SIGMOID VOLVULUS: A RARE CASE REPORT IN CHILDREN

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ABSTRACT

Sigmoid volvulus is an uncommon problem in children and adolescents, and is rarely considered as a diagnosis in this group because it is a classic disease of the elderly. Sigmoid volvulus is rarely reported in the literature. Herein, we report a case of acute sigmoid volvulus in an 8 year old boy in whom the diagnosis was strongly suspected on the basis of the plain film roentgenograms, and summarize the definition, manifestations, pathogenesis, complications and treatment. Early diagnosis is necessary due to the compromised prognosis of this disease and the necessity of rapid prompt therapeutic management.


INTRODUCTION

Sigmoid volvulus is an uncommon problem in children and adolescents, and is rarely considered as a diagnosis in this group because it is a classic disease of the elderly. Volvulus occurs when a redundant sigmoid loop rotates around its narrow, elongated mesentery, producing arterial and venous obstruction of the affected segment, followed by rapid distention of the closed loop. Because the consequences can be serious, sigmoid volvulus should be included in the differential diagnosis of acute and recurrent episodes of abdominal pain or bowel obstruction, particularly if colonic dilatation is seen on radiographs.[1]

Sigmoid volvulus occurs rarely in infants and children as compared with adults. When this condition does occur in the pediatric age group, the plain film roentgenographic findings are usually nonspecific and a barium enema examination is required for preoperative diagnosis.[2]

This report describes a case of acute sigmoid volvulus in 8 years old boy in which the diagnosis was strongly suspected on the basis of the plain film roentgenograms.

CASE REPORT

An eight years old boy, healthy with no previous medical history, well vaccinated for age, presented with severe abdominal distention of two days duration, associated with abdominal pain, mainly epigastric, continuous with superimposed colicky component, radiating to the back and not relieved by any position, also had nausea and vomited once non bilious, had decrease oral intake and obstipation. He had good urine output. He was afebrile. Past surgical history was negative. He was not known to have drug or food allergy. Paracetamol was the only medication taken at home. As for his neonatal history he was full term boy born by NVD to a 25 years old mother, vigorous, with no perinatal complications or ICN admission upon birth and no delay in passage of meconium.

Vitals signs upon admission: T 37.2°C, HR: 80, BP: 10/6, RR: 20, SaO2: 97%.

On physical examination: Conscious cooperative oriented, normal ENT, good bilateral air entry on lung auscultation, regular S1 and S2 with no heart murmurs, abdominal examination revealed absence of bowel sounds, distended but soft abdomen, tympanism on percussion, tenderness to deep and superficial palpation all over abdominal area, no lower limbs edema and no rash.

Laboratory data upon admission revealed Hemoglobin 13, 8 g/dl with WBC count of 10,500 (70% neutrophils and 30% Lymphocytes) and Platelets count of 325,000. Electrolytes, Creatinine, Amylase and Lipase were normal and CRP revealed 0.
KUB showed important colonic distension with C shape in right infra diaphragmatic area.

CT scan showed: Distention of sigmoid colon which is very long reaching to the right sub diaphragmatic area leading to the deviation of the liver. The vessels of mesosigmoid present a “Whirl sign” indicated a sigmoid volvulus. No presence of ascites.

Whirl sign: the dilated sigmoid colon surrounds around its mesocolon and vessels.

Laparotomy was done with manual reduction of the sigmoid volvulus and elective appendectomy was also done, patient tolerated the procedure and transferred to the regular floor in good and stable condition. Patient discharged from the hospital after two days of surgery in well shape.

DISCUSSION

Sigmoid volvulus is a Torsion of a segment of bowel tract that lead to bowel obstruction. The incidence of sigmoid volvulus: 10% of intestinal obstructions in US, 50 to 80% in other parts of world usually in older adults, mean age of 70 years at presentation, rare in children as in our case and associated with abnormal colonic motility predominance in men.

The pathogenesis of sigmoid volvulus started when the sigmoid colon twists about its mesentery lead to obstruction of the intestinal lumen then impairment of vascular perfusion.

