

# Large bowel obstruction due to splenic flexure volvulus: a case report

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## Abstract

Splenic flexure volvulus is rare and results from congenital or postoperative laxity of splenic attachments. A 34 year old female presented with features of large bowel obstruction due to splenic flexure volvulus. She underwent laparotomy with detorsion and colopexy of the volvulus.

**Keywords:** Colopexy; Large bowel obstruction; Splenic flexure volvulus

## Introduction

Colonic volvulus is a common cause of large bowel obstruction accounting for 1- 5% of large bowel obstructions.<sup>1</sup> The sigmoid colon, caecum and ascending colon are common sites of volvulus. The splenic flexure is, however, a rare site of volvulus due to its attachments by phrenico-colic, gastro-colic, and spleno-colic ligaments. Primary splenic flexure volvulus is rare and is usually due to congenital absence or laxity of the above mentioned ligaments. We report a case of a young female who presented with features of large bowel obstruction due to volvulus of the splenic flexure.

## Case report

A 34 year old female presented to the emergency department with 7 days history of colicky abdominal pain associated with progressive abdominal distension, absolute constipation and frequent episodes of bilious vomiting. She had experienced a similar episode of pain 10 years back for which she underwent laparotomy. She also completed 6 months course of anti-tubercular therapy following the surgery. However, hospital records were not available. On examination, her vitals were stable. Dehydration was absent. Midline scar was present extending from sub-xiphoid to suprapubic region. Abdomen was distended and diffusely tender without guarding and rigidity. Bowel sounds were tinkling and hyperactive. Per rectal examination revealed an empty rectum.

## Investigations

Hematological investigations were normal with haemoglobin of 11.7 gm/dl and leucocyte counts of  $4.8 \times 10^3/\text{mm}^3$ . All biochemical tests were normal including urea, creatinine, electrolytes, liver function tests and arterial blood gases. Plain abdominal and erect chest films revealed grossly distended large bowel (Fig1) with air-fluid levels (Fig 2). No pneumoperitoneum was seen. Urograffin enema was done which revealed a characteristic “bird-beak” appearance (Fig 3).

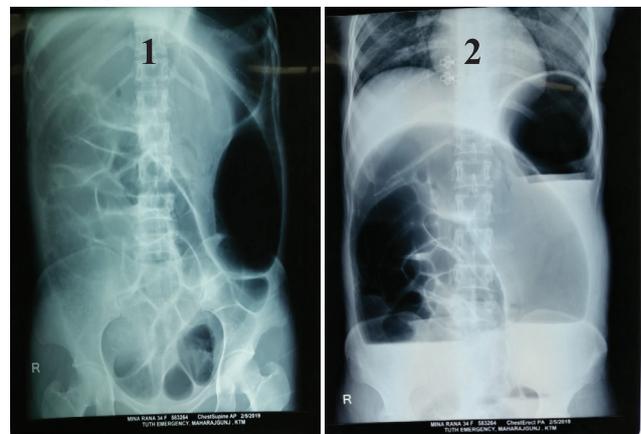


Figure 1: Dilated bowel loops

Figure 2: Air-fluid levels in bowel loops



**Figure3: Urograffin enema showing typical ‘ bird beak’ appearance**

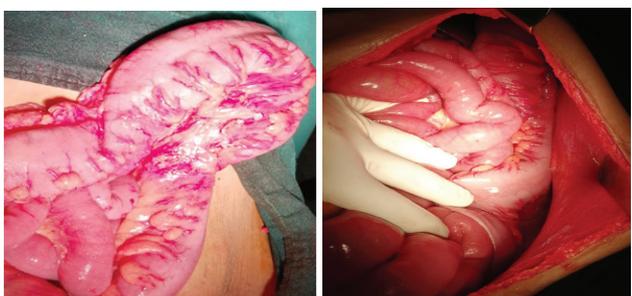
### Treatment

Following resuscitation, the patient was taken for urgent laparotomy. Intraoperatively, there was clockwise rotation of the splenic flexure of colon (Fig. 4) with gross dilatation of the proximal transverse colon and ascending colon (Fig. 5) along with collapsed descending and sigmoid colon. Derotation of the twisted colon was done and it was fixed with anterolateral abdominal wall with 3-0 silk suture (Fig. 6).



**Figure 4. Clockwise rotation of splenic flexure of colon**

**Figure 5. Dilatation of proximal transverse colon and ascending colon**



**Figure 6. Collapsed colon after antegrade decompression & Colopexy with silk 3-0**

### Outcome and follow up

Postoperatively, the patient had persistently increased drain output of around 100-150 ml/day. Her albumin was 3.3 gm/dl and she had negative drain culture. The drain was removed and the patient was discharged from hospital on 9<sup>th</sup> postoperative day. On 3 months follow up, she does not have constipation, vomiting or abdominal distension.

### Discussion

Volvulus is an axial twist of a portion of the gastrointestinal tract along its mesentery, potentially causing a luminal obstruction and associated venous and arterial occlusion.<sup>1</sup> The incidence of volvulus of large bowel varies widely. In the western population, large bowel volvulus accounts for 1-5 % of all large bowel obstructions. The most common site of large bowel volvulus is sigmoid colon (80%), followed by the caecum (15 %), transverse colon (3%) and splenic flexure ( 2%).

Splenic flexure volvulus is extremely rare, reported with an incidence of less than 2% of all colonic volvulus.<sup>2</sup> Patients with splenic flexure volvuli are generally younger, often in the second or third decades of life, and mostly female.<sup>3</sup> Splenic flexure volvulus is rare because this part of the large bowel has limited mobility due to the ligaments and the retroperitoneal position of the descending colon. For splenic flexure volvulus to occur, some or all of these anatomical factors should be congenitally absent or altered by surgery, thus rendering the flexure unusually mobile.<sup>4</sup> Constipation, congenital bands, acquired adhesions have also been postulated as aetiological factors of this rare problem.<sup>4</sup>The presentation is usually non-acute with recurrent episodes of abdominal pain, distension, and vomiting. Acute presentation with features of gangrene and peritonitis is rare.<sup>5</sup>Radiographically, splenic flexure volvulus is suggested when there is:

- (a) Markedly dilated, air-filled colon with an abrupt termination at the splenic flexure
- (b) Presence of two air-fluid levels, one in the transverse colon and the other in the caecum
- (c) An empty descending and sigmoid colon, and
- (d) A characteristic beak at anatomical splenic flexure at barium enema.<sup>6</sup>

The “coffee bean” appearance is also present but the concavity of “bean” faces the left upper abdomen.

As in other cases of large bowel obstruction, the first priority is given to adequate resuscitation. The options

available for treatment include decompression, detorsion with or without colopexy or resection. Although endoscopic decompression is possible with splenic flexure volvulus, the risk of recurrence and the difficulty of detorsion makes it an ineffective and possibly dangerous modality. If the volvulus cannot be reduced endoscopically or there are signs of mucosal ischaemia or perforation, immediate surgery is indicated. Surgical management includes detorsion, with or without colopexy or resection. Like other forms of volvulus, if gangrenous bowel is encountered, resection is mandatory. However, colopexy is less invasive choice than primary resection in absence of gut gangrene, particularly in healthy young adults given the higher morbidity of resection. The colopexy techniques designed to prevent recurrent twisting includes use of monofilament non-absorbable sutures or extraperitonealisation to anchor the redundant colon.

## Conclusion

Splenic flexure volvulus is extremely rare and can be difficult to diagnose. Early diagnosis with adequate resuscitation followed by detorsion and colopexy, if the bowel is viable, an effective treatment.

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