CASE REPORT

Volvulus of the transverse colon in an octogenarian veteran

Maryanne L. Pickett, Ann M. Mottershaw, Pramod Gupta and Sergio Huerta*

VA North Texas Health Care System, Department of Surgery and Radiology, Dallas, TX, USA

*Correspondence address. University of Texas Southwestern Medical Center, VA North Texas Health Care System, Department of Surgery, 4500 S. Lancaster Road (112), Dallas, TX 75216, USA. Tel: +1-214-857-1800; Fax: +1-214-857-1891; E-mail: Sergio.Huerta@UTSouthwestern.edu

Abstract

In the USA, the third leading cause of a large bowel obstruction in adults is volvulus with torsion occurring commonly in the sigmoid and the cecum. Transverse colonic volvulus is exceedingly rare and specific involvement of the splenic flexure is even more uncommon. In the present report, we discuss a Veteran octogenarian who presented with a long-standing history of constipation, but then developed an acute abdomen from a large bowel obstruction. At laparotomy, he had a double closed loop obstruction with volvulus of the splenic flexure. The colon at the splenic flexure was ischemic with patchy areas of necrosis, but no perforation. He underwent a subtotal colectomy with an ileostomy. This case illustrates the need for prompt intervention of this unusual entity. Current trends in the incidence, management, morbidity and mortality are discussed.

INTRODUCTION

In the USA, after malignant obstruction of the colon and diverticulitis, volvulus is the third leading cause of mechanical obstruction of the large intestine. This accounts for 1.9% of cases of large bowel obstructions (1), but it is ~50% in endemic areas such as South America, the Middle East and Africa (2). Colonic torsion is most common in the sigmoid (SV; 60–70%), and the cecum (CV; 25–40%; [1, 3]). Although the incidence of sigmoid volvulus (SV) has a geographic variation and the incidence of cecal volvulus (CV) has increased overtime in the USA in the past decade, transverse colonic volvulus (TCV) remains unusual worldwide (~5%; [4]). Splenic flexure volvulus (SFV) is much more uncommon (~2%).

TCV was first documented by Kalle Emil Kallio in 1932 [5] and SFV in 1953 by Glazer and Adlesberg [6]. Kallio documented 18 cases of TCV, which included two personal patients. Small case series and case reports indicate ~100 cases of TCV inclusive of circa 50 cases of SFV today. The largest collection of cases of TCV was published in 2019, documenting 86 patients from the world literature [4]. These cases demonstrate the rare incidence of TCV.

In the present report, we discuss a patient who had an acute abdomen and had SFV. Because Veteran patients present with a burden of comorbid conditions, rapid identification of a pathologic process is paramount [7, 8]. We also discuss the most current trends on this unusual surgical entity.

CASE REPORT

An 88-year-old White man presented to the Health Care System for a pacemaker placement. He had a significant history of constipation with hospitalization nine months prior for colonic distension. At that time, he was treated for non-mechanical large bowel obstruction by colonoscopic decompression. His last bowel movement was 2 days prior to surgical consultation. Following placement of his pacemaker, discharge planning was in place.

On the day of anticipated discharge, he became lethargic and developed respiratory failure accompanied by abdominal distension. Physical examination, he was intubated on 40% FiO2 (pO2 76.2 mmHg). He was hypotensive (96/52 mmHg) on maximum pressor support (epinephrine, norepinephrine and...
M. L. Pickett et al.

Figure 1: Scout image demonstrates a markedly dilated loop of bowel (thick arrow) in the left upper quadrant with mildly dilated ascending and transverse colon [thin arrow (A)]. Sagittal non-contrast computed tomography (CT) image demonstrates a focal point of transition from dilated to collapsed bowel in the distal transverse colon [arrow (B)]. Axial non-contrast CT image demonstrates distention of the proximal colon with a more focal markedly dilated loop of distal transverse colon. The descending and sigmoid colon are collapsed (D).

Figure 2: Gross specimen shows a dilated large intestine. Double arrows (A) demonstrate the proximal area of the volvulus. Single thin arrow (B) is a ruler [6 inch (15.24 cm)]. Single thick arrow shows the distal area of the transverse colon that twisted onto itself and caused a bowel obstruction.

