CASE REPORT

A 3-day-old full-term male infant presented to the emergency department (ED) after a 12-h history of decreased feeding, bloody stools ×2, and emesis that was reportedly white but becoming yellow tinged. Vital signs at triage were as follows: temperature 36.1°C, heart rate 142 beats/min, respiratory rate 40 breaths/min, and pulse oximetry 99% on room air. Physical examination revealed a term infant with a distended abdomen who cried on abdominal palpation. Bedside sonography by a pediatric emergency physician revealed the superior mesenteric artery (SMA) to the right of the superior mesenteric vein (Figure 1), a whirlpool-like vascular structure (Figure 2), and no duodenum between the superior mesenteric artery and aorta (Figure 3).

Diagnosis: Malrotation with Midgut Volvulus

Pediatric surgery consultation was obtained immediately. Radiology found similar findings on ultrasound, and there was no passage of barium past the second portion of the duodenum on an upper gastrointestinal (GI) series. Intraoperatively, the volvulus was corrected, repositioned, and did not require any bowel resection.

DISCUSSION

Midgut volvulus is a life-threatening emergency. Children can present with acute midgut volvulus at any age,
although the vast majority of patients are younger than 1 year (1). During embryogenesis, the bowel normally ro-
tates counterclockwise 270 degrees around the SMA. In
bowel that is malrotated, the rotation is not normal,
with a resulting shortened mesenteric pedicle predispos-
ing to midgut volvulus. In addition to the torsed bowel,
there are often obstructing fibrous peritoneal bands
(Ladd bands) that cross from the malpositioned cecum
to the lateral peritoneal gutter. Diagnosis is classically
confirmed by upper GI series, but can also be evaluated
by ultrasound (2).

In normally rotated patients, the superior mesenteric
vein (SMV) is positioned to the right of the SMA. In mal-
rotation, the SMV may appear anterior, or more defini-
tively, to the left of the SMA. The “whirlpool” sign
refers to the sonographic appearance of the SMV wrap-
ing around the axis of the SMA in volvulus when using
color Doppler sonography (3). Finally, the normal posi-
tion of the third part of the duodenum lies between the
SMA and the aorta. It has been suggested with malrota-
tion that bowel will not be seen in this position
sonographically (4). In this case, prompt recognition us-
ing bedside sonography helped to facilitate early diagno-
sis and surgical consultation for midgut volvulus.

REFERENCES


SUPPLEMENTARY DATA

Supplementary data associated with this article can be found, in the online version, at http://dx.doi.org/10.1016/j.jemermed.2013.05.048.