CASE REPORT – OPEN ACCESS

International Journal of Surgery Case Reports 17 (2015) 1–4

Contents lists available at ScienceDirect

International Journal of Surgery Case Reports

journal homepage: www.casereports.com

Total colectomy in a gangrenous large bowel due to a rare double closed loop obstruction

Priyanka Akhilesh Sali*, Vineet Pilania, Sudhir Sutar, Kumar Krishna, Smriti Ghetla, Tilakdas Shetty

Department of General Surgery, T.N Medical College and B.Y.L Hospital, Mumbai Central, Mumbai, Maharashtra, India

ARTICLE INFO

Article history:
Received 20 July 2015
Received in revised form 6 October 2015
Accepted 7 October 2015
Available online 22 October 2015

Keywords:
Total colectomy
Large bowel gangrene
Closed loop obstruction
Sigmoid volvulus

ABSTRACT

INTRODUCTION: Closed loop obstruction is commonly encountered in sigmoid volvulus. When such obstruction becomes fulminant, it is called acute necrotizing colitis. Gangrene of the entire large bowel from the caecum till the distal end of the sigmoid is a rare entity.

PRESENTATION OF THE CASE: We present here one such case of necrotizing colitis in a 27 years old gentleman who presented with large bowel obstruction and septic shock. Computed tomography (CT) revealed sigmoid volvulus with ischaemic changes. The rest of the colon was dilated. On laparotomy, a gangrenous sigmoid due to the volvulus was found along with complete gangrene of the proximal bowel from the ileocaecal junction till the volvulus. This was probably due to a double closed loop obstruction, one at the sigmoid volvulus and the second being between a probable competent ileocaecal valve and the proximal end of the volvulus. A total colectomy with an end ileostomy was performed.

DISCUSSION: Necrotising colitis involving the entire colon is seldom seen. Large bowel obstruction is a known surgical emergency due to a probable closed loop obstruction due to a 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 so far. We also highlight here, the rapid ischaemic changes that follow a closed loop obstruction. In our case the CT has shown ischaemic changes only in the sigmoid. Hence, timely diagnosis and intervention is imperative.

1. Introduction

Volvulus of the bowel is the twisting or torsion of the bowel around its own mesentery. Sigmoid volvulus is the commonest form of volvulus seen due to its redundancy, mobility and the sites of its fixity (the descending colon and the rectosigmoid) often lie close to eachother. If the condition is left uncorrected, the colonic obstruction in such cases may lead to ischaemic changes due to a closed loop obstruction. We present here a rare case of necrotizing colitis involving a sigmoid volvulus causing gangrene of the entire colonfrom the distal sigmoid extending proximally upto the ileocaecal junction probably due to a double closed loop obstruction in presence of a competent ileocaecal valve. To our knowledge, such dual closed loop obstruction, one due to the sigmoid volvulus and the other due to a competent ileocaecal valve, has not been reported (Fig. 1).

2. Presentation of the case

A 27 years old male patient came to us with generalized abdominal pain and distension since one day. He also gave history of obstipation for the same duration. He had two episodes of non projectile, non bilious, non feculent vomiting. He had undergone an open appendicectomy six years ago. On examination, he was conscious, the pulse was 160/min and blood pressure was 80/60 mm of Hg. He also had tachypnoea and was moderately dehydrated. His abdomen was grossly distended and generalized tenderness was present, more in the left lower quadrant with guarding and rigidity. The abdomen was tympanic with no bowel sounds. Rectal examination was normal. He also had a right paramedian scar of previous appendicectomy. A nasogastric tube was inserted and about 200 cc of bile was drained. An erectabdomenradigraphshowed grossly dilated ascending and transverse colon with dilatation of the small bowel loops as well. 4–5 air fluid levels were seen. No gas under diaphragm could be appreciated. The computed tomography scan with contrast showed a sigmoid volvulus with a 720° rotation. Ischaemic changes were noted in the involved segment only. The rest of the proximal colon was dilated, the rectum and the small bowel appeared to be healthy. A working diagnosis of

* Corresponding author.
E-mail addresses: drpriyankasali@gmail.com (P.A. Sali), vineet07150@gmail.com (V. Pilania), docsutar@gmail.com (S. Sutar), mailme.kumar88@gmail.com (K. Krishna), smriti.ghetla@gmail.com (S. Ghetla), shettytilakdas@yahoo.co.in (T. Shetty).

http://dx.doi.org/10.1016/j.ijscr.2015.10.005

Fig. 1. Plain computed tomography showing the sigmoid volvulus.

septic shock due to sigmoid volvulus with ischaemic changes was made (Figs. 2 and 3).

