

## CLINICAL VIGNETTE

# Descending Colon Volvulus Case Report and Review of Literature

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### Case Report

A 25-year-old Middle Eastern male with a diagnosis of Gastric cancer stage IV and on chemotherapy was seen in the ER with severe abdominal pain 10/10 and obstipation for 4 days. His pain was located in the left upper quadrant and present for the past 4 months, despite narcotic therapy. Pain improved with bowel movements, usually requiring Miralax in addition to various over-the-counter laxatives. He noted nausea; however, there was no vomiting, fever, or chills. He was unable to eat for the last 24 hours. Patient denied prior abdominal surgery, trauma, recent travel, or antibiotic use. In the last 3 months, he had multiple ER visits for pain and constipation with last visit three days prior with similar presentation. On physical exam, his abdomen was distended with a small bulge appearing in the LUQ, which was tender to palpation. Bowel sounds were decreased, with no peritoneal signs and the abdomen was tympanic on percussion. Digital rectal examination revealed an empty rectum. Plain abdominal film (Figure 1) showed dilated loops of large colon with ascending colon measuring over 10cm, and lack of air in the rectum. CT scan was suspicious for descending colon volvulus with abrupt beak-shaped transition in the proximal descending colon. There is swirling of the mesenteric vessels at this location, which was also documented. Both general surgery and gastroenterology were consulted to decompress the colon. Unprepped colonoscopy (Figure 2) was performed with pediatric colonoscope at low insufflation, using water. At the descending colon, a “twist” was noted, which was decompressed after various maneuvers. Stool was then visible and scope advance past the splenic flexure, to transverse colon and after reaching ascending colon, procedure was terminated. Viable colon tissue noted without evidence of gangrene. Following the procedure, his tachycardia resolved and the bulge was not visible. A rectal tube was left in place, but the patient asked for it to be removed immediately due to discomfort and pain. Within 8 hours, tachycardia returned and patient complained again of unbearable pain. The bulge returned and patient was recommended to proceed to surgery. During surgery, the colon was massively dilated in a transverse colon with what appeared to be a point of obstruction in the descending colon. Patient did well during surgery and LLQ was chosen for an end colostomy. The Patient’s post-operative course was complicated by difficulty weaning off pain meds, hypotension, fever, respiratory failure. Patient expired two days post procedure.

### Discussion

Colonic volvulus is a third leading cause of the colon obstruction worldwide. Although significantly common in what is referred to as “volvulus belt”, countries in Latin America, Africa, Eastern Europe, Middle East; in western countries of US, Australia and Western Europe the incidence is less than 3%.<sup>1</sup> Stemming from the Latin world *voltere*, which means rotate, volvulus can be seen in any mobile segment of the colon, with rotation in any direction. Most common reported locations are sigmoid and cecum, accounting for 60% and 34%, respectively. Both transverse colon and splenic flexure have been reported, but both account for less than 5% of occurrences. There are no reported cases of descending colon volvulus.

Mortality rates from the US data were 9.44% for Sigmoid Volvulus (SV), 6.64% for Cecal Volvulus (CV), and 18% for transverse colon volvulus. In USA, the ratio of 1.4 males to 1 female is noted on retrospective reviews with peak age over 70. Associated morbidity involves neuropsychiatric diagnosis, dementia, chronic constipation, immobility, metabolic disorders. Mean age of the endemic cases appears much younger, at 52, with 4:1 male predominance and less comorbidities. Although various etiologies account for both sporadic and endemic cases, most believe fecal burden with large stools represents a risk factor.

Volvulus is a closed loop obstruction. The colon distension occurs with the antimesenteric border lengthening more than the mesenteric. The bowel then twists to compensate for it with torsion occurring in either direction. Distension of the twisted loop occurs by hyperperistaltic emptying of proximal colon. Entrapment of the distended colon prevents spontaneous reduction. Ischemic injury, gangrene, and peritonitis follow leading to high mortality.

