

Reduction of Cecal Volvulus by Multiple Barium Enemas

Frederick J. Schwab, Seth N. Glick, and Steven K. Teplick

Department of Diagnostic Radiology, Hahnemann University Hospital, Philadelphia, Pennsylvania, USA

Abstract. It has been frequently stated that barium enema has no value in the treatment of cecal volvulus. We present a patient with cecal volvulus who was effectively treated by barium enema; however, multiple studies were required to achieve optimal results. In a subset of patients with cecal volvulus, laparotomy may be avoided by the use of barium enema.

Key words: Cecum, volvulus – Colon, barium enema examination.

Cecal or right colonic volvulus is the cause of approximately 10% of adult colonic obstruction [1]. Since the earliest description of this entity [2], it has been believed in almost all cases to be an operative emergency requiring prompt surgical intervention [3, 4].

Though therapeutic barium enema and sigmoidoscopy have been advocated for initial treatment of sigmoid volvulus [5, 6], the use of conservative measures in the treatment of cecal volvulus has long been eschewed [7]. A survey of the literature reveals very few reported cases of successful, permanent reduction of cecal volvulus by barium enema [7-10]. No authors have reported using multiple enemas to achieve colonic reduction.

We describe a case of right colonic volvulus that was successfully reduced following multiple, successive barium enemas.

Case Report

A 63-year-old white woman presented with a 1-week history of constipation, anorexia, and vomiting. Approximately 6

Address reprint requests to: Seth N. Glick, M.D., Department of Diagnostic Radiology, Hahnemann University Hospital, Broad and Vine Streets, Philadelphia, PA 19102-1192, USA

months prior to this admission, the patient had presented with similar signs and symptoms. A barium enema at that time demonstrated a severely dilated cecum in the mid-abdomen, but no evidence of colonic obstruction. On this admission, an initial abdominal radiograph again demonstrated a markedly distended loop of colon in the left upper quadrant (Fig. 1A).

The patient had a history of severe chronic obstructive lung disease with resultant cor pulmonale. She had undergone appendectomy as a child. Physical examination revealed an afebrile patient in moderate distress. The abdomen was markedly distended with hypoactive bowel sounds. There was no significant point or rebound tenderness. No masses were palpated. The admission white blood cell count was 9,800 mm³ without leftward shift.

Immediately after admission, a low-pressure single contrast barium enema demonstrated a narrowed, beaklike obstruction approximately 10 cm proximal to the hepatic flexure. Contrast was eventually refluxed through the twisted segment into the malpositioned cecum (Fig. 1B). During the course of the study, partial reduction of the twisted segment was noted. A post-evacuation film demonstrated reduction of the cecal distention. The patient was thought to be a poor operative risk, and surgery was deferred.

During the following 24 hours, the patient twice developed abdominal distention with plain-radiographic evidence of recurrent right colonic volvulus. Since the patient's laboratory values and clinical status were stable, barium enemas were repeated twice. In both instances, cecal volvulus was demonstrated and reduced. Following the third attempt at reduction, the patient showed no further signs of obstruction. A follow-up barium enema a few days later was normal, with the cecum now in the right lower quadrant (Fig. 1C). The patient has remained asymptomatic for the past 5 months.

Discussion

The causes of cecal volvulus have been well-described [6, 11-13]. The primary cause is a congenital failure of normal fixation of portions of the right colon or cecum. A fixed point must exist, however, about which the mobile segment can twist. Postmortem examinations have revealed that a mobile cecum occurs in as many as 22% of the general population [14].

A number of factors may precipitate torsion of a congenitally mobile cecum: chronic constipation

