



PATTERN OF SIGMOID COLON VOLVULUS IN ABDOMINAL SUPINE RADIOGRAPHY

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ABSTRACT

Introduction: In Asia, Africa, and less-developed regions, Volvulus of the sigmoid colon can account for 20 to 50% of intestinal obstruction. Classic findings on radiology include the "bent inner tube" or "coffee bean" signs, which show a massively distended colon and it's thought to be specific for the diagnosis of sigmoid volvulus.

Objective: The purpose of this study was to evaluate the most common location of "coffee bean" sign in Abdominal Supine Radiography of patients.

Methods: Abdominal Supine Radiography of 40 case of sigmoid volvulus (at the recent 3 years in Loghman Hakim Hospital) were reviewed to understand that the "Coffee Been Sign" is located in the RUQ or LUQ.

Results: From that 40 patients, in 35 patients (87.5%) the Coffee Been Sign in supine abdominal radiography was significantly seen in LUQ, In 4 other patients (10%) the Coffee Been Sign was in Midline and only In 1 patient (2.5%) the Coffee Been Sign was significantly in RUQ.

Conclusion: Despite the popular belief that the location of "coffee bean" sign classically is in the right upper quadrant including the text of Schwartz Principles of Surgery, in our study there are the highest number of sigmoid volvulus located on LUQ.

KEYWORD

Coffee Been Sign, Bent Inner Tube Abdominal Supine

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INTRODUCTION:

Volvulus of the sigmoid colon is the most common form of volvulus in the United States and Western Europe, though overall it is a rare form of colonic obstruction [1,2]. In other parts of the world, including Asia, Africa, and less-developed regions, it can account for 20 to 50% of intestinal obstruction [3-9,47]. Lower percentages of obstruction related to sigmoid volvulus in the Western world compared with other locations could be due to the low-fiber diet. Also, high-fiber diets consumed in other parts of the world can lead to elongation of the colon. This can be a predisposing factor for volvulus. [11,12]

The sigmoid colon, with attachments in close proximity at its junction with the descending colon and rectum, make it a prime location for twist when elongated.[10] In addition, an elongated mesentery can also be a predisposing factor. [13,14]

Given the increased longevity in the Western world, and low-fiber diet, it is often a disease of the elderly [2], and often those in institutions.[19] Chronic constipation is common.[15-18]

Previous abdominal surgery and its subsequent adhesions, laxative abuse, and diabetes have also been cited.[19,47,49] In the younger population, sigmoid volvulus is more often associated with megacolon and its etiologies.[20-25,47] In children, age of presentation can range from 4 hours to 18 years, more commonly in boys.[17,26,27,50] Symptoms can be acute or chronic, and generally are manifested by abdominal pain, distention, and vomiting.[28] Adult patients will typically present with abdominal pain and distention. But as mentioned previously, the typical patient is in the hands of caregivers, who will remark that the patient has not had a bowel movement, appears distended, or is obtunded.[29] On physical exam, the patient will be grossly distended, with or without peritoneal signs.[30,48]

Classic findings on radiology include the "bent inner tube" or "coffee bean" signs, which show a massively distended colon.[16,28] In the presence of an incompetent ileocecal valve, there will also be distention of the small bowel

The incidence of cecal volvulus is reported to range from 2.8 to 7.1 per million people per year.[31,32] Presentation is

marked by either intermittent or acute obstruction. Distention may occur. Patients will often have pain, obstipation, nausea, and vomiting.[31-38,57-62] If a patient's clinical presentation is suspicious for cecal volvulus, diagnosis can be ascertained with plain abdominal films. As in sigmoid volvulus, the classic finding is the "coffee bean" sign—an axial view of dilated cecum with air and fluid generally pointing to the left upper quadrant, is present in roughly half of patients.[56,63] Treatment is Right colectomy with primary anastomosis. [64,65] Transverse colon and splenic flexure volvulus have rarely been recorded [19,66].

In this study we decided to reviewed abdominal Supine Radiography of Patients who had undergone emergency resection for acute sigmoid volvulus to understand the location of "Coffee Been Sign" that thought to be specific for the diagnosis of sigmoid volvulus.