Although prompt diagnosis is critical, neither clinical signs, nor physical exams are sensitive or specific. The classic triad of abdominal pain, distention and constipation are observed in 93%, 89.9% and 83%, respectively. However, they are reported in only 33% of sporadic cases.<sup>2</sup> Clinical presentation is usually delayed by 3 days with only 17% of patients presenting within 48 hours. Patients may describe a slow onset with late vomiting. In endemic areas, patients have a more sudden onset of pain and severe vomiting. In addition, both hematochezia and paradoxical diarrhea, from incomplete obstruction are described.<sup>3</sup>

Physical exam including empty rectum, Von Wahl sign (palpability of distended sigmoid colon), and abnormal bowel signs both increased and decreased, had sensitivity, and specificity of less than 70%.<sup>3</sup>

Plain abdominal film aids in the diagnosis with “Coffee bean sign” with the central cleft of the bean in sigmoid volvulus, grossly dilated ahaustral sigmoid loop filling the abdomen and double-loop obstruction resulting in two air-fluid levels. The loop may point to the right upper quadrant and can rise to the level of the left hemidiaphragm and overlap the liver shadow. The most sensitive and specific sign is the absence of rectal air.<sup>4</sup> CT scan is the most diagnostic with dilated loops of large bowel without haustra. Whirl sign, twisting of the mesentery, and mesenteric vessels may be present. In addition, “X marks the spot” sign describes crossing loops of bowel at the site of the transition, while “Split Wall” sign describes mesenteric fat seen indenting or invaginating the wall of the bowel.<sup>5</sup>

Once the diagnosis is established, both surgical and GI teams need to determine the timing of the surgery and possible detorsion using colonoscope. The procedure is performed urgently in a patient without evidence of ischemia or gangrene or bowel perforation. Colonoscopy allows a delay in the timing of surgery from emergent to elective surgery. The procedure also confirms viability of the colon, with risk of perforation less than 3%, which was reported with previously used rigid scopes. Using minimal air insufflation, Success is noted in in almost 90% sporadic cases with recurrence up to 85%.<sup>1</sup> Although cases have been reviewed to look at which factors make detorsion successful, it appears lack of abdominal tenderness, history of open abdominal surgery and habitual use of laxatives appear beneficial. Mean time for recurrence was almost 11 months.<sup>6</sup>

It is recommended to leave a rectal tube in place following the procedure with goal of elective surgery within 48 hours.<sup>7</sup> Various surgical procedures now focus on laparoscopic approaches to sigmoid volvulus. If the patient is unstable and emergent surgery is performed, decision for primary anastomosis is then based on patient’s comorbidities, nutritional status, and hemodynamic status.<sup>8,9</sup>

Mortality rates in the Unites States for sigmoid volvulus was 9.44% for transverse colon 18%.<sup>1</sup> Mortality for emergent surgery without decompression or bowel prep is at 6.6% but increases to 11% with presence of gangrene. The numbers reached 24% among VA patients. Predictors of mortality included bowel gangrene and peritonitis, coagulopathy, age, the use of stoma, and chronic kidney disease.<sup>8</sup>

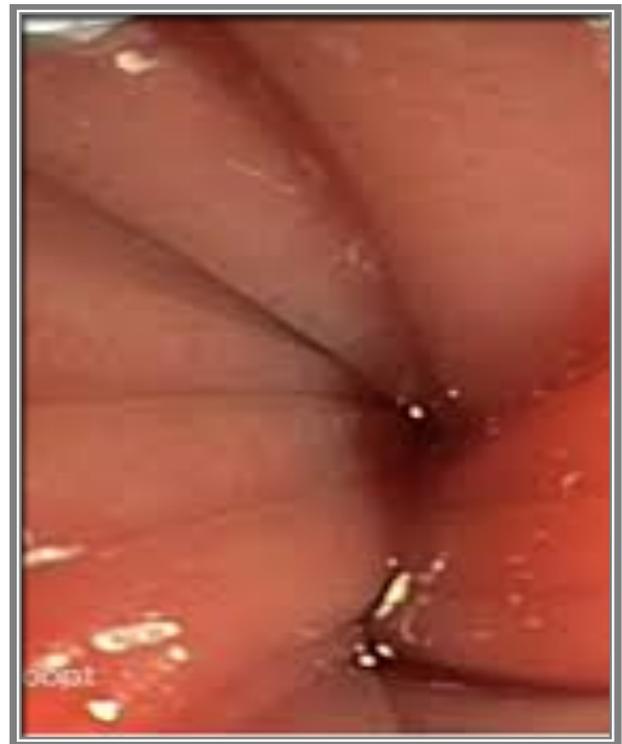
In conclusion, colonic volvulus requires prompt diagnosis and decision making involving both surgical and GI teams. Early decompression via colonoscopy is indicated if no evidence of ischemia, gangrene, or perforation is present.

## Figures

**Figure 1.** Dialted loops of bowel, large colon. Absence of air in the rectum. Coffee bean sign.



**Figure 2.** Descending colon spasm. Swirl sign.



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