ultrasonography of abdomen revealed moderate ascites with distended bowel loops. CT scan of abdomen revealed heterogeneous enhancing circumferential irregular thickening of wall of hepatic flexure extend to right side of transverse colon causing luminal narrowing and dilatation of caecum, ascending colon. Enhancing irregular thickening of wall of terminal ileum including ileocaecal junction. Enhancing soft tissue nodules within omentum and mesocolon. Moderate ascites. Enhancing subcentimetric sized precaval and right colic lymph nodes. Liver and other organs normal. No evidence of bony metastasis. (Figure 1).

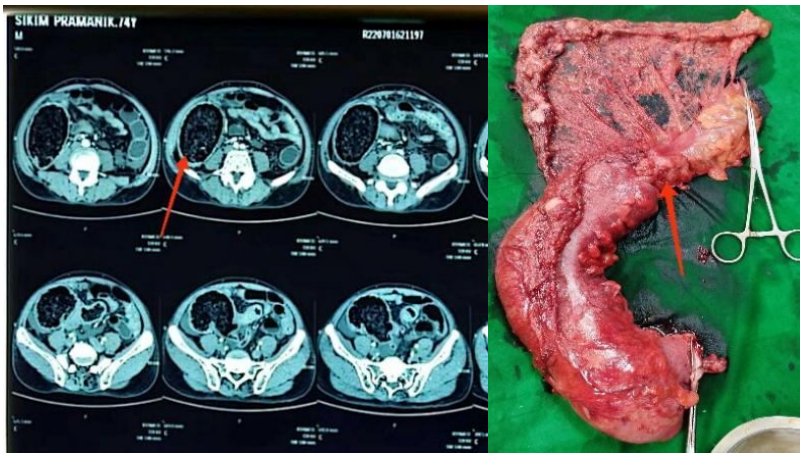

Figure 1 **Figure 2**

Figure 1: Axial non-contrast CT image of abdomen showing hugely distended right colon (arrow)
Figure 2: Specimen of resected colon with malignant stricture (arrow)

After resuscitation, laparotomy was done by midline incision. There was blood stained ascetic fluid about two liters, multiple metastatic lesions on the surface of liver, gut, greater omentum, mesentry and pelvic peritoneum. There was a growth with stricture at mid part of transverse colon and hugely distended caecum, ascending colon and part of transverse colon with stool. A closed loop type obstruction of colon found. The colon distal to the obstruction was empty and collapsed. Ascitic fluid was collected and sends for laboratory investigations. Right hemi-colectomy with iliotransverse anastomosis was done as a palliative procedure. Two drain tubes kept in situ. After counting all instruments and mops, abdomen was closed in layers. Specimen of resected gut sent for histopathological examination. His postoperative period was uneventful. He was discharged on 10th postoperative day.

Histopathology report shows adeno-carcinoma. Grade 2, pT_{4b} N_{2a} M1c. (Moderately differentiated adeno-carcinoma with distant metastasis).

DISCUSSION

Colorectal cancer is the third leading cause of cancer in men worldwide (10% of all cases) and the second cause in women (9.2% of all cases) according to data published by the World Health Organization (WHO). It is the most common form of cancer of the gastro-intestinal tract in both sexes. It accounts for 8.5% of all deaths from cancer, with the number of deaths being higher in less developed countries.[8]

Colorectal malignancies are a common general surgical presentation. The burden of disease is greater in men than in women (56% versus 44%). Colo-rectal cancer occurs less frequently in resource-poor than in resource-rich countries.[6] Most colorectal cancers are thought to develop from adenomatous polyps through a sequence of genetic mutations influenced by environmental factors. This adenoma–carcinoma sequence is based on strong observational evidence. Macroscopically, the tumour may take one of several forms: annular cancers tend to give rise to obstructive symptoms whereas ulcerating cancers tend to present with bleeding. Most large bowel cancers arise from the left colon, notably the rectum (38%), sigmoid (21%) and descending colon (4%). Cancer of the caecum (12%) and ascending colon (5%) is less common but may be gradually increasing in incidence. Cancer of the transverse colon (5.5%), flexures (2–3%) and appendix (0.5%) are relatively uncommon. Microscopically, the neoplasm is a columnar cell adenocarcinoma. Spread colonic cancer can spread locally, via the lymphatics, bloodstream (haematogenous) or across the peritoneal cavity (transcoelomic spread).[6] Carcinoma of the colon

typically occurs in patients over 50 years of age and is most common in the eighth decade of life.