DISCUSSION

In a review of 63,749 cases of colonic volvulus in the USA from 2002 to 2010, 597 instances of TCV were identified (0.93% [1]). But specific cases documented in the world literature are limited to less than one hundred [4]. Risk factors for TCV are categorized into congenital (malrotation and abnormal fixation), anatomical (non-fixation and bowel redundancy), mechanical (adhesions and distal bowel obstruction from malignancy or strictures) and physiologic (history of constipation, bowel dysmotility issues and high fiber diet; [9]).

Clinically, TCV may present as a chronic medical issue or as an acute abdomen. These clinical presentations have been previously described as chronic progressive or acute fulminant (as in the present case) TCV. As many as 50% of patients with the subacute progressive form of TCV have a prior history of chronic constipation, recurrent episodes of abdominal discomfort and distension [10–12]. The acute fulminant form is indicative of ischemia pending necrosis and potential perforation [13]. Patients present with a history and physical examination as well as radiographic findings consistent with a large bowel obstruction. However, the site of obstruction is difficult to determine with imaging modalities. Most reported cases have been identified at laparotomy [2].

The most comprehensive collection of cases (n = 86) documents a mean age of 40 years old (range 2–89 years old) and a slightly higher female composition (51%). In this collection of cases, 35% of patients with TCV were treated with detorsion, decompression and coloplexy. The complication rate in patients undergoing coloplexy was 23% compared with 32% in patients receiving colonic resection. The most common complication was cardiorespiratory failure (7%), followed by infection (6%) and bowel obstruction (5%). The mortality rate was 7% and the average hospital length of stay was 23 days [4]. However, in previous large reports the mortality rate has been up to 18% [1].

Volvulus of the transverse colon is unusual. Diagnosis is likely to be made at laparotomy. Clinical presentation is that of a large bowel obstruction. Prompt recognition is paramount in preventing ischemia necrosis and perforation. Mortality remains high. A more comprehensive review of the literature is needed to understand the current trends of this rare clinical entity.
COMPLIANCE WITH ETHICAL STANDARDS

Ethical approval
All procedures performed in the studies involving human participants were in accordance with the ethical standards of the institution and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Ethical standards
Appropriate Institutional Board Review approval was obtained for the study.

Human and animal rights
This article does not contain any study with animals performed by the authors.

Informed consent
Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

CONFLICT OF INTEREST STATEMENT
None declared.

FUNDING
None.

REFERENCES
1. Halabi WJ, Jafari MD, Kang CY, Nguyen VQ, Carmichael JC, Mills S, et al. Colonic volvulus in the United States: trends, outcomes, and predictors of mortality. Ann Surg 2014;259:293–301.
2. Schagen van Leeuwen JH. Sigmoid volvulus in a West African population. Dis Colon Rectum 1985;28:712–6.
3. Swenson BR, Kwaan MR, Burkart NE, Wang Y, Madoff RD, Rothenberger DA, et al. Colonic volvulus: presentation and management in metropolitan Minnesota, United States. Dis Colon Rectum 2012;55:444–9.
4. Schamme J, Schamme C, Palmer M, Cull J. Transverse colonic volvulus: a case report and literature review of a rare disease. Surg Case Rep 2019;2:1–6.
5. Kallio KB. Uber volvulus coli transversi. Acta Chir Scand 1932;70:39–58.
6. Glazer I, Adlersberg D. Volvulus of the colon: a complication of sprue. Gastroenterology 1953;24:159–72.
7. Huerta S, Pham T, Foster S, Livingston EH, Dineen S. Outcomes of emergent inguinal hernia repair in veteran octogenarians. Am Surg 2014;80:479–83.
8. Imran JB, Renteria O, Ruiz M, Pham TH, Mokdad AA, Huerta S. Assessing the veterans affairs surgical quality improvement program risk calculator in cholecystectomy. Am Surg 2018;84:1039–42.
9. Kerry RL, Ransom HK. Volvulus of the colon. Arch Surg 1969;99:215–22.
10. Loke KL, Chan CS. Case report: transverse colon volvulus: unusual appearance on barium enema and review of the literature. Clin Radiol 1995;50:342–4.
11. Yaseen ZH, Watson RE, Dean HA, Wilson ME. Case report: transverse colon volvulus in a patient with Clostridium difficile pseudomembranous colitis. Am J Med Sci 1994;308:247–50.
12. Zinkin LD, Katz LD, Rosin JD. Volvulus of the transverse colon: report of case and review of the literature. Dis Colon Rectum 1979;22:492–6.
13. Eisenstat TE, Raneri AJ, Mason CR. Volvulus of the transverse colon. Am J Surg 1977;134:396–9.