International Surgery Journal
Dhamnaskar S et al. Int Surg J. 2018 Feb;5(2):728-731
http://www.ijsurgery.com
pISSN 2349-3305 | eISSN 2349-2902

DOI: http://dx.doi.org/10.18203/2349-2902.isj20180383

Case Report

Metachronous volvulus of the splenic flexure: a rarer entity

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Received: 23 November 2017
Accepted: 27 December 2017

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ABSTRACT

Intestinal obstruction due to volvulus is a well-known entity in India, one of the 'volvulus belt' countries; but volvulus of the splenic flexure is a rare condition, even more so when metachronous. Only about half a century of citations has been mentioned in the surgical history since its first mention in literature. Our patient, a young man with a history of previous two abdominal operations presented with signs of intestinal obstruction which were confirmed by radiological findings to be volvulus of splenic flexure. Following failed attempted derotation by flatus tube, he underwent laparotomy, intraoperative derotation of the volvulus followed by resection of the involved segment and colo-colic anastomosis with diverting loop ileostomy. Apart from surgical site infection, his postoperative recovery was uneventful.

Keywords: Metachronous, Splenic flexure, Volvulus

INTRODUCTION

Volvulus of the colon is not a very uncommon disease encountered in daily clinical practice, but that of splenic flexure is very rare, and that too in a metachronous setting is even further rarer. Less than fifty cases have been reported in the existing literature.

Splenic flexure volvulus is so rare that it has been mentioned mostly in case reports and series to date. The first case dates back to 1841 following which around half a century cases have been notified. It was only in 1883 when Dr. Atherton brought light to surgical exploration in cases of volvulus which was challenged by Dr. Brusgaard who favored sigmoidoscopy and placement of a rectal tube, which of course was associated with high recurrence thereby limiting its use only as a temporary measure for surgically unfit patients.[1,2]

All over the world in spite of it being quite rare, it is relatively more commonly seen in countries like the Middle East, Africa, the Indian subcontinent, Turkey and South America so-called the 'Volvulus Belt' accounting mainly because of increased intake of dietary fibers and vegetables.[3]

In this report, we describe a rare case of volvulus of the splenic flexure occurring in the setting of few promoting factors, followed by a brief discussion to throw light on the topic.

CASE REPORT

A 45-year-old man presented to the emergency department with abdominal distention and pain for 2 days along with constipation and obstipation which was associated with multiple episodes of feculent vomiting for last 12 hours. He had a history of sigmoid volvulus around 27 years back for which he had to undergo laparotomy twice. As per his records, derotation and sigmoidopexy were done the first time; on recurrence after two years he underwent sigmoidectomy with colo-

colic anastomosis. He also had a history of left pneumonectomy for pulmonary tuberculosis around 35 years back. His dietary habit was typical mixed Indian diet with moderate fiber intake. He had a history of intermittent constipation since childhood.

Upon general examination, the patient was vitally stable, respiratory rate of 20/minute, preferred a sitting decubitus and was having poor nutritional status.

The abdomen was distended with the caudal and slightly rightward migration of umbilicus, with healthy midline scar of previous surgeries with a decreased abdominal component of respiration. Tenderness and tympanic percussion note were elicited in left upper and left lower quadrant. Peristaltic sounds were increased in the rest of the abdomen. A clinical diagnosis of intestinal obstruction was made.

X-ray abdomen erect showed dilated bowel loops - both large and small with air fluid levels. No gas in the recto-sigmoid colon. No free gas in the peritoneal cavity (Figure 1).

Figure 1: X-ray abdomen in erect position showing signs of large bowel obstruction with dilated small and large bowels with air-fluid levels and no air in the rectum.

Authors arrived at a definitive diagnosis of intestinal obstruction due to large bowel pathology. Further investigations were conducted to aid in the further plan on management.

