Case Report

Three-Year Chronic Simultaneous Separated Triple Large Bowel Volvulus in a Middle-aged Woman: A Case Report

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ABSTRACT

This case has been reported in line with the SCARE 2020 criteria. The volvulus of the transverse colon is rare when compared with the cecal and sigmoid volvulus. Cases involving simultaneous volvulus of the transverse colon and another colonic segment are extremely rare. In adolescents, sigmoid volvulus is rare, and because of this, diagnosis is usually missed or delayed. Volvulus is commonly defined as a twisted loop of the intestinal bowel and associated mesentery around a fixed point at its base. Surgery is the main course of treatment for volvolus, ranging from simple detorsion to right colectomy. Sigmoid volvulus remains an uncommon cause of intestinal obstruction among adolescents. A high index of suspicion is necessary to reach a diagnosis and manage accordingly. A delay in diagnosis can lead to complications such as necrosis and perforation of the twisted colon. Caecal volvulus is a rare cause of bowel obstruction, mainly caused by an exceedingly mobile caecum. Early diagnosis can be difficult due to its unspecific symptoms. Computed tomography (CT) plays a major role in diagnosis. The main course of treatment is surgical, and modalities depend on various factors such as patient status and perioperative findings. Currently laparoscopic evolution continues to reduce postoperative morbidity. Transverse colon volvulus is an uncommon cause of intestinal obstruction. It is a surgical emergency that can lead to bowel infarction, peritonitis, and death.

Our case was a 52-year-old woman just with abdominal distention. We performed CT for her and found triple volvulus of the large bowel. In history, she had signs for 10 days in 3 years before. We operated on her, and a total colectomy and anastomosis of the small bowel to rectum was done and discharged her healthy.

The surgical options in the management of acute large bowel obstruction, as a consequence of transverse colon volvulus, are one- or two-stage procedures.

Keywords: Volvulus, CT scan, Case report, Caecal volvulus, Transverse colon volvulus, Sigmoid colon volvulus

please cite this paper as:
Shahraki AR. Three-Year Chronic Simultaneous Separated Triple Large Bowel Volvulus in a Middle-aged Woman: A Case Report. *Govaresh* 2024;29: 179-183.

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Received: 05 Jul. 2024
Revised: 07 Sep. 2024
Accepted: 08 Sep. 2024

INTRODUCTION:

Volvulus is commonly defined as a twisted loop of the intestinal bowel and associated mesentery around a fixed point at its base. Cecal volvulus (CV) is a rare cause of intestinal obstruction, defined by an axial torsion of the caecum, ascending colon, and terminal ileum around the mesenteric vascular pedicles (1).

Preoperative diagnosis can be difficult due to its unspecific symptoms. As a result, CV is a surgical emergency, and any delay in management can be associated with complications, mainly bowel ischemia, eventually leading to perforation and peritonitis (2). CV is an infrequent cause of colon obstruction (3).

It is the second most frequent location of colonic volvulus and accounts for up to 60% of cases, according to several studies (4). To be diagnosed with CV, two conditions must be met: an abnormal mobile caecum associated with the lack of attachment of the mesenterium, caecum, or right colon to the posterior peritoneum (4,5,6) and a fixed point around which the caecum can twist (7).

Surgery is the main course of treatment for CV, ranging from simple detorsion to right colectomy (7). If gangrene, necrosis, or perforation are identified, resection is mandatory, and the current method of choice is right colectomy with primary anastomosis or ileostomy, depending on perioperative factors (8).

Three main procedures are described in the literature following caecum detorsion with no suspicion regarding its viability: isolated detorsion, caecopexy, and caecostomy (9). Isolated detorsion without caecopexy or cecostomy is associated with a high risk of recurrence; therefore, it should not be used anymore (10).

Caecopexy is done by attaching the right colon to the parietal peritoneum with a recurrence rate of up to 40%. Cecostomy is associated with a higher risk of complications, including caecum gangrene, fistula, and leakage.. As a result, cecopexy is recommended for patients with viable intestines not tolerating right colectomy and those suffering from mobile caecum syndrome (11,12).

