

## Case Report: Idiopathic Sigmoid Volvulus in an 11-Year-Old Boy – A Rare Pediatric Surgical Emergency

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### ABSTRACT

**Background:** Sigmoid volvulus, defined as the torsion of the sigmoid colon around its mesentery, is a rare cause of intestinal obstruction in children, accounting for less than 0.01% of pediatric cases in India. It is typically associated with anatomical or functional abnormalities; however, idiopathic presentations are exceedingly uncommon.

**Case Presentation:** We report the case of an 11-year-old previously healthy male who presented with a two-day history of abdominal pain and vomiting. Clinical and radiological evaluation revealed features consistent with sigmoid volvulus, including the classical “coffee bean” sign on abdominal radiography and a 180° torsion on CT imaging. Following initial stabilization, the patient underwent emergency laparotomy. Intraoperative findings confirmed a viable but twisted sigmoid colon, which was detorsed, resected, and primarily anastomosed. The postoperative course was uneventful, and histopathology ruled out any underlying congenital anomalies.

**Conclusion:** This case highlights the need to consider sigmoid volvulus in the differential diagnosis of acute abdomen in children, even in the absence of predisposing factors. Early diagnosis through imaging and timely surgical intervention are critical to preventing complications and ensuring positive outcomes.

**Keywords:** Pediatric sigmoid volvulus, intestinal obstruction, idiopathic volvulus, emergency laparotomy, case report

### 1. INTRODUCTION

Sigmoid volvulus is characterized by torsion of the sigmoid colon around its mesenteric axis, causing luminal obstruction and potential vascular compromise. While frequently encountered in adults, especially the elderly, its occurrence in the pediatric population is extremely rare. In children, it accounts for fewer than 5% of all reported cases globally, and even less in countries like India, where it constitutes a minute proportion of pediatric intestinal obstructions—estimated at less than 0.01% [1,2].

The pathophysiology often involves redundant sigmoid colon, chronic constipation, or congenital anomalies like Hirschsprung’s disease and intestinal malrotation [3]. However, idiopathic cases without identifiable predisposing factors, such as the one presented here, are exceptional. This report details the clinical features, radiological findings, and successful surgical management of sigmoid volvulus in an otherwise healthy 11-year-old boy.

Till now, only a few studies have investigated the parents' knowledge, attitude and practice regarding acute otitis media in children in developing countries [12,13]. So, this study was planned to assess the knowledge, attitude and practice regarding otitis media with children under 12 years old in a tertiary care centre in Puducherry, India.

## 2. CASE DESCRIPTION

### Patient Presentation

An 11-year-old male presented with a two-day history of lower abdominal pain and multiple episodes of vomiting. The abdominal pain was continuous, colicky in nature, and localized predominantly to the suprapubic and hypogastric regions. Vomitus contained undigested food particles, was non-bilious, and non-bloody. The patient also experienced two episodes of watery diarrhea but denied fever, prior surgeries, or any known bowel disorders.

### Clinical Examination

On evaluation, the child was alert and hemodynamically stable:

- Pulse: 82 bpm
- Blood pressure: 100/70 mmHg
- Oxygen saturation: 98% on room air

Abdominal palpation revealed tenderness over the suprapubic and right iliac fossa areas without guarding, rebound tenderness, or distension. Bowel sounds were audible.

### Radiological Assessment

Plain abdominal radiography revealed a characteristic "coffee bean" or inverted U-shaped appearance consistent with sigmoid volvulus [4]. Contrast-enhanced CT confirmed a 180° torsion of the sigmoid colon with significant luminal dilation, suggestive of early vascular compromise [5].



## 3. MANAGEMENT AND SURGICAL FINDINGS

### Preoperative Care

The child was managed with intravenous fluids for rehydration, electrolyte correction, and prophylactic broad-spectrum antibiotics. After initial stabilization, the patient was taken up for emergency exploratory laparotomy.

### Intraoperative Findings and Procedure

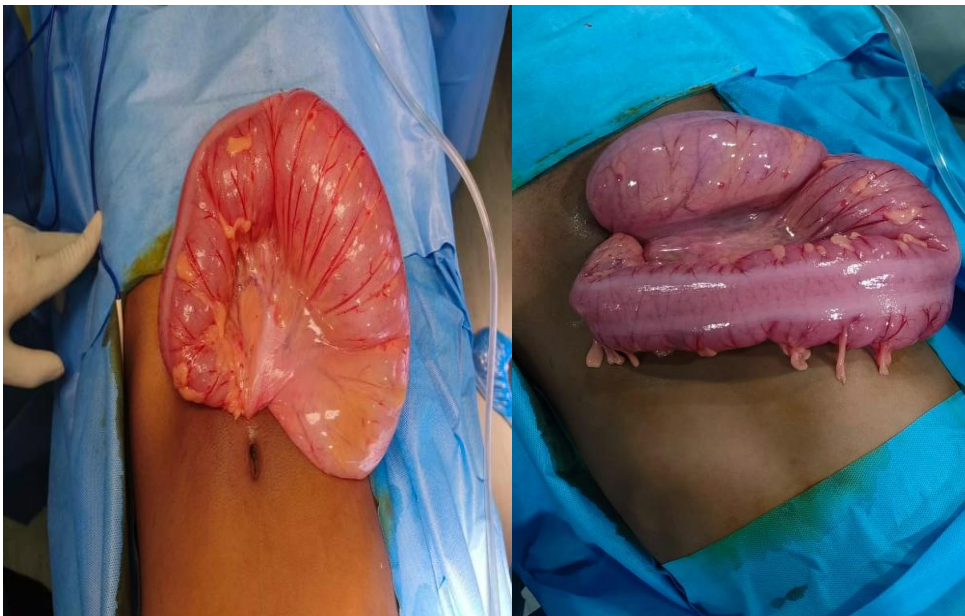
Under general anesthesia, a lower midline laparotomy was performed. The sigmoid colon was found markedly distended and twisted 180°, with a hyperemic mesentery. The colon was carefully detorsed and brought outside the abdominal cavity. Decompression via enterotomy was performed, followed by resection of the redundant sigmoid and upper rectum. A primary colo-rectal anastomosis was fashioned using interrupted seromuscular sutures with 4-0 Vicryl. Hemostasis was confirmed, and layered abdominal closure was completed.