In this study, age of the patient was in the eighth decade of life, presented with closed loop type of acute intestinal obstruction due to adeno-carcinoma with stricture at transverse colon, impending to gangrene and perforation of caecum and ascending colon. There was ascites, multiple metastatic lesions on the surface of liver, gut, greater omentum, mesentry and pelvic peritoneum. It was advanced malignant disease so, emergency palliative surgery done here. Closed-loop obstruction occurs when the bowel is obstructed at both the proximal and distal points. A classic form of closed-loop obstruction is seen in the presence of a malignant stricture of the colon with a competent ileo-caecal valve. The inability of the distended colon to decompress itself into the small bowel results in an increase in luminal pressure, which is greatest at the caecum, with subsequent impairment of blood flow in the wall. Unrelieved, this result in necrosis and perforation.[9] Acute colorectal obstruction is associated with tumors in the left flexure and descending colon. Between 8% and 29% of patients with colon cancer present with large bowel obstruction, and 3-8% of patients have perforation and peritonitis, while bleeding is less common.[10]

Emergency management of obstructing colonic cancer depends on both tumor location and stage, general condition of the patient and surgeon's experience. Right sided or transverse colon obstructing cancers are usually treated by right hemicolectomy—extended if necessary to the transverse colon—with primary anastomosis. For left-sided obstructing cancer, in patients with low surgical risk, primary resection and anastomosis associated with on-table irrigation or manual decompression can be performed. It prevents the confection of a loop colostomy but presents the risk of anastomotic leakage. Subtotal or total colectomy allows the surgeon to encompass distended and fecal-loaded colon, and to perform one-stage resection and anastomosis. In patients with high surgical risk, Hartmann procedure must be preferred. It allows the treatment of both obstruction and cancer, and prevents anastomotic leakage but needs a second operation to reverse the colostomy. Colonic stenting is clinically successful in up to 90% in specialized groups. If stent insertion is not possible, loop colostomy is still indicated in patients at high surgical risk.

Minimally invasive approaches (like laparoscopic surgery) are often preferred in emergency settings when possible. Laparoscopic surgery for colon cancer has been shown to have equivalent overall and cancer-related outcomes to open surgery. Lymph node harvests are equivalent to open surgery. Preoperative mechanical bowel preparation in combination with preoperative oral antibiotics not only reduces surgical site infection rates but also rates of anastomotic leak, postoperative ileus, reoperation and even mortality.[6] Colorectal carcinoma tends to increase from year to year both in terms of morbidity and mortality. Increased morbidity and mortality are associated with economic development and social life, lifestyle changes, obesity, unhealthy eating patterns, lack of physical activity, the habit of consuming red and processed meat, and consuming alcoholic beverages.[11]The morbidity rate is two times higher than in an elective setting.[12] It is reported that the five year survival rate from large bowel carcinoma is only approximately 50% even in the developed world in spite of improvements in diagnosis, surgical techniques, preoperative care and postoperative therapies.[13]

Colon cancer is suited to screening as the prognosis is better the earlier stage the disease is diagnosed and polypectomy allows the prevention of cancer development. More recently the faecal immunochemical test has been introduced. This test is more accurate and easier to complete than the old faecal occult blood test. Colonoscopy is the investigation of choice if colorectal cancer is suspected. Double-contrast barium enema has now been largely replaced by computed tomography (CT) colonography, which is extremely sensitive in picking up polyps to a size of 6 mm. Patients with rectal cancer require magnetic resonance imaging (MRI) for localstaging.[6]

CONCLUSION

Although rupture of the caecum associated with colorectal cancer is a rare pathology, it constitutes a surgical emergency. Prompt surgical intervention is crucial to improve outcomes and prevent further complications. A thorough and multidisciplinary approach is essential for providing an accurate diagnosis and optimal surgical management. With collaborative surgical planning and individualized patient care, we expect to improve postoperative outcomes for these complex surgeries.

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Conflict of interest: None

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