Sigmoid volvulus is a rare cause of intestinal obstruction in children and adolescent populations. It is considered a disease of the elderly with a widely varying incidence worldwide. It is more common in areas referred to as “volvulus belt” (Middle East, Africa, the Indian subcontinent, Turkey, and South America) (13).

Sigmoid volvulus is a rare cause of pediatric and adolescent bowel obstruction (14). Acute sigmoid volvulus is an emergency abdominal condition common in adults, but recent reports suggest children and adolescents are susceptible (15). In adolescents, sigmoid volvulus is rare, and because of this, diagnosis is usually missed or delayed (16). This case report has been reported in line with the SCARE 2020 criteria (17). Sigmoid volvulus is a rare cause of mechanical intestinal obstruction in adolescents, although, in adults, it is more prevalent, especially in “volvulus belt” where a high-fiber diet is the norm (18).

The volvulus of the transverse colon is rare when compared with the cecal and sigmoid volvulus. Cases involving simultaneous volvulus of the transverse colon and another colonic segment are extremely rare (22).

CASE REPORT:

Our case was a 52-year-old woman with a history of recurrent and transient abdominal distention for 10 days every month. She was referred to the Surgery department, and we started examinations and lab data. She had 6200/mL WBC, no fever, no nausea or vomiting. She had a good and healthy appearance, and in the abdominal examination, she had distention synchronized in the abdomen, no scar from surgery, no colorless, and no tenderness.

We performed a triple computed tomography (CT) for her and Obstruction in large bowel and after hydration and starting GI rest,we act on National ethics role and we schedule a laparotomy for her, that in midline laparotomy we find comlete large bowel in three separated simultaneous sites and between them large bowel has normal size (Figure 1),. In laparotomy, we found three sites of volvolus (Figure 2), and we decided to do total colectomy (Figure 3). The changing in mesocolon showes that she had chronic simultaneous separated triple large bowel volvulus for 3 years (Figure 4).

Figure 1. Cecal and transverse colon volvulus

Figure 2. Transverse colon volvulus

Figure 3. Total colectomy

Figure 4. Simultaneous separated triple large bowel volvulus

After total colectomy, we anastomosed the small bowel and moved it to the rectum end to end. We sent the patient to the ICU, and maintenance therapy was done. After 4 days, we started oral eating and observed defecation and lab data. All of them were normal, and we discharged her healthy after 6 days from admission.

DISCUSSION:

Sigmoid volvulus remains an uncommon cause of intestinal obstruction among adolescents. A high index of suspicion is necessary to reach a diagnosis and manage accordingly. A delay in diagnosis can lead to complications such as necrosis and perforation of the twisted colon (13). Cecal volvulus is a rare cause of bowel obstruction, mainly caused by an exceedingly mobile cecum. Early diagnosis can be difficult due to its unspecific symptoms. CT plays a major role in a positive diagnosis. The main course of treatment is surgical, and modalities depend on various factors such as patient status and perioperative findings. Currently, laparoscopic evolution continues to reduce postoperative morbidity (2).). In adolescents, sigmoid volvulus is rare, and because of this, diagnosis is usually missed or delayed (16). Among children males to female ratio is 3.5:1 (18,19). The clinical presentation of mesenteric torsion is an intestinal obstruction with an acute abdomen and a major systemic inflammatory response that may compromise hemodynamic status (20). Transverse colon volvulus is an uncommon cause of intestinal obstruction. It is a surgical emergency that can lead to bowel infarction, peritonitis, and death (21). The surgical options in the management of acute large bowel obstruction, as a consequence of transverse colon volvulus, are one- or two-stage procedures. A one-stage procedure includes intraoperative colonic irrigation, resection of non-viable bowel, and primary anastomosis to avoid stoma creation. In a two-stage procedure, two options are available: (1) bowel is resected; the proximal end is brought out as terminal colostomy and the distal end as a mucus fistula. 2–3 months post-surgery, end-to-end anastomosis is performed, and (2) the bowel is resected, and end-to-end anastomosis is performed. A defunctioning colostomy or a loop ileostomy is fashioned to protect the anastomosis, which is closed 3–4 weeks later (21). Colonic volvulus usually occurs as a single event that can affect various parts of the colon. The usual sites affected are the sigmoid colon (75%) and the caecum (22%). The phenomenon of multiple sites simultaneously undergoing volvulus is an extremely rare occurrence (22). We report this case because in the literature we did not find triple and chronic volvulus.

