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Case Report

Total Colectomy in a Gangrenous Large Bowel Obstruction Secondary to Double Closed Loop Obstruction

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Abstract

Introduction: Closed loop obstruction is commonly encountered in sigmoid volvulus. When it's become gangrenous it's called necrotizing colitis, Gangrene of the whole colon from the caecum to the sigmoid is very rare which need prompt early recognition and immediate surgical intervention to avoid catastrophic complications due to gangrenous bowel and peritonitis.

Presentation of the Case: 45 years old man who presented with large bowel obstruction of 24 hour duration, with a board like tender abdomen on palpation. with septic shock, his abdominal radiograph shows features of peripherally dilated bowel loops with classical coffee bean sign and minimal air fluid level centrally. On laparotomy, a gangrenous sigmoid due to volvulus was found along with complete gangrene of the proximal bowel from the ileocaecal junction till the volvulus distally. There is a possibility it could be due to a double closed loop obstruction, first at the sigmoid volvulus and the other one being between the competent ileocaecal valve and the proximal end of the volvulus. A total colectomy with an end ileostomy was performed.

Discussion: Gangrenous obstruction involving only the entire colon is very rare. Large bowel obstruction is a surgical emergency due to it's unpredictable progression s from simple to complicated one, beginning with fulminant ischemia leading to gangrene of the entire large bowel due to double closed loop obstruction secondary to presumably competent ileocaecal valve.

Conclusion: To our knowledge, such gangrene of the entire large bowel due to a sigmoid volvulus and a competent ileocaecal valve has not been reported in literature, there were a case report from India in 2015. Here we highlight the fact that, the rapid ischaemic changes that follow a closed loop obstruction. Therefore, early diagnosis and intervention is important for better outcome.

Keywords: Total Colectomy; Gangrenous Large Bowel; Closed Loop Obstruction; Sigmoid Volvulus

Introduction

Volvulus of the bowel is defined as torsion of the bowel along it's mesentery. Sigmoid volvulus is the commonest form of volvulus which is probably seen due to its redundancy, mobility and increased length along it's mesentery and having narrow-base (the descending colon and the recto sigmoid) which often lie close to each other, If the condition is remains untreated, the colonic obstruction in such cases may lead towards ischaemic changes due to a closed loop obstruction. Here we present a rare case of total gangrene of entire colon starting from the distal sigmoid extending proximally up to the ileocaecal junction due to a double closed loop obstruction of sigmoid volvulus, in the presence of a competent ileocaecal valve. There are few case reports published to highlight this phenomenon.

Presentation of the Case

45 years old male patient presented with generalized sudden abdominal pain along with distension since last 24 hrs. He also has history of failure to pass faeces and flatus consistent with obstipation. He had two episodes of non projectile, non bilious, vomitings. On physical examination, he was conscious, the pulse was 140/min and blood pressure was 80/50 mmHg, respiratory rates 35 breath/

min, axillary temperature was 38.5°. He has no pallor, anicteric, having dry tongue and buccal mucosa. His abdomen was grossly distended not moving with respiration and generalized tenderness was present, guarding and board like rigidity, features of peritonitis. The abdomen was tympanic with hypoactive bowel sounds. On digital rectal examination there were empty rectum, no blood on examining finger. An erect abdomen radiograph showed grossly peripheral dilated bowel loop with air fluid levels and absent air in rectum. A preliminary diagnosis of septic shock with GI source and gangrenous sigmoid volvulus was made. The patient was taken for exploratory laparotomy after initial resuscitation with three hours with 5L of crystalloid and initiation of broad spectrum antibiotics empirically. Intraoperatively at induction of general anaesthesia with ketamine he had cardiac arrest, but he was revived with successful CPR, operation was continued, the whole large bowel from the ileocaecal junction upto the distal end of the sigmoid was dilated and gangrenous. There was also a sigmoid volvulus of 270° clockwise. About 500 cc of haemorrhagic fluid was suctioned out, there was normal small bowel findings, No Malrotation of the bowel was seen. A total colectomy with end ileostomy was done. The patient post op was taken to ICU, on mechanical ventilator on AC Mode with Fio2 of 100%, with inotropic support as he was not maintaining his BP and unfortunately he pass away on Second post operative day with possible cause of death of multi organ failure (MOF) secondary to irreversible septic shock.

