

Small Left Colon Syndrome

Arun Rajendran, BS; Richard B. Towbin, MD; Carrie M. Schaefer, MD; Alexander J. Towbin, MD

Abstract

Small left colon syndrome (SLCS) is a type of functional obstruction of the colon between the anus and splenic flexure, occurring primarily in full-term neonates. It appears radiographically like other lower intestinal obstructions but is characterized by a small-caliber, smooth left colon distally and dilated bowel loops proximal to the splenic flexure, at which there is typically an abrupt transition zone. The occurrence of this abrupt transition zone at the splenic flexure is pathognomonic for SLCS. Contrast enema examinations are both diagnostic and therapeutic for this condition.

Keywords: Neonatal, Gastrointestinal, Colon

Clinical Summary

A neonate with Ebstein anomaly presented with abdominal distention and failure to pass meconium.

Imaging Findings

Abdominal radiograph (Figure 1) showed air-filled loops of bowel within the abdomen. Water-soluble contrast enema (Figure 2) showed a small caliber of the descending and sigmoid colon. There was a transition to a dilated colon at the splenic flexure. Filling defects of meconium were present in the transverse colon. The rectosigmoid ratio was normal.

Diagnosis

Small left colon syndrome (SLCS).
Differential diagnoses of a congenital small colon include Hirschsprung disease,

ileal atresia, meconium ileus, colonic atresia, and imperforate anus/anal atresia.

Discussion

SLCS is a rare, functional condition of the lower colon that causes intestinal obstruction in neonates. It is characterized by an abrupt change in the diameter of the colon near the splenic flexure and a narrow left colon distally. SLCS is more common in babies whose mothers have diabetes or gestational diabetes and mothers who received magnesium sulfate for preeclampsia. It is typically benign, transient, and self-limited and thought to be caused by immaturity of colonic ganglion cells originating from the myenteric nerve plexus.¹

SLCS is occasionally used interchangeably with meconium plug syndrome, a functional disorder of the colon in newborns that causes a temporary

obstruction in the distal colon or rectum. Meconium plug syndrome is characterized by delayed passage of meconium (>24-48 hours) and intestinal distention. While many think of the conditions as synonymous, Davis et al, in the initial paper describing SLCS, suggested that the meconium plug was caused by inspissation of meconium rather than immaturity of colonic ganglia.² Additionally, meconium plug syndrome occurs primarily in premature infants, while SLCS occurs in those born at term. While there are mild differences distinguishing the conditions, both are self-limiting and spontaneously correct within 30 days.³

Patients with SLCS have abdominal radiographs that show multiple dilated air-filled loops of bowel in a distal bowel obstruction pattern.^{2,4} A water-soluble contrast enema examination reveals a reduced caliber of the colon extending from the splenic flexure to the anus. The transition zone between the narrow and dilated colon is characteristically sharp and occurs at the splenic flexure. It can be difficult to distinguish SLCS from Hirschsprung disease. One notable difference is the appearance of the rectum. In patients with SLCS, the rectum is normal in caliber and larger than the sigmoid colon. As a result, the rectosigmoid ratio

Affiliations: University of Arizona College of Medicine – Phoenix, Phoenix, Arizona (Rajendran); Department of Radiology, Phoenix Children's Hospital, Phoenix, Arizona (RB Towbin, Schaefer); Department of Radiology, Cincinnati Children's Hospital, University of Cincinnati College of Medicine, Cincinnati, Ohio (AJ Towbin).

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Figure 1. (A) Anteroposterior and (B) cross-table lateral radiograph of the abdomen show gas-filled loops of bowel throughout most of the abdomen. Gas is not present in the rectum.