Contrast-enhanced CT scan of the abdomen showed dilatation of the large bowel until transverse colon with sudden cut off of large bowel beyond left colon with distal collapse with the absence of air in rectum; the presence of twist in the mesentery of the volvulus segment (swirl sign) (Figure 2) (Figure 3).

A flatus tube was attempted to pass per rectally beyond the volvulus to derotate and decompress it, on the failure of which, the patient was taken for emergency exploration.

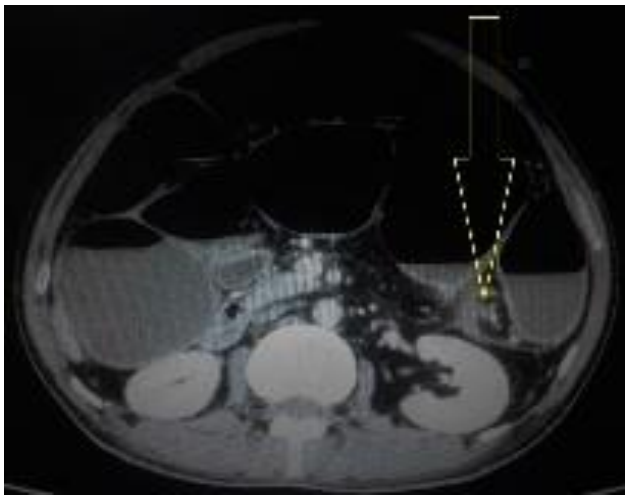

Figure 2: Axial CT abdomen of the patient showing large bowel obstruction and starting of twisting of bowel.

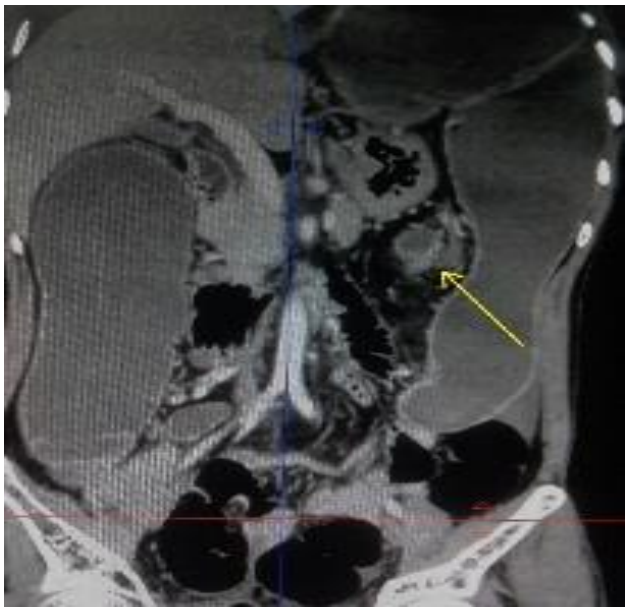

Figure 3: Coronal CT abdomen of the patient showing large bowel obstruction and starting of twisting of bowel.

Intraoperatively small and large bowel were distended and splenic flexure was twisted about its mesentery, with the collapse of the recto-sigmoid part; there were no signs of bowel ischaemia or gangrene. The left hemidiaphragm was relatively elevated making the left subphrenic space roomier. The descending colon was free from its lateral abdominal attachments. The phrenocolic and lienorenal ligaments were very stretched. The twisted loop was derotated and excision of the redundant loop with colo-colic anastomosis was performed along with a diverting

loop ileostomy. The abdomen was closed primarily (Figure 4).

Figure 4: Intraoperative image after detwisting the volvulus loop.

Postoperatively bowel activity was regained by day 3 when orals were initiated. Stoma started functioning from day 5. A Southampton grade IV surgical site infection was detected on day 6 and skin sutures were removed, and the wound was dressed daily for healing by secondary intention. Secondary closure of the wound was done two weeks later.

The patient underwent uneventful ileostomy closure 2 months later to resume normal life thereafter.