METHODS:

Patients who had undergone emergency resection for acute sigmoid volvulus between 1393 and 1396 at a large government teaching hospital (Loghman Hakim Training and Research Hospital, Tehran, Iran) were reviewed in the study. Abdominal Supine Radiography of 40 case of sigmoid volvulus (all of sigmoid volvulus case at the recent 3 years in Loghman Hakim Hospital) were reviewed to understand that the "Coffee Been Sign" is located in the RUQ or LUQ.

RESULTS:

There were 40 patients with sigmoid volvulus that undergoing Abdominal Supine radiography. Most of them were men (26 of 40 = 65%) [Chart 1] with two Age peaks in 50-59 and 70-79 years old [Chart 2]; it suggest that sigmoid volvulus is more predominance in men, and usually occurs in age 50-59 and 70-79 that should confirms by some other studies with larger database.

From that 40 patients, in 35 patients (87.5%) the Coffee Been Sign in supine abdominal radiography was significantly seen in LUQ, In 4 other patients (10%) the Coffee Been Sign was in Midline and only In 1 patient (2.5%) the Coffee Been Sign was significantly in RUQ. [Chart 3 and 4]

The results also suggests the peak age of sigmoid volvulus for females is 80-89 and for men is 50-59 that also has to confirm by other studies with larger database. [Chart 5]

DISCUSSION:

The coffee bean sign is thought to be specific for the diagnosis of sigmoid volvulus [67]. This sign was identified in all of patients in our series and may be the best initial feature suggesting sigmoid volvulus. The location of the apex of the loop, however, does not significantly contribute to the diagnosis despite the popular belief that sigmoid volvulus classically points toward the right upper quadrant. In our study There are the highest number of sigmoid volvulus located on LUQ (in Abdominal Supine Radiography). This may explain that athwart the text of Schwartz Principles of Surgery, the most location of sigmoid volvulus are located in LUQ.

If additional radiologic studies are necessary, computed tomography (CT) scan or barium enema may be obtained.[39-42] Barium enema along with plain films can increase diagnostic accuracy.[42] As the appearance of dilated colon on radiographs can also be indications of neoplasm or megacolon, such diagnoses need to be ruled out.[51] Subsequent endoscopic decompression can identify neoplasms Endoscopic detorsion has become the primary therapeutic modality.[43-45] Detorsion can be performed via barium enema, rigid proctoscopy, flexible sigmoidoscopy, or colonoscopy [19]. Some reports reveal better results with a flexible approach [46,52]. It has been reported that 24% of sigmoidoscopic approaches will not find the site of torsion, encouraging the use of colonoscopy [19,53]. Overall, decompression has been found to be successful in 70 to 80%

of cases.[47] If gangrenous bowel is encountered, the patient should be brought for emergent exploration and resection. If detorsion is successful and no ischemia or gangrenous bowel is encountered, a rectal tube is left and elective resection is scheduled. Care should be taken in the selection of patients for endoscopic detorsion. Patients with signs and symptoms of sepsis, fever, leucocytosis, and peritonitis should be taken directly to the operating room (OR) for exploration.[47]

The patient should then be resuscitated, as many will be dehydrated and perhaps have electrolyte abnormalities. No time to resection has been standardized, but 48 hours for bowel preparation and resuscitation have been found to be safe.[54] A formal colonoscopy should be performed to rule out malignancy, and the patient taken to the OR for resection. Most evidence suggests recurrence is common and occurs in up to 90% of patients after endoscopic detorsion.[55] Standard surgical practice has been exploration, with resection of the sigmoid colon [19].

