CASE REPORT

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Incidental Sigmoid Volvulus after a Ground-level Fall: An Unusual Case Report

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ABSTRACT

Sigmoid volvulus (SV) is an emergency that may cause bowel ischemia, necrosis, and mortality. It usually occurs in patients with chronic constipation, narrow mesentery, previous abdominal surgery, prolonged bed rest, and rarely blunt abdominal trauma. We present the case of a rare 80-year-old male patient who came for emergency service trauma service a same-level fall. The patient had no abdominal pain, previous abdominal surgery history, or known disease history. Pelvis X-ray showed femoral neck fracture and suspicion of volvulus. The emergency medicine team ordered an abdominal plain X-ray to rule out volvulus. The SV was diagnosed by abdominal X-ray and computed tomography. The patient was transferred to the operating room and underwent sigmoid colon resection and colostomy, and was discharged uneventfully. Why should an emergency physician be aware of this? Although a trauma patient may come without abdominal pain, the emergency physician should carefully examine him/her and be suspicious of unrelated conditions.

Keywords: Colon volvulus, emergency medicine, sigmoid volvulus, trauma

INTRODUCTION

Sigmoid volvulus (SV) is a twisting of the sigmoid colon around its mesentery. SV usually occurs in people after the fifth decade of life and has a 4/1 male-to-female ratio [1,2]. Sigmoid colon volvulus forms the most common type of all colon volvulus cases with 60-75% [2,3]. Its incidence was reported at 1.9% [4].

Anatomic tendency, chronic constipation, long-term laxative use, dolichosigmoid (extended sigmoid colon), narrow mesentery, diabetes, previous abdominal surgery, and prolonged bed rest are predisposing factors [2,5]. Patients present with intestinal obstruction symptoms and findings. SV accounts for 20-50% of bowel obstructions. The mortality changes from 10% to 50% [1]. SV may rarely occur after blunt abdominal trauma [6]. In this case, we report incidentally determined SV without abdominal pain or other bowel obstruction symptoms in a patient following the same level fall.

CASE PRESENTATION

An 80-year-old male patient came to the emergency service by ambulance because he fell on the same level. The patient had unintentional tremors in the upper and lower extremities. He was conscious but did not have time and place orientation, but cooperated with simple commands. Glasgow Coma scale score was 15. The upper extremities were in flexion in the elbow, the lower extremities were in flexion in the knee, and the legs were abducted bilaterally. There was no known disease or surgical history.

A physical examination of the abdomen showed mild tenderness and distention, but no rebound or rigidity. However, the patient did not experience any pain in the abdomen. Bowel sounds were normal. External trauma findings were not observed. The patient reported intermittent pain in the thorax and lumbar parts of the back, but not in the abdomen. There was also left hip pain with palpation. A detailed neurological examination could not be performed because of the patient's situation.

Blood pressure was 128/85 mmHg, pulse was 68 beats/min, temperature was 36.8 °C, and SpO_2 was 97%. Arterial blood gas parameter showed pH: 7.36, pO_2: 42.5 mmHg, pCO_2: 33.3 mmHg, lactate: 3.3 mmoL/L, and HCO_3: 19.1 mmoL/L on admission. Blood biochemistry analysis was remarkable for troponin T: 33 ng/L, creatinine: 2.88 mg/dL, international normalized ratio: 1.22, leucocytes: 11.6x10^3/µL, and hemoglobin: 11.7 g/dL.

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Chest and pelvic X-rays were obtained. There were no trauma or disease findings on chest images; there was noticeable doubt for sigmoid colon volvulus in the pelvis image (Figure 1A); and displaced multi-cracked fracture in the left femoral neck in the pelvis graph. Afterward, an abdominal plain X-ray was taken and showed high suspicion for SV (Figure 1B). Then, abdominal computed tomography (CT) was obtained and showed that the sigmoid colon had a redundant course and was located in the right upper quadrant. Dilatation reaching 7.5 cm in its widest part and air-fluid leveling were observed. At this level, a "whirl" sign was observed in the mesentery (Figure 2A, B). Findings were significant for the SV. Widespread dilatation was observed in loops proximal to this level. The transverse colon and cecum measured 7.5 cm. No free air in the abdomen and no perforation findings were observed. Edema and a dirty appearance were noticed in the mesentery. Oral intake was stopped, fluid resuscitation and nasogastric decompression were started, and the patient was referred to a gastroenterologist (GE). GE performed flexible endoscopic decompression and detorsion. After 8 h, the patient's symptoms and radiologic findings were not improved. Therefore, the patient was transferred to general surgery for advanced care and treatment. Sigmoid colon resection + Mikulicz colostomy were performed in the general surgery department. The patient was stable after the procedure. On the following 9th day, the patient underwent endoprosthesis surgery for a femoral fracture. The patient was discharged after inpatient care for seven days.

