


CASE REPORT

Sigmoid volvulus secondary to undescended testicle: Report of first case in the literatures

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Abstract

Sigmoid volvulus accounts for 20%–50% of colonic obstructions in Eastern countries. This occurs mostly in patients with a lack of mobility and a history of chronic constipation. There are some very known complications of a undescended intra-abdominal testicle such as cancer, ischemia, and infertility; But the rotation of the colon around the spermatic cord of one UDT is a very rare phenomenon that there is no similar report. A 67-year-old man came to the emergency department with a complaint of abdominal pain and obstipation. On examination, patient was febrile ($T: 38.5$) and had mild general tenderness. According to the appearance of coffee beans in the X-ray, the diagnosis of sigmoid volvulus was made. In the requested tests, leukocytosis was observed. Rectosigmoidoscopy was unsuccessful. The patient underwent laparotomy. After manual untwisting, a tubular structure at the base of the meso-sigmoid was noticed. With further exploration, the testis was observed intra-abdominally. Orchidectomy and sigmoidectomy were performed by Hartmann's method. Sigmoid volvulus is one of the common cases that surgeons frequently encounter. The case scenarios are often the same, and from experience, most cases result from a long meso and an elongated sigmoid secondary to prolonged constipation. Therefore, it is clear that a scrotal examination would not be part of the routine examination of a patient with sigmoid volvulus. In this article, by reporting a very rare etiology for a very common pathology, we tried to point out the importance of head-to-toe examination in all patients.

KEYWORDS

sigmoid volvulus, undescended testicle

1 | INTRODUCTION

A volvulus occurs when a segment of intestine, usually part of the colon, twists around its mesentery. Following this rotation, initially venous return is disturbed and

causes ischemia caused by venous stasis. With the prolongation of obstruction in the mesenteric vessels, along with the distention of the twisted segment of the intestine due to the progressive production of gas by the bacteria inside it, the arterial input is also disturbed, and the mucosal

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ischemia gradually progresses toward the muscular and serous layers, leading to perforation of the entire thickness of the intestine.

Sigmoid volvulus accounts for 2%–5% of colonic obstructions in Western countries and 20%–50% of colonic obstructions in Eastern countries.¹ This occurs mostly in patients with a lack of mobility and a history of chronic constipation, where the sigmoid colon becomes chronically distended and redundant.

Undescended testis (UDT) is defined as one or both testicles absent in scrotal sac when descending processes become disturbed and testis remains inside the peritoneal cavity.² There are some very known complications of a undescended intra-abdominal testicle such as cancer, ischemia, and infertility³; but the rotation of the colon around the spermatic cord of one UDT is a very rare phenomenon that there is no similar report.

In this article, we introduced a 67-year-old man who underwent laparotomy with the diagnosis of sigmoid volvulus, and the intraoperative findings were surprising.

2 | CASE PRESENTATION

A 67-year-old man came to the emergency department with a complaint of abdominal pain and obstipation from 2 days ago. In the postmedical history, he was a healthy man with three children, with no comorbidities, or history of hospitalization in the past, and he mentioned a history of constipation. On examination, vital signs were within normal limits (BP=100/80 mmHg, PR=84 per/min, RR=14 per/min, $T=37$), and in abdominal examination, there was mild abdominal distention and had mild general tenderness. With the suspicion of intestinal obstruction, plain abdominal X-rays were requested, and according to the appearance of coffee beans in the X-ray (Figure 1), the diagnosis of sigmoid volvulus was made. In the requested tests, HB was 14.5 g/dL and WBC was 9000 with 70% PMN. The rest of the tests were within normal limits.

After fluid resuscitation, and insertion of a nasogastric tube for upper decompression, rigid rectosigmoidoscopy was performed in the operating room, which was unsuccessful. The patient was transferred to the operating room for laparotomy. After induction of general anesthesia and midline laparotomy, the sigmoid was clearly warped around the meso-sigmoid. After manual untwisting, we noticed a tubular structure at the base of the meso-sigmoid (Figures 2 and 3). Suspecting that the said element is the spermatic cord, the scrotum was touched and it was found that the left scrotum was empty. With further exploration and release of adhesions between the spermatic cord and meso-sigmoid, the testis was observed



FIGURE 1 Typical coffee bean sign in abdominal X-ray.



FIGURE 2 Intraoperative finding.

with a normal and nonatrophic appearance. After releasing all adhesions, orchidectomy was performed intra-abdominally by urologist. Then, sigmoidectomy was performed by Hartmann's method by attending surgeon. On the first day after the operation, the number of leukocytes decreased (12,000/dL) and the general condition of the patient improved. Patient passed the postoperative period without significant incident and was discharged after 4 days. In the pathology report of the testicle sample, no neoplasia or dysplasia was reported.