Patients who fail endoscopic decompression, have gangrenous bowel identified on endoscopy, or who exhibit signs and symptoms of sepsis should be prepared for surgery in an expeditious fashion. The patient should be resuscitated, started on broad-spectrum antibiotics, and ingest nothing orally. If the patient is hemodynamically unstable, no further imaging or tests should be ordered and the patient should go to the OR.[56]

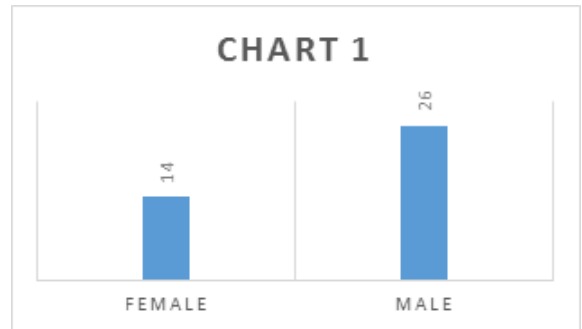


Chart 1: The incidence of sigmoid volvulus by sex

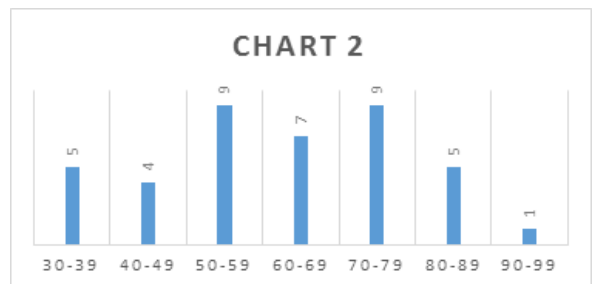


Chart 2: The incidence of sigmoid volvulus by age

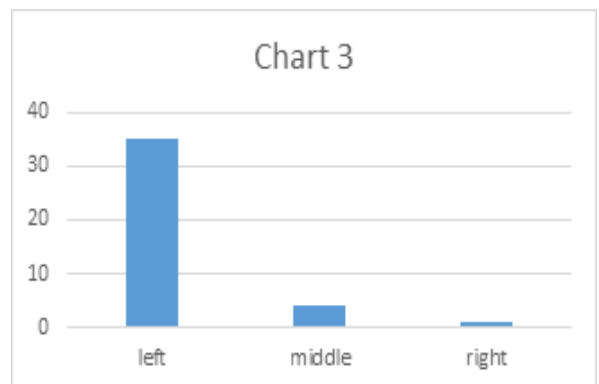


Chart 3: The location of Coffee Been Sign in supine abdominal radiography

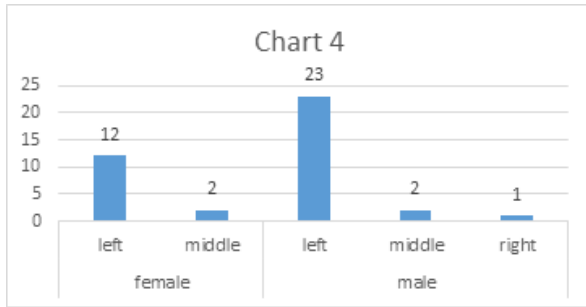


Chart 4: The location of Coffee Bean Sign in supine abdominal radiography by sex

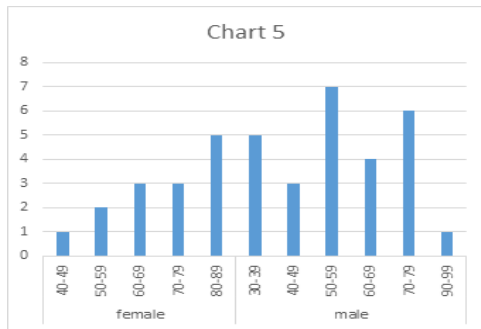


Chart 5: The age of sigmoid volvulus incidence by sex

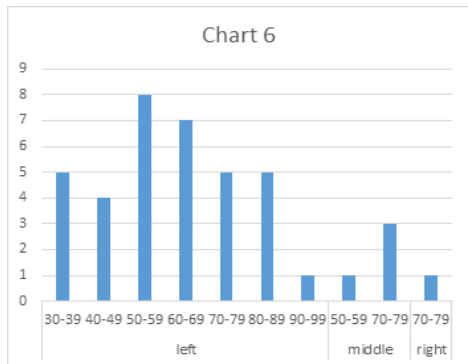


Chart 6: The location of Coffee Bean Sign in different ages

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