

Sigmoid Volvulus

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A 63-year-old man with multiple medical problems was transferred from a nursing home to the emergency room with progressively worsening diffuse abdominal pain of 3 days' duration. His vital signs were significant for heart rate of 94 beats per minute, blood pressure of 126/84 mmHg, respiratory rate of 20 breaths per minute, and oxygen saturation of 98% on room air. Abdominal examination showed diffuse tenderness in all quadrants. Active bowel sounds were heard; guarding or rigidity was absent. Examination of respiratory and cardiovascular system was unremarkable. His laboratory tests showed leukocytosis with left shift. Topogram done for planning computed tomography (CT) scan of abdomen (Figure 1) showed the following findings:

1. The dilated sigmoid loops (outlined by linear black arrows) have closely apposed medial walls (arrowheads), giving the appearance of a coffee bean. In addition, the apex of the loop is seen under the left hemidiaphragm.
2. The dilated sigmoid loop is seen to overlap the descending colon (the left flank overlap sign). The lateral margin of descending colon is shown with bold white arrows.
3. The level of convergence of the 2 limbs of the loop is seen to lie below the lumbosacral junction and to the left of the midline (inferior convergence sign, shown by the bold black arrow).
4. The small bowel and large bowel loops are dilated due to distal obstruction and are seen overlapping with the distended sigmoid colon.
5. The rectal gas is not visualized.

These features were suggestive of sigmoid volvulus.

Patients with sigmoid volvulus are often in the sixth to eighth decades of life and frequently have concomitant chronic illnesses, such as cardiac, pulmonary, and renal disease, that significantly influence their outcome.¹⁻⁴ Males develop sigmoid volvulus more commonly than do females. In a large series of patients with sigmoid volvulus, 30% had a history of psychiatric disease and 13% were institutionalized at the time of diagnosis.⁴ Abdominal tenderness is present in less than one-third of patients with volvulus, and severe pain or signs of peritonitis suggest impending or actual colonic necrosis and perforation.

Plain radiograph of the abdomen is usually diagnostic and reveals a dilated ahaustral sigmoid colon with features of closed-loop obstruction (bent inner-tube appearance).



FIGURE 1. Sigmoid volvulus.

The apex of the loop usually extends above the T10 vertebra. The various signs described for sigmoid volvulus on plain radiograph and the sensitivity and specificity for these are given in Table 1.⁵ A diagnosis of sigmoid volvulus can be made with abdominal radiographs alone in as many as 85% of instances.³ A CT scan helps detect the changes of bowel ischemia and can confirm or provide an alternate diagnosis. A single contrast barium enema examination may be done if signs of bowel ischemia or perforation are absent. This may reveal a mucosal spiral pattern or bird's beak appearance (due to abrupt termination of the barium column) at the site of twist.

In patients with abdominal films most consistent with a sigmoid volvulus, initial rigid or flexible proctosigmoidoscopy may allow prompt decompression of the volvulus. Early recognition and treatment are necessary to prevent mortality. Placement of a rectal tube for 48 hours may minimize the possibility of early recurrence. Successful reduction

TABLE 1. Sensitivity and Specificity of the Plain Radiographic Features of Sigmoid Volvulus

Sign	Sensitivity (%)	Specificity (%)
Distended ahaustral loop	94	20
Apex under left hemidiaphragm	88	100
Apex of loop above T10 vertebra	71	80
Inferior convergence on the left	53	100
Fulcrum below lumbosacral angle	65	80
Approximation of the medial walls of the sigmoid loop	88	80
Left flank overlap sign	59	100

of sigmoid volvulus also has been reported with colonoscopy; however, the procedure must be performed carefully with minimal insufflation of air (or preferably carbon dioxide) to minimize the risk of perforation of the distended, inflamed bowel. Endoscopic reduction of sigmoid volvulus alone is associated with a recurrence rate of 25% to 50%.^{1,2,6,7} Hence, elective sigmoid resection and coloproctostomy, or in medically compromised patients, end colostomy, should follow proctoscopic decompression and mechanical preparation of the bowel. Recurrence rates with this approach are 3% to 6%.^{1,2,7} Patients requiring emergent laparotomy for strangulated sigmoid volvulus require sig-

moid resection with end colostomy and a Hartmann pouch. The patient's volvulus was successfully decompressed with colonoscopy. He was offered elective sigmoid resection and coloproctostomy as a definitive therapy, which he declined.

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