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Volvulus of the Transverse Colon in A Young Adult Female; Case Report

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Abstract

Volvulus of the large bowel is a common cause of colonic obstruction. Although it can affect any part of the colon, the sigmoid colon is the most commonly involved, followed by the cecum. Transverse colon and splenic flexure volvulus are rarely reported, and account for almost 5% of all large bowel volvulus. Herein, we report a case of spontaneous transverse colon volvulus in a healthy young woman. In this case, volvulus was diagnosed based on clinical evidence, imaging studies, and intraoperative diagnosis. Right extended hemicolectomy with end ileostomy was done.

Keywords: *Volvulus, Transverse colon, Bowel obstruction.*

Introduction

Volvulus, which originates from the Latin word *volvere* (to twist), was first described by Von Rokitansky in 1841 (1). It is a form of intestinal obstruction which is correlated with the rotation of the bowel around its fixed base and predisposes a risk of causing subsequent bowel ischemia and can lead to abdominal catastrophe (2). Worldwide, volvulus is the third leading cause of large bowel obstruction. Its incidence is high in Russia, the Middle East and the "volvulus belt" in Africa. In the United States, colonic volvulus is responsible for almost 10-15% of large bowel obstruction, preceded only by tumors and diverticulitis (3).

Multiple predisposing factors were reported, including chronic constipation, previous abdominal operations, neuropsychiatric disorders, elderly patients, and patients in nursing care facilities.

Volvulus of the large bowel is a rare encounter having a peak incidence of 6%. The sigmoid colon is the most commonly affected part, which accounts for approximately 61% of cases, followed by the cecum at 34%, transverse colon (3.6%) and the splenic flexure (1%) (4). Due to the fact that the transverse colon is more fixed within the peritoneum, it is rarely associated with volvulus (5,6,7). Patients who suffer from transverse colonic volvulus are usually young (2nd or 3rd decade of life), and more likely to be female.

Herein, we report a rare case of spontaneous transverse colon volvulus in a healthy young woman.

Case Presentation

An 18-year-old healthy female patient, presented to our Emergency Medicine Department with chief complaints of left sided abdominal and flank pain. Prior to admission, the patient revealed she had vomited once without fever or diarrhea.

Upon her admission, physical examination revealed normal vital signs. Abdominal exam demonstrated abdominal distension and diffuse tenderness without palpable masses. Digital rectal exam revealed an empty ampulla.

Complete blood count, liver and kidney function tests were within normal limits. Arterial blood gases showed high lactate levels.

An upright abdominal X-ray revealed severely dilated right and transverse colon. A Computed Tomography (CT) scan with per rectum contrast material administration demonstrated a dilated large bowel

with a cut-off sign at the splenic flexure level, and "swirling" of the mesenteric vessels in the left upper quadrant (figure 1). A high suspicion of transverse colon volvulus was suspected, and the patient was admitted with a diagnosis of large bowel obstruction due to colonic volvulus.

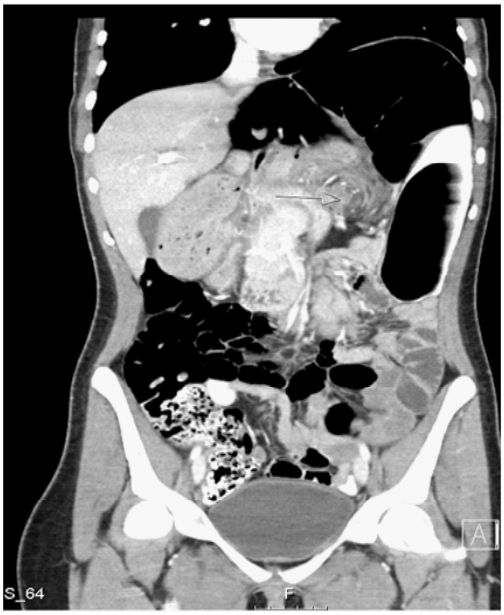

Fig 1. *A coronal abdominopelvic CT scan showing a severely dilated transverse colon, with swirling of the mesentery (arrow).*

Due to the aforementioned diagnosis, the patient underwent an emergent exploratory laparotomy.