Discussion

Colonic volvulus results when colon twists along its mesenteric axis >180°, producing intestinal and mesenteric vessels obstruction. The commonest site for colonic volvulus is the sigmoid colon, caecum, splenic flexure, and transverse colon in descending order. Two types of sigmoid volvulus were described by Hinshaw and Carter. Acute fulminant sigmoid volvulus causing gangrene and perforation which is commonly seen in younger patients. The other is a sub-acute form with its subtle clinical picture causing a delay in establishing diagnosis which is common in elderly patients. The fulminant form presents with sudden abdominal pain, often localized in the umbilical region, other findings include vomiting, abdominal tenderness, constipation and marked physical prostration. Gangrene and perforation occur early in this group. However, the sub-acute form has a gradual progressive onset. Plain abdominal X-ray, CT, MRI, and flexible sigmoidoscopy is helpful in reaching diagnosis. Bird's beak sign, coffee bean sign, Omega sign, are additional classical features of its manifestations. Prompt early diagnosis and treatment is mandatory to avoid fatal complications. The ileocaecal valve is composed of an upper horizontal lip, and lower concave lip. The valve is formed by mucous membrane and circular muscle fibers of the bowel. Tonic pressure at the ileocecal valve is also dependant on the bowel distention as shown in Manometric studies. 70 - 90% patients have an incompetent ileocecal valve, while the remaining 10 - 30% of patients have a competent valve. Such valves might increase the chances of closed loop obstruction. Closed loop obstruction occurs when the bowel is incarcerated at two contiguous points. LBO is a true surgical emergency. Here both the proximal and distal ends of the bowel are obstructed. Bowel distension lead to increase in intraluminal pressures that lead to venous congestion, arterial occlusion and finally bowel ischaemia. Proliferation and translocation of gut microflora also plays an important role in progression to gangrene, bowel necrosis, perforation, fulminant peritonitis and septicaemia if not recognised at earlier stage. Closed loop obstruction of sigmoid due to volvulus leading to the point of gangrene and other complications are well mentioned already in literature with a gangrenous confined only to the volvulated bowel. Double closed loop obstruction causing gangrene of entire colon is not well mentioned in the literature but there are few case reports as per our knowledge. Here we describe this rare unknown double closed loop obstruction. Closed loop obstruction causing large bowel gangrene is caused mainly by distal obstruction due to malignancy, extra-luminal compression, strictures and faecal impaction. Atherosclerosis leading to ischaemic changes had also been additionally described. However there are few reports of double closed loop obstruction due to sigmoid volvulus with a competent ileocaecal valve causing rapidly progressive large bowel gangrene. Sigmoid volvulus can be managed conservatively in stable patients by rectal tube or colonoscopic detorsion with conservative approach. If these measure fail can cause complications like perforation. In unstable patient or those who had failed conservative management and had recurrence are candidates for surgical intervention. In our case, the patient had gangrenous sigmoid volvulus. However, surgical procedure, apart from sigmoid, the whole colon up to the ileocaecal junction was found to be gangrenous as well. This was due to another closed loop obstruction occurring due to a patent ileocaecal valve. This shows how rapid ischaemic changes induced by the closed loop obstruction due to the competent ileocaecal valve. Hence, early surgical intervention is indicated [1-16].

Conclusion

Volvulus of the sigmoid colon not only lead to closed loop obstruction of the involved segment, but potentially it may also involve the entire length of the colon in presences of a competent ileocaecal valve causing double closed loop obstruction. The gangrenous changes may have fatal outcome. Therefore early prompt diagnosis and intervention is mandatory.

Conflict of Interest

None declared.

Consent Written

Consent was taken from the patient relatives.

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Ethical Approval

Not applicable.

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