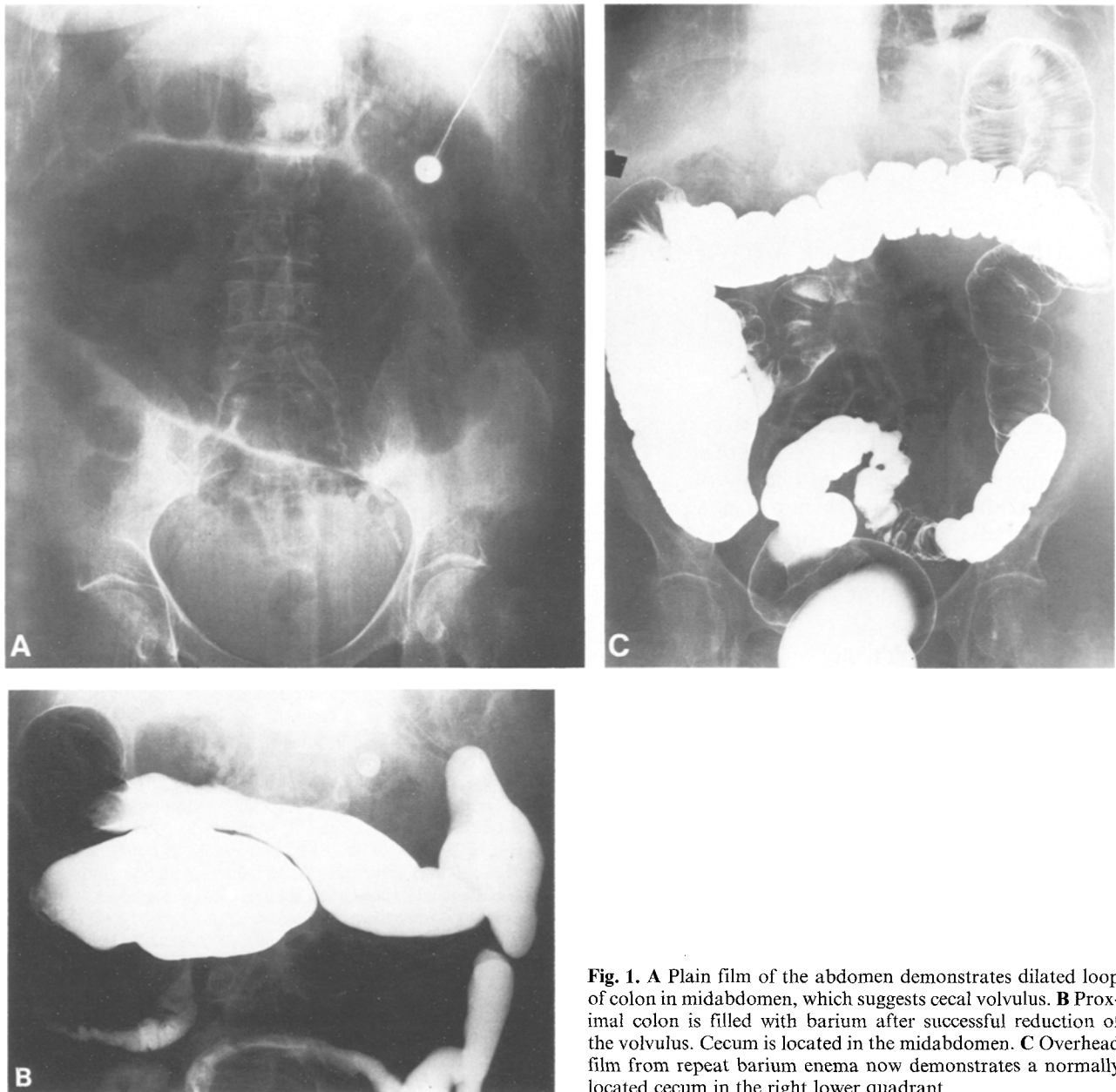


Fig. 1. **A** Plain film of the abdomen demonstrates dilated loop of colon in midabdomen, which suggests cecal volvulus. **B** Proximal colon is filled with barium after successful reduction of the volvulus. Cecum is located in the midabdomen. **C** Overhead film from repeat barium enema now demonstrates a normally located cecum in the right lower quadrant

tion with resulting right colon distention, distal obstructing lesions of the colon, rapidly increasing intraabdominal pressure due to parturition or violent exercise, and adhesions from prior surgery [15].

The clinical picture of cecal volvulus is quite variable. Though many patients will present with classic catastrophic signs of acute colonic ischemia or infarct, a number of authors have identified a subacute variant of the traditional presentation [13, 16, 17]. Termed "chronic" or "intermittent" volvulus, this entity involves torsion of the right colon or cecum producing obstruction without im-

mediate evidence of vascular compromise. With rising intraluminal pressure, these patients will eventually develop bowel ischemia [6], their initial presentation is generally far from fulminant.

The patient with intermittent obstructive volvulus may present with obstructive signs of long duration. Frequently, the patient describes past episodes of similar symptoms which were relieved spontaneously. With the use of laboratory and clinical criteria, these patients can generally be differentiated from patients with the fulminant type of volvulus.