The risk factors divided into anatomic factors as long redundant sigmoid with narrow mesenteric attachments, constipation (dilatation of the sigmoid) and functional factors (colonic dysmotility) as constipation (prolonged transit) and in Hirschprung disease.

Clinical pictures resumed by abdominal pain (continuous with colicky component, severe and slowly progressive), abdominal distention (nausea and vomiting) and changes in bowel movements (constipation and obstipation).

On Physical examination sigmoid volvulus present with distended, tympanism, tender abdomen with emptiness of left iliac fossa, however perforation/peritonitis may present with fever, tachycardia, hypotension, rigidity and rebound tenderness.

As laboratory evaluation, complete blood count and electrolytes should be done. In patients with a suspected perforation and diffuse peritonitis, serum aminotransferases, alkaline phosphatase, bilirubin, amylase, and lipase levels should be obtained to rule out other causes of acute abdominal pain.

The diagnosis is suspected by history and physical examination, confirmed by imaging (CT scan, KUB and barium enema).

CT scan of abdomen showed: Whirl pattern, Bird-beak appearance and Split wall sign.

The presence of pneumatosis intestinalis, portal venous gas, or loss of bowel wall enhancement on CT scan is suggestive of bowel necrosis.

Abdominal radiography showed the presence of a U-shaped, distended sigmoid colon seen gas extending
from the pelvis to the right upper quadrant as high as the diaphragm, air-fluid levels in the small bowel (nonspecific). The presence of linear pneumatosis suggests impending bowel perforation. Free intraperitoneal air is suggestive of bowel perforation.

On the contrast enema the characteristic appearance is a bird’s beak configuration where contrast tapers to the point of obstruction. It is diagnostic and therapeutic (reduce a sigmoid volvulus) but has risk of perforation.

Concerning the indications of barium enema when the CT scan is not available and abdominal radiographs are not diagnostic.

The differential diagnosis include Toxic megacolon defined as total or segmental colonic dilatation plus systemic toxicity, on KUB we found thumb print sign. Intestinal pseudo obstruction defined as gross dilatation of the cecum and right hemi colon in the absence of an anatomic lesion, diffuse colonic dilatation or proximal colonic dilatation is seen with an intermediate transitional zone at to the splenic flexure.

The goal of management is to reduce the sigmoid volvulus and prevent recurrent episodes.

The sigmoidoscopy is the first choice, it is important to detorse the sigmoid volvulus and for an assessment of the viability of the colon; successful in 75 to 95 percent of cases but to prevent recurrent volvulus definitive surgery should be performed.

If the endoscopic detorsion is unsuccessful or the signs of peritonitis presents immediate laparotomy should be done. About the prognosis the mortality is highest in patients who have developed gangrene (60 percent), the mortality is less than 10 percent in patients who have not developed gangrene and recurrence occurs in up to 60 percent of patients.

**LITERATURE REVIEW**

Since 1940, 63 cases of sigmoid volvulus in children (including this series) have been reported. The median age was 7 years and the male to female ratio was 3.5:1.

Two distinct presentations (acute and recurrent) were identified. Abdominal symptoms dominated the clinical picture. Barium enemas either confirmed or were highly suggestive of sigmoid volvulus. Reduction by barium enema was successful in 77% (10 of 13) of the attempts. Forty-nine patients underwent operative treatment, with sigmoidectomy (with or without primary anastomosis) being the most common. The overall mortality rate was 6%, operative mortality was 8.1%, and neonatal mortality was 14%. Associated conditions were frequent. Particular emphasis should be placed on ruling out Hirschsprung’s disease (present in 11 of 63 patients).

**CONCLUSION**

The reported case discussed sigmoid volvulus which remains a rare occurrence in children, but it should be included in the differential diagnosis of abdominal pain in children when colonic distention is present. Earlier diagnosis, expeditious treatment has led to a reduction of serious complications in this patient with sigmoid volvulus. Treatment involves surgical management. If sigmoid volvulus is identified and treated promptly, the prognosis for complete recovery without complication is excellent as in our case.

**REFERENCES**