

SIGMOID VOLVULUS IN THE PEDIATRIC AGE GROUP*

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In children sigmoid volvulus is quite rare, and it generally occurs in an acute fulminating form¹⁻⁹. Four cases have been encountered in the Hacettepe University Children's Hospital. This report gives details of these cases and a brief review of the literature dealing with sigmoid volvulus.

Case Reports

Since 1976 four cases of sigmoid volvulus have been diagnosed and surgical intervention carried out in the Hacettepe University Children's Hospital. Patients ranged in age from 7 to 16 years with a mean of 12 years; two of them were boys and two were girls.

All patients were admitted to the hospital with the signs of acute abdominal disorders. The main symptoms were abdominal pain, bilious or fecaloid vomiting and difficulty in defecation; physical findings were marked abdominal distention, tenderness, rebound tenderness, rigidity and emptiness of the rectum. Two patients, both from rural areas, had undergone appendectomies consequent on recurrent abdominal pain. Another patient had been suffering from longterm constipation. The youngest patient, however, had previously displayed no gastrointestinal system symptoms.

There was mild or severe electrolyte disturbance in all patients at the time of admission. Plain abdominal X-rays demonstrated distal intestinal obstruction (Figure 1). Barium enema was not performed on any of the patients. Only the fourth patient was correctly diagnosed pre-operatively with the plain abdominal X-ray. The rapid deterioration of this patient's condition suggested gangrene of

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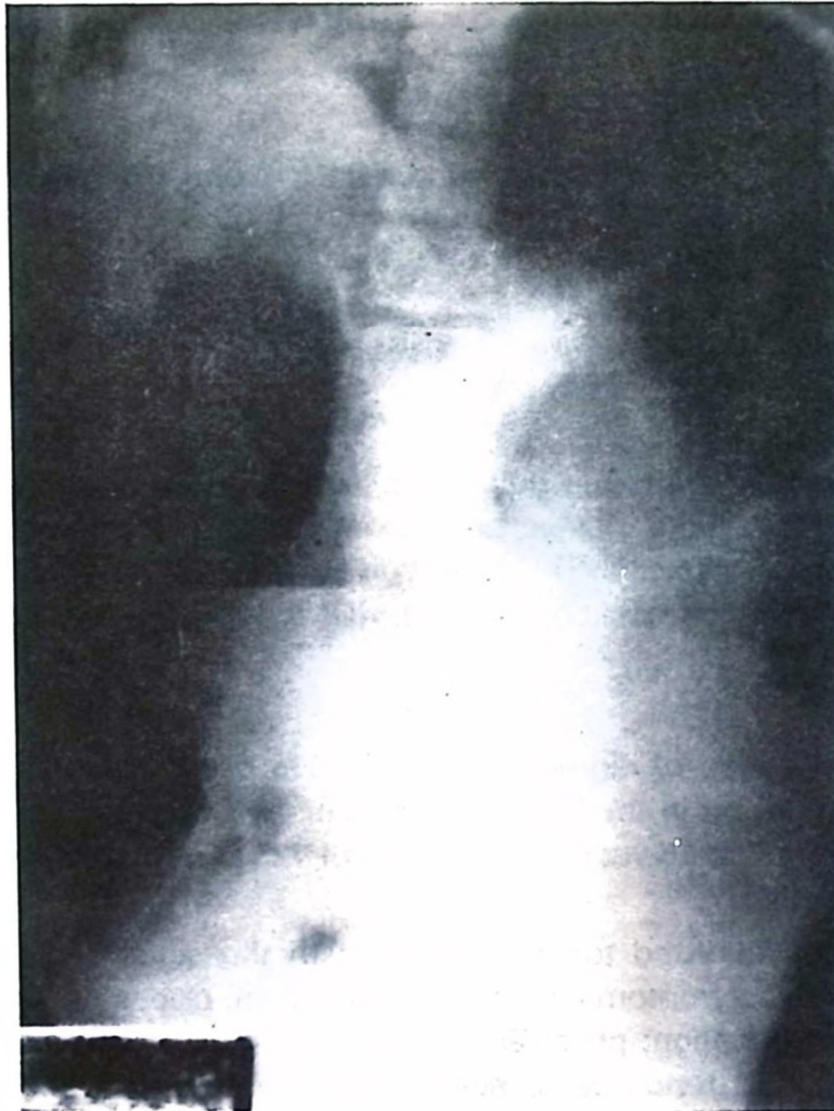


Figure 1

Plain film of abdomen showing the evidence of distal intestinal obstruction.

the bowel, and an emergency operation was performed following therapy for the correction of fluid and electrolyte deficiency.