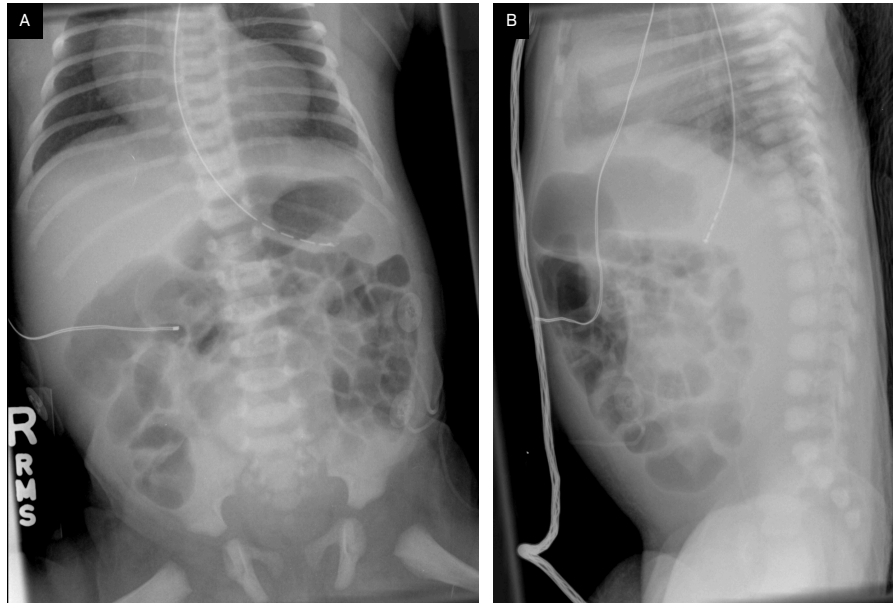
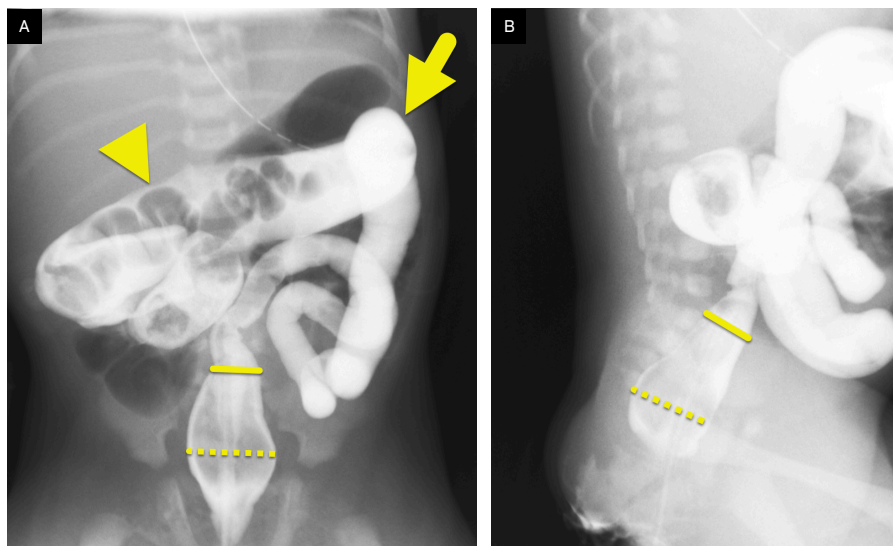


Figure 2. (A) Anteroposterior view from water-soluble contrast enema shows a small caliber of the descending and sigmoid colon with a transition (arrow) to a larger caliber transverse colon at the splenic flexure. Meconium filling defects (arrowhead) are present within the transverse colon. Both the anteroposterior and (B) lateral views show a normal rectosigmoid ratio, with the widest diameter of the rectum (dashed line) being larger than the widest diameter of the sigmoid colon (solid line).



is >1 .⁵ This contrasts with Hirschsprung disease, where the rectum is small, and the rectosigmoid ratio is <1 .

A contrast enema examination is both diagnostic and therapeutic for SLCS. Patients who have undergone a contrast enema and who have

subsequently defecated do not require surgical intervention.^{6,7} If symptoms do not resolve after a contrast enema, a rectal biopsy may be considered to evaluate for Hirschsprung disease, as the imaging findings can overlap.¹ It is estimated that 13-38% of cases of SLCS have Hirschsprung

disease.⁸ A repeat enema can also be performed if symptoms persist.

Summary

SLCS is a type of functional obstruction of the colon between the anus and splenic flexure, occurring primarily in full-term neonates. It appears radiographically like other lower intestinal obstructions but is characterized by a small-caliber, smooth left colon distally and dilated bowel loops proximally to the splenic flexure, at which there is typically an abrupt transition zone. The occurrence of this abrupt transition zone at the splenic flexure is pathognomonic for SLCS. Contrast enema examinations are both diagnostic and therapeutic for this condition.

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