On exploration of the abdomen, small amounts of serous free fluid was demonstrated, along with a severely dilated large bowel to the level of the left colon, volvulus of the transverse colon and venous congestion of the mesentery (figure 2). No signs of bowel ischemia were present. A right extended hemicolectomy with a double barrel ileostomy were performed.

Her post-operative period was uneventful, and she was discharged home at post-operative day 7.

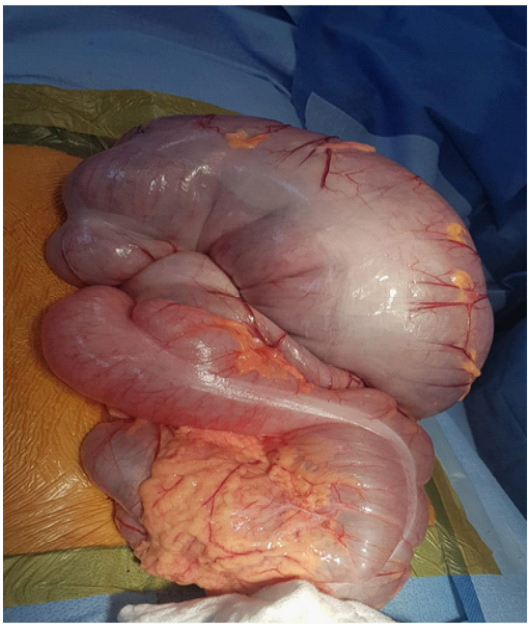

Fig 2. *Intra-operative photo demonstrating dilated transverse colon with twisting around its fixed base - findings suitable for transverse colon volvulus.*

Discussion

The incidence of volvulus of the large bowel is quite uncommon with volvulus of the transverse colon and splenic flexure being the rarest (5,6). Volvulus of the transverse colon, firstly described by Kallio in 1932 (8), has two peaks of occurrence: 2nd and 3rd decade of life, where it is more common in females, and comorbid elderly patients, where it is more common in males (9). Predisposing factors for transverse colon volvulus can be divided into mechanical causes (distal colonic obstruction, inflammatory strictures, adhesions or carcinoma), physiological (chronic constipation) and congenital causes (abnormal midgut rotation and abnormal attachment to the mesentery) (10, 11).

Volvulus of the transverse colon can present in two different clinical forms: as acute fulminating volvulus or subacute progressive type. Acute fulminating transverse colonic volvulus presents as a sudden onset of acutely severe abdominal pain which is associated with abdominal tenderness but with minimal abdominal distension. The patient will also present with certain symptoms which include nausea and vomiting. This type of volvulus requires urgent surgical treatment in order to prevent fatal complications such as bowel ischemia and perforation. Unlike acute fulminating volvulus, subacute colonic volvulus is usually more progressive and is associated with severe abdominal distension. Patients will present with less severe symptoms and signs such as mild abdominal pain without tenderness, and slightly elevated leukocyte count. This form of volvulus will require prompt treatment in order to prevent progression to acute fulminating volvulus. (12,13)

Diagnosis of colonic volvulus is critical due to the fact that it can often lead to catastrophic outcomes if left untreated. Due to the lack of specific radiographic findings (unlike the coffee bean sign for sigmoid volvulus), the diagnosis of transverse colonic volvulus is not always made prior to surgical treatment. Some radiologists describe the presence of a handle shaped "U" in the left upper quadrant as a suggestive, but not certain for diagnosis (8,14). Due to these difficulties, abdominal CT scan is conducted because it is more efficient during the presence of suspected colonic volvulus, although a review conducted by Vandendries et al, demonstrated that there are no radiological characteristics specific for transverse colon volvulus (15). Surgical management of volvuli should be performed when suspected signs of bowel volvulus are presented on imaging studies to prevent complications such as obstruction, ischemia, necrosis, and most importantly to prevent mortality (16,17).

Surgical management can include open or minimally invasive untwisting, with or without cecopexy or resection of the involved part. Due to the high recurrence rate of untwisting, right extended hemicolectomy is usually recommended.

Conclusion

Volvulus of the transverse colon is a rare encounter, and high index of suspicion is warranted. Prompt medical and surgical treatment is required to prevent fatal outcomes. Management should be precisely executed using the correct forms of diagnosis which includes emergent CT scan in order to provide an immediate surgical intervention to prevent mortality.

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