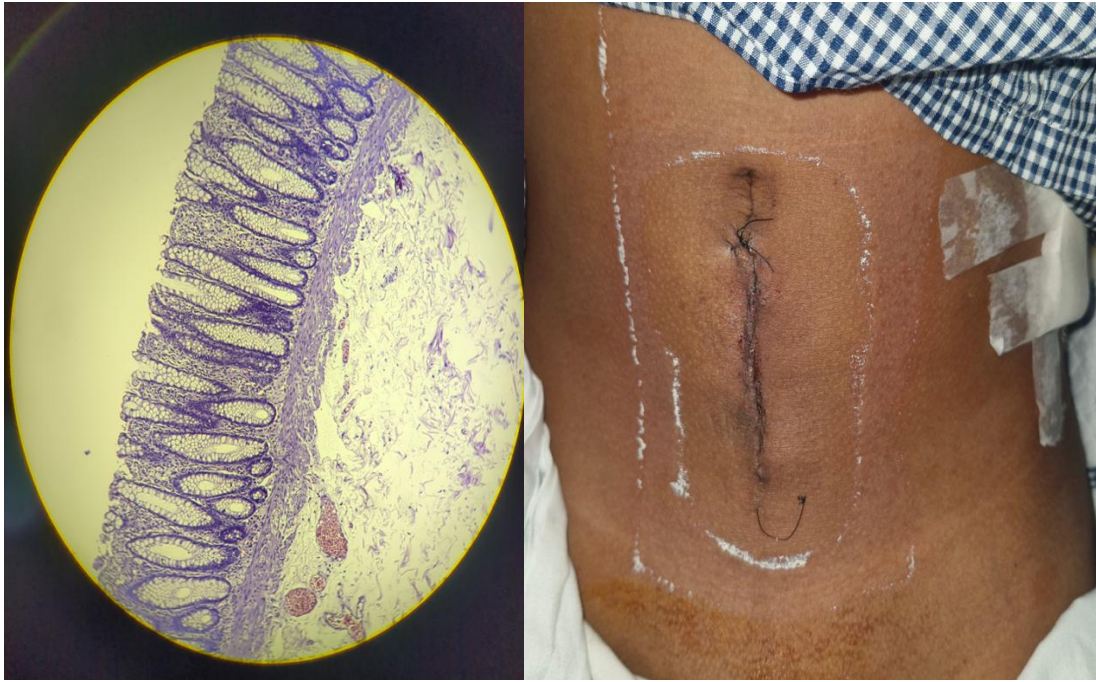


**Surgical Metrics:**

- Estimated blood loss: 350 mL
- One unit of packed red cells was transfused postoperatively
- No intraoperative complications were observed

The resected segment was submitted for histopathological evaluation.





#### Postoperative Course

The patient's recovery was uneventful. Oral intake was resumed on postoperative day 2. He was discharged on the 7th day post-surgery after full return of bowel function and stable clinical parameters. Histopathology confirmed sigmoid volvulus with mucosal congestion, but no evidence of dysplasia or congenital ganglion cell absence. At one-month follow-up, the child remained asymptomatic with normal bowel habits.

#### 4. DISCUSSION

Sigmoid volvulus is rare in children and generally associated with underlying anatomical or functional abnormalities [6]. In this patient, no such predisposing condition was evident, supporting an idiopathic etiology. Such cases, though rare, require a high index of clinical suspicion due to non-specific presentation, often mimicking more common causes like intussusception or appendicitis [7].

Diagnostic imaging, particularly plain abdominal X-rays and CT scans, play a crucial role in early recognition. Prompt surgical intervention is essential to prevent ischemic injury or perforation. While non-operative methods such as endoscopic detorsion are occasionally employed, they are typically avoided in pediatric cases due to high recurrence and difficulty in cooperation [8].

Definitive surgical resection with primary anastomosis remains the treatment of choice in the presence of viable bowel, as demonstrated here [9,10].

#### 5. CONCLUSION

This case underlines the importance of considering sigmoid volvulus, albeit rare, in the differential diagnosis of pediatric acute abdomen. Timely diagnosis through imaging and early surgical intervention can lead to favorable outcomes. Idiopathic cases, though uncommon, do exist and should be documented to enhance clinical awareness and guide management in future presentations.

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