Figure 1. (A) Pelvis anterior-posterior X-ray image, (B) abdominal anterior-posterior X-ray image

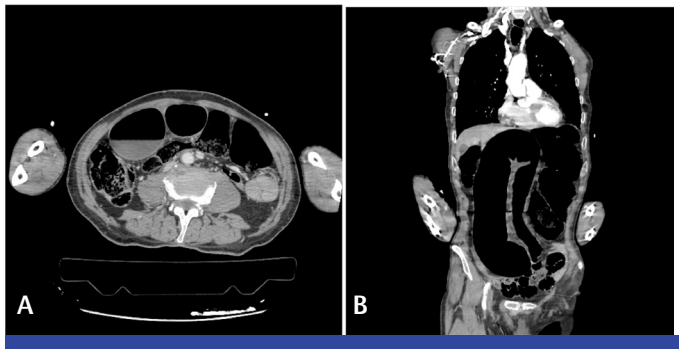

Figure 2. Abdominal computed tomography images. (A) Transvers plane, (B) coronal plane

DISCUSSION

The rotated part of the bowel causes bowel obstruction, decreases/stops intestine movements and blood supply, and leads to ischemia and necrosis. Nausea, vomiting, abdominal pain (usually diffuse non-specific), distended abdomen, tympanic abdomen on the percussion, decreased bowel sounds, decreased stool production, empty rectum, and peritonitis signs are the main symptoms and clinical findings of SV [2,7]. However, the absence of peritonitis findings does not rule out colon ischemia. Delayed complicated volvulus may cause translocation of the bowel flora to the bloodstream and result in sepsis. There are no pathognomonic laboratory features for SV. Elevated serum lactate levels may reflect bowel ischemia, which is associated with increased morbidity and mortality [8]. Abdominal X-ray is the initial diagnostic option. The "coffee bean" sign is the classic finding of SV in plain abdominal radiography [2,9]. CT is the gold standard for radiologic diagnosis. "Whirl" sign in CT is the pathognomonic sign for [10]. Proximal colonic dilation, disproportionate enlargement of the sigmoid colon, rectal decompression, absent rectal gas, and "split-wall" sign are other radiological features of SV in CT [11]. Enema is another option for diagnosis. However, it should be considered that is contraindicated if there is a perforation sign. Additionally, water-soluble enema is preferential to barium because it avoids chemical peritonitis [2]. The initial treatment is intravenous fluid resuscitation and decompression with a nasogastric tube. The study reported that flexible endoscopy for SV was successful in 510 (77.3%) patients [12]. Urgent endoscopic decompression of the colon and volvulus detorsion are strongly recommended for patients without findings of colon ischemia or perforation. It was reported to have 60-95% effectiveness, 4% morbidity, and 3% mortality [2]. Avoiding surgery is recommended for elderly patients because of the high morbidity and mortality risk. Hemodynamically unstable patients, those who have signs of ischemia or perforation, those who have failure in endoscopic decompression, or those who observed a gangrenous colon during the endoscopy should urgently go to the operation room [3]. In this study, the first treatment was endoscopy. Surgery was then planned because of no improvement in the patient's condition.

There are very few reports of SV with non-specific findings after trauma. In this case, we reported an incidentally found SV with non-classic symptoms after a ground-level fall and discussed its management in the literature.

"Take home" clinical message to emergency physicians colleagues is that if there is a suspicion of SV in asymptomatic patients, a plain abdominal X-ray should be ordered to rule out SV to avoid more morbidity or mortality.

Ethics

Informed Consent: Informed consent was obtained from the participant before inclusion in the case report.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: Z.K., E.S., M.S.K., Concept: Z.K., E.S., M.S.K., Design: Z.K., M.S.K., Data Collection or Processing: Z.K., E.S., G.H., M.M., Analysis or Interpretation: Z.K., E.S., G.H., M.M., M.S.K., Literature Search: Z.K., E.S., G.H., M.M., Writing: Z.K., E.S., G.H., M.M., M.S.K.

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