DISCUSSION

The most common site for volvulus is sigmoid colon (~75%) followed by caecum (~22%); cases of volvulus of the transverse colon (~2%) and splenic flexure (1-2%) have been rarely reported.[4]

Predisposing factors for splenic flexure volvulus include congenital absence or surgical excision of gastrocolic, phrenocolic, splenocolic ligament and the presence of a long mesentery. Over these predisposing factors, constipation plays a pivotal role in the pathogenesis of the condition.[5] Association with Chilaiditi syndrome has been noted as is with collagen vascular disease esp. progressive systemic sclerosis.[4,6-11]

Clinical symptoms can be acute or chronic; acute presenting as large bowel obstruction and chronic as intermittent pain in abdomen.[2]

Radiographical signs suggesting this rare diagnosis are: (a) a markedly dilated, air-filled colon with an abrupt termination at the anatomic splenic flexure; (b) an empty descending and sigmoid colon; (c) a characteristic beaking at the anatomical splenic flexure at a barium enema examination; (d) "coffee bean" appearance of the dilated colon with the concavity of the "bean" facing the left upper abdomen; (e) two widely separated air-fluid levels, one in the transverse colon and the other in the cecum; (f) absence of rectal gas.[12,13]

Management begins with resuscitation followed by definitive steps.[12] Actual diagnosis is often not achieved until on the operation table.[5,14]

The options available for treatment include per rectal decompression with a flatus tube or sigmoidoscope or colonoscope, colopexy, or resection of the involved segment.[2] Simple deflation may be attempted, if successful should be followed by elective operation. But in presence of bowel gangrene, perforation, significant fecal contamination or unstable clinical condition of the patient it is safer to do Hartmann's procedure. Although endoscopic decompression is possible with splenic flexure volvulus, the risk of recurrence and the difficulty of detorsion make it an ineffective and possibly dangerous modality.[2] Definitive surgical management including detorsion, with or without colopexy, or resection must be undertaken. Non-resectional colopexy can be tried in high-risk or elderly patients who are poor surgical candidates. The colopexy techniques may include the usage of non-absorbable sutures, Gore-Tex strips, or extraperitonealisation to anchor the redundant colon.[12]

Even after an exhaustive search for metachronicity of volvulus of the splenic flexure in the past literature, only a handful of case reports could be retrieved and mostly they have discussed of sigmoid and caecal volvulus.[15-22] None of the reports described of splenic flexure volvulus as a metachronous event to sigmoid volvulus. Volvulus of the splenic flexure is a rare condition to encounter in the clinical scenario, and that too being metachronous is even much rarer. Our patient had multiple factors that led to the metachronicity of his condition. He underwent left pneumonectomy which led to the elevation of the left hemidiaphragm. Following which he had sigmoid volvulus which was treated surgically subsequently, during which the ligamentous attachments of the splenic flexure may have to be released for optimum mobilization of the left colon thereby enabling tension free colo-colic anastomosis. Since one of the primary risk factors was never actually taken care of completely viz. constipation, which added up to the above risk factors he probably landed up having volvulus of the splenic flexure.

An interesting study by Ueda and Katsurai showed a beneficial effect of posture advice, like the knee-chest position and abdominal compression using colonic intraluminal pressure for the resolution of incomplete volvulus during pain attacks in decreasing the severity and frequency of pain.[23]

Therefore, we conclude that splenic flexure volvulus is one of the rare causes of intestinal obstruction. Risk factors and etiologies include constipation, high dietary

fiber intake, laxity of ligaments of splenic flexure and previous history of abdominal operation. In spite of the availability of modern methods of diagnosis and computerized imaging, it may be diagnosed only after laparotomy. Management comprises of resuscitation followed by decompression and/or laparotomy leading to preferably primary resection or at times colopexy. Treatment should be early to prevent complications of bowel ischemia as the occurrence of complications increases the mortality.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

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Cite this article as: Dhamnaskar S, Sawarkar PC, Mandal S, Preeti V. Metachronous volvulus of the splenic flexure: a rarer entity. Int Surg J 2018;5:728-31.