3 | DISCUSSION

Etiology of sigmoid volvulus is a redundant loop of sigmoid that twists on its mesenteric pedicle more than 180°, which leads to obstruction and venous outflow and

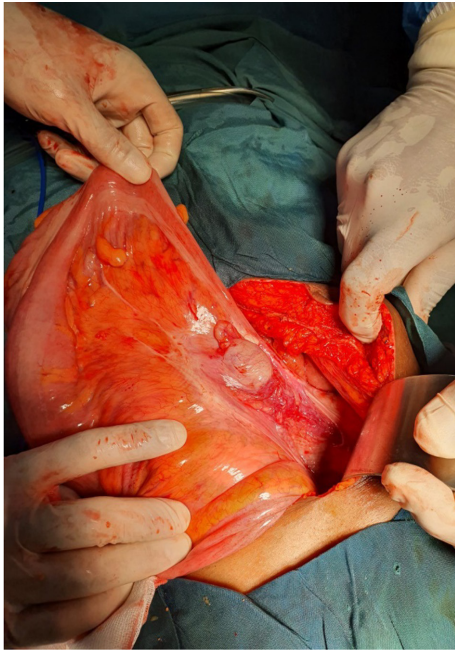


FIGURE 3 Intraoperative finding.

arterial inflow disturbance, respectively. Prolongation of this disturbance leads to mucosal ischemia and infarction, and eventually, transmural perforation.⁴

There are some known risk factors that have been associated with sigmoid volvulus such as anatomical redundancies in the mesentery, malfixation of the mesentery, chronic constipation, sedentary lifestyle, and neurological disease.⁵

Plain abdominal radiographs will show the classical coffee bean or kidney bean sign, and often dilatation of the proximal colon. The characteristic “whirl” sign on CT scan corresponds to twisted mesentery.⁶

When the viability of the sigmoid colon mucosa is suspected, flexible sigmoidoscopy is indicated to examine the colon mucosa, as well as insufflation during sigmoidoscopy to untwist the volvulus.⁷ Those patients with failed decompression or those with complications such as mucosal infarction or more advanced sequels need surgical intervention. The surgery of choice is a sigmoid colectomy. Performing primary anastomosis versus a Hartman procedure depends on intraoperative findings and patient's status.

In the reported articles, there are few intestinal complications associated with cryptorchidism. Most of these articles considered the mechanical obstruction caused by the adhesion of the undescended testis or the compressive effect of the gubernaculum as the main cause of the mechanical obstruction of the small intestine.

Hamdi et al. reported a 22-year-old man with typical symptoms, and imaging findings reported a small bowel obstruction that was caused by adhesions from an undescended testis.⁸ Kim et al. and Bassiouny et al. reported

such cases of small bowel obstruction due to twisting of small bowel around gubernaculum of an undescended testis.^{9,10}

Despite the existence of reports of small bowel mechanical obstruction due to undescended testis, no report of colonic volvulus was found in the literature, and to our knowledge, this is the first report of such a case.

Sigmoid volvulus is one of the common cases that surgeons frequently encounter. The case scenarios are often the same, and from experience, most cases result from a long meso and an elongated sigmoid secondary to prolonged constipation. Therefore, it is clear that a scrotal examination would not be part of the routine examination of a patient with sigmoid volvulus. In this article, by reporting a very rare etiology for a very common pathology, we tried to point out the importance of head-to-toe examination in all patients.

AUTHOR CONTRIBUTIONS

Mojtaba Ahmadinejad: Conceptualization; project administration; supervision. **Alireza Mammohammadi:** Investigation. **Amirhossein Hajialigol:** Investigation; validation; writing – review and editing. **Armin Tajik:** Data curation; investigation. **Hadi Maleki:** Data curation; investigation. **Haleh Pak:** Investigation. **Javad Zebarjadi Bagherpour:** Conceptualization; data curation; investigation; project administration; supervision; validation; writing – original draft; writing – review and editing.

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CONFLICT OF INTEREST STATEMENT

All authors confirm that there is no conflict of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ETHICS APPROVAL

This is a case report paper.

CONSENT

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 on request.

GUARANTOR

The corresponding author is Dr. Javad Zebarjadi Bagherpour who accepts full responsibility for the work and/or the conduct of the study, had access to the data, and controlled the decision to publish.

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