CONCLUSION:

Cecal volvulus is a rare cause of bowel obstruction, mainly caused by an exceedingly mobile caecum. Early diagnosis can be difficult due to its non-specific symptoms. CT plays a major role in a positive diagnosis. The main course of treatment is surgical, and modalities depend on various factors such as patient status and perioperative findings. Currently, laparoscopic evolution continues to reduce postoperative morbidity (2). In adolescents sigmoid volvulus is rare and because of this diagnosis is usually missed or delayed (16). Transverse colon volvulus is an uncommon cause of intestinal obstruction. It is a surgical emergency that can lead to bowel infarction, peritonitis, and death (21). The surgical options in the management of acute large bowel

obstruction, as a consequence of transverse colon volvulus, are one- or two-stage procedures. A one-stage procedure includes intraoperative colonic irrigation, resection of non-viable bowel, and primary anastomosis to avoid stoma creation. In a two-stage procedure, two options are available: (1) bowel is resected; the proximal end is brought out as terminal colostomy, and the distal end as a mucus fistula. 2–3 months post-surgery, end-to-end anastomosis is performed and (2) the bowel is resected and end-to-end anastomosis is performed. A defunctioning colostomy or a loop ileostomy is fashioned to protect the anastomosis, which is closed 3–4 weeks later (21). Colonic volvulus usually occurs as a single event that can affect various parts of the colon. The usual sites affected are the sigmoid colon (75%) and the cecum (22%). The phenomenon of multiple sites simultaneously undergoing volvulus is an extremely rare occurrence (22,23). Although colonic volvulus is the third most common reason for bowel obstruction, the occurrence of simultaneous sigmoid and transverse colon volvulus is a rare condition that threatens patients' lives. As there are no definite signs or symptoms or even clinical and imaging findings for simultaneous colonic volvulus, it is essential to consider this disease, do a careful physical examination, and pay attention to laboratory and imaging findings, especially in patients with abdominal pain or distention (24). Despite ascending and transverse colon volvulus rarity, we advised including these in the differential diagnosis of patients associated with large bowel obstruction (25). The phenomenon of multiple sites simultaneously undergoing volvulus is an extremely rare occurrence (26). The dual location of strangulation makes this situation a major surgical emergency with a high risk of gangrene and septic shock. Colectomy with delayed anastomosis should be preferred in the treatment (27). Large-bowel obstruction caused by volvulus is potentially life-threatening if not managed promptly (28). Intraoperatively, we found a sigmoid volvulus and a concurrent transverse colon volvulus (29).

Overall, metachronous colonic volvulus must be considered in the differential diagnosis of bowel obstruction, particularly in patients with significant risk factors (30). Early surgical intervention is essential for a better outcome and for avoiding complications (31). A metachronous transverse colonic volvulus is uncommon. Preoperative diagnosis is challenging as there are no defining radiographic features compared with the volvulus of the sigmoid colon with the classical omega sign. Most cases are diagnosed intra-operatively. Bowel resection and anastomosis in a single stage is a safe option (32). The diagnosis is likely to be made at laparotomy (33).

We report this case because in the literature we did not find triple and chronic volvulus.

Declarations:

ETHICAL APPROVAL AND CONSENT TO PARTICIPATE:

The content of this manuscript is in accordance with the Declaration of Helsinki for Ethics. No committee approval was required. The patient's husband granted oral and written consent to participate.

CONSENT FOR PUBLICATION:

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

- AVAILABILITY OF SUPPORTING DATA

It is available.

CONFLICT OF INTEREST:

The authors declare no conflict of interest related to this work.

- FUNDING:

There is no funding.

- AUTHORS' CONTRIBUTIONS:

Ahmad Reza Shahraki is the surgeon of the patient and wrote this paper.

The author declares that he has no competing financial interests and nothing to disclose.

- ACKNOWLEDGEMENTS

This case is so rare and novel and database that we search and reports single or double sites.

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