Early surgery has long been considered the

treatment of choice for cecal volvulus [12], and should no doubt be undertaken in patients who are good operative risks. However, a significant number of patients who present with cecal volvulus are aged or chronically ill. A number of studies [15, 17] have shown operative mortality as high as 40%. Although most of the cases cited were complicated by vascular compromise and bowel infarction, one would also expect a high mortality during the operative treatment of uncomplicated volvulus in the patient who is a poor surgical risk [15].

A number of authors have described the lack of success or inadvisability of attempting to reduce right colonic volvulus noninvasively [3, 6, 11, 17]. Five cases of successful reduction of cecal volvulus by barium enema have been described in the literature [7–10]. In each instance, emergency surgery was avoided. One patient did return at a later date with recurrent volvulus and underwent definitive surgery [7].

The practice of multiple therapeutic enemas for a single patient has not been previously discussed. We describe the use of repeated barium enemas for the reduction of volvulus in the case of a patient who presents with poor operative risk. The advantage of multiple enemas may lie in a number of factors. Signs of colonic obstruction may be evident following 180° torsion of the right colon [8, 18]; however, twisting can occur to a far greater degree. We suggest that the initial contrast enema may succeed in partially reducing the colon and decompressing the proximal segment; successive enemas are necessary to achieve complete detorsion. Also, since fecal colonic impaction may represent the initiating cause of volvulus, the bowel cleansing value of multiple enemas cannot be underestimated.

In summary, we describe the use of multiple barium enemas in the reduction of cecal volvulus. For the specific patient who presents with obstructive, nonfulminant right colonic volvulus and is a poor surgical risk, the barium enema may have

therapeutic as well as diagnostic value. Also, as long as the patient's clinical status remains stable, multiple enemas may offer a greater chance for success than would a single examination.

Acknowledgments. Special thanks to Shirley S. Szabo for secretarial assistance on the manuscript.

References

1. Kerry RL, Lee F, Ransom HK: Roentgenologic examination in the diagnosis and treatment of colon volvulus. *AJR* 113:343–348, 1971
2. Rokitonsky C: Intestinal strangulation. *Arch Gen Med* 14:202–204, 1837
3. Nay HR, West JP: Treatment of volvulus of the sigmoid colon and cecum. *Arch Surg* 94:11–13, 1967
4. Hendrick JW: Treatment of volvulus of the cecum and right colon. *Arch Surg* 88:364–373, 1963
5. Botsford TW, Heaky SJ, Veith P: Volvulus of the colon. *Am J Surg* 114:900–903, 1967
6. Kerry RL, Ransom HK: Volvulus of the colon. *Arch Surg* 99:215–222, 1969
7. Meyers JR, Heifetz CJ, Baue AE: Cecal volvulus. *Arch Surg* 104:594–599, 1972
8. Figiel LS, Figiel SJ: Detorsion of volvulus of the right colon. *AJR* 72:192–197, 1954
9. Young WS: Further radiological observations in caecal volvulus. *Clin Radiol* 34:479–483, 1980
10. Anderson JR, Mills JOM: Caecal volvulus: a frequently missed diagnosis. *Clin Radiol* 35:65–69, 1984
11. Wilson HE, Desforges G, Dunphy HG, Campbell AJA: Volvulus of the cecum. *Arch Surg* 68:593–604, 1954
12. Sweet RH: Volvulus of the cecum. *N Engl J Med* 213:287–293, 1935
13. Sawyer RB, Sawyer KC Jr: Volvulus of the colon. *Am J Surg* 104:468–473, 1962
14. Donhauser JL, Atwell S: Volvulus of the cecum. *Arch Surg* 58:129–148, 1949
15. Krippachne WW, Vetto RM, Jenkins CC: Volvulus of the ascending colon. *Am J Surg* 114:323–332, 1967
16. Large AM: Partial intermittent volvulus of the cecum. *Ann Surg* 167:609–612, 1968
17. Hinshaw DB, Carter R, Joergenson EJ: Volvulus of the cecum or right colon. *Am J Surg* 98:175–183, 1959
18. Bobroff LM, Messinger NH, Subbarao K, Beneventano TL: The cecal bascule. *AJR* 115:249–252, 1972

Received: May 16, 1984; accepted: July 26, 1984