The patient was taken up for exploration about three hours after resuscitation. Intraoperatively, the entire large bowel from the ileocaecal junction to the distal end of the sigmoid was massively dilated and gangrenous. There was a sigmoid volvulus with two complete twists along the mesenteric axis. About 200 cc of serous peritoneal fluid was present and the small bowel was normal. No malrotation of the bowel was seen. Gentle derotation of the volvulus was done, taking due precautions to avoid iatrogenic perforation and contamination. A total colectomy (till recto–sigmoid junction) with end ileostomy was done. The patient had a smooth recovery. He was discharged one week later. Histopathology confirmed the ischaemic changes. The patient was subsequently taken up for reversal of the stoma and ileo rectal anastomosis after 8 weeks, with an uneventful recovery (Fig. 4).

3. Discussion

Colonic volvulus occurs when colon twists on its mesenteric axis through more than 180-degree, producing obstruction of intestinal lumen and mesenteric vessels. The most common site for colonic volvulus is the sigmoid colon, followed by caecum, splenic flexure, and transverse colon [1].

Two types of sigmoid volvulus were described by Hinshaw and Carter [2]. One is an acute fulminating volvulus causing gangrene and perforation. The other is a subacute form with a subtle clinical picture causing a delay in diagnosis (Fig. 5).

The fulminant form presents with sudden abdominal pain, often localized in the umbilical region, vomiting, abdominal tenderness, constipation and marked physical prostration. Gangrene and perforation are known to occur early. However, the subacute progressive form has a more insidious onset and is mostly noted in the elderly.

Plain abdominal radiographs, computed tomography, magnetic resonance imaging, and flexible endoscopy help in diagnosis. Omega or horseshoe sign, bird's beak sign, Y sign, northern exposure sign, coffee bean sign, bent inner tube or ace of spades sign, left pelvic overlap or left flank overlap sign, liver overlap sign, the whirl sign, and empty left iliac fossa sign are characteristic [3]. Early diagnosis and treatment is necessary to avoid complications [4].

The ileocecal valve is consists of an upper horizontal lip, and a lower concave lip. The valve is formed from the mucous membrane and circular muscle fibers of the bowel [5]. The superior and inferior ileocecal ligaments may also contribute to the competence [6]. Manometric studies have shown tonic pressure at the ileocecal valve is also dependant on the bowel distention [7]. Barium studies have demonstrated that about 70–90% patients have an incompetent ileocecal valve, while the remaining 10–30% of patients have a competent valve. Such valves increase the chances of closed loop obstruction [8].

Closed loop obstruction occurs when the bowel is incarcerated at two contiguous points. Large bowel obstruction is a known surgical emergency due to a probable closed loop obstruction due to a competent ileocaecal valve. Here both the afferent and the efferent ends of the bowel are obstructed. Bowel distension causes the intraluminal pressures to increase greatly leading to venous congestion, arterial occlusion and ischaemic changes. This is accordance to Laplace's law [9,10]. Bacterial proliferation also plays a role. If not treated in time, it may progress to gangrene, bowel necrosis, perforation, fulminant peritonitis and septicaemia. Such fulminant obstructive colitis is also referred to necrotizing ischemic colitis.

Closed loop obstruction in sigmoid volvulus leading to gangrene and other complications are known. Gangrenous changes are confined only to the bowel involved in the volvulus. To our knowledge, gangrene involving the entire large bowel secondary to a sigmoid volvulus has not been reported. Our report describes this unknown dual closed loop obstruction.

Closed loop obstruction leading to large bowel gangrene is caused by distal obstruction due to malignancy, extra-luminal compression, strictures and faecal impaction. Ischaemic changes due to atherosclerosis and thrombo-embolic events are also described [11–14]. However, dual closed loop obstruction due to sigmoid volvulus with a competent ileocaecal valve causing rapidly progressive large bowel gangrene has not been described.

Sigmoid volvulus can be managed conservatively in a hemodynamically stable patient by flatus tube insertion or colonoscopic detorsion. However, failure of such management and complications like perforation may occur [15]. Hemodynamically unstable patients, failed conservative therapy and those with recurrent episodes are managed surgically. In our