In all cases, the sigmoid colon had twisted back 360 degrees on its mesenteric axis in a counterclockwise direction. There was no strangulation in the second patient and only the torsion was corrected. In the others, the bowel was gangrenous and there was extensive peritonitis (Figure 2); sigmoid resection following Hartmann's procedure (proximal terminal colostomy and closure of the rectal stump) was carried out. These patients were all reoperated on three months later and this time a colostomy closure was performed.

In two patients where there had been strangulation, intestinal obstruction due to postoperative adhesions developed following the initial operation. Conservative measures failed to relieve the obstruction and surgical intervention was



Figure 2

Fourth patient's resected specimen : the entire sigmoid colon is gangrenous.

necessary. All patients are free of symptoms at the time of writing, a period of six, three, two and two years respectively, having passed since the operation was performed. Details of our cases are given in Table I.

TABLE I
Details of the Case Series

<u>Case no.</u>	<u>Age (years)</u>	<u>Sex</u>	<u>Previous symptom or operation</u>	<u>Treatment</u>	<u>Complication</u>
1 (PG)	7	M		Resection	—
2 (MA)	11	F	Appendectomy	Detorsion	—
3 (MA)	14	F	Appendectomy	Resection	Adhesive intestinal obstruction
4 (HK)	16	M	Constipation	Resection	Adhesive intestinal obstruction

Discussion

Sigmoid volvulus is a very rare condition in the pediatric age group. Ours apart there have been approximately 30 cases reported in the literature prior to 1984¹⁻⁹. Among the adult cases in our center it accounts for just 6.6 percent of the intestinal obstruction¹⁰.

In adults, it more commonly occurs in the male, although according to Smith and his colleagues⁷, in the younger age groups women are more frequently affected. In a review of the literature we found that six times as many boys were affected as girls, but in our cases there was an equal distribution of the sexes¹⁻⁹.

Redundancy of the sigmoid colon, a long and freely mobile mesosigmoid, a narrow mesenteric base of attachment, chronic constipation and a high roughage diet are all predisposing factors⁴. Our second patient had chronic constipation. A high roughage diet is a feature of traditional nutrition in Turkey. All of our patients had a redundant colon and a long mesosigmoid, in addition to a narrow mesenteric attachment.

Mental retardation and severe psychiatric or neurological diseases have been reported with sigmoid volvulus, but we did not encounter any such in our patients⁹. Hirschsprung's disease can be present in subclinical forms too, but there were normal ganglion cells in the histopathologic studies of our cases on resected material⁹.

Sigmoid volvulus has two clinical forms¹. It generally tends to occur in an acute fulminating form in younger patients, with a sudden onset and early necrosis of the sigmoid colon. Bowel gangrene allows toxins and bacteria to permeate the peritoneal fluid, resulting in peritonitis. In cases of this type there is frequently a mistaken diagnosis of the cause of the peritonitis. In contrast, the subacute form usually occurs in older patients, though it has also been reported in children². The acute fulminating form was observed in three of our patients.

Three of the four patients previously had gastrointestinal system symptoms and an appendectomy had been performed on two of them. Chronic constipation was observed in another patient. With such findings, in particular in communities where sigmoid volvulus is a common problem in adults, the possibility that some children too might have sigmoid volvulus should be kept in mind. In the light of our experience with these three children with sigmoid volvulus, we were able to make a correct preoperative diagnosis with the last case.

The treatment of sigmoid volvulus is the relief of the torsion. This can be performed with the help of a sigmoidoscope or with hydrostatic reduction, but these methods can only be used when there is no suspicion of bowel necrosis^{1,2,4}. The barium enema is a diagnostic and therapeutic measure in sigmoid volvulus². Elective resection of the sigmoid colon can be carried out after complete recovery. We did not use any of these methods in our cases because of

the signs of strangulation and the recent appendectomy operations. If bowel gangrene is suspected then an emergency operation will be necessary. The treatment is resection of the gangrenous bowel, end colostomy and then closure of the colostomy⁸. Hartmann's procedure is one possible method, and the one that we used for our three patients⁹.

Postoperative intestinal obstruction developed in two of our patients. This common adhesive intestinal obstruction is due to the occurrence of severe peritonitis following strangulation.

Summary

Four cases of volvulus of the sigmoid in children are presented. The mean age of the patients was 12 years and the sex ratio was equal. Sigmoid volvulus in younger patients occurs mainly in an acute fulminating form with early gangrene. Since with all our patients the situation was acute, emergency surgical intervention was employed in all cases. Correct preoperative diagnosis was made in the fourth case. Surgical detorsion was carried out in one patient while resection of the gangrenous sigmoid was necessary in three patients. Adhesive intestinal obstruction developed in two patients postoperatively.

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