

Pediatric Cecal Malfixation

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Section: Paediatric radiology

Imaging Technique: MR

Case Type: Clinical Cases

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Patient: 1 weeks, male

Clinical History:

Seen at the emergency department one week after birth because of poor drinking, bilious vomiting and failure to thrive. On admission a dry skin and depressed fontanel indicated severe dehydration. There was a slight abdominal distention. Laboratory investigations were normal.

Imaging Findings:

A term baby was seen at the emergency department one week after birth because of poor drinking, bilious vomiting and failure to thrive. On admission a dry skin and depressed fontanel indicated severe dehydration. There was a slight abdominal distention. Laboratory investigations were normal. Plain radiographs of the abdomen were taken. Ultrasonography revealed a dilated fluid-filled proximal duodenum and normal position of the superior mesenteric vessels. Gastroscopy demonstrated an extrinsic compression of the descending portion of the duodenum distal to Vater's papilla. Other radiographic investigations included an enema with diluted barium and barium meal.

Discussion:

Malrotation is a developmental disturbance of the gastrointestinal tract, occurring between the 6th and 11th week of embryogenesis. It frequently results in abnormal mesenteric fixation. Various degrees of malrotation as related to the three different stages of intestinal rotation occur. In this case Ladd's bands were present in association with a mobile cecum due to arrest in the third stage of rotation around 10 weeks of gestational age. An incomplete rotation of 180° is present due to a failure of the midgut to complete the final 90° of rotation. Consequently the duodenum is located in front and at the right of the spine. The ileocecal junction is situated in the left upper abdomen. Since the mesentery between the ileocecal and duodeno-jejunal junction is very short, the risk for intestinal volvulus is high. In this case preduodenal Ladd's bands may be present extending from the malpositioned cecum to the posterior peritoneal wall under the liver. Clinically these rotation anomalies can be asymptomatic. Sometimes high intestinal obstruction with bilious vomiting due to compression by Ladd's bands or volvulus may occur. Acute intestinal volvulus may lead to shock with high risk for intestinal necrosis. Rarely intermittent vomiting and/or chronic abdominal pain are present. A barium meal usually enables demonstration of duodenal obstruction or small bowel volvulus. In addition it easily shows the position of the duodeno-jejunal junction. Barium enema is of lesser utility. It only demonstrates the abnormal position of the cecum. However a normally positioned cecum does not exclude malrotation or volvulus. Ultrasonography is useful for disclosing the abnormal position of the superior mesenteric vein at the left side or in front of the mesenteric artery in patients with intestinal volvulus.

Differential Diagnosis List: Pediatric cecal malfixation

Final Diagnosis: Pediatric cecal malfixation

References:

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Schwisschuk LE. Imaging of the new-born, infant and young child. 3rd ed. Baltimore: Williams and Wilkins; 1989:495-503.

Silvermann FN, Kuhn JP. Caffey's pediatric X-ray diagnosis: an integrated imaging approach. 9nd ed. St Louis: Mosby; 1993: 2083-2088.

Stringer DA. Pediatric gastrointestinal imaging. Toronto: BC Decker; 1989: 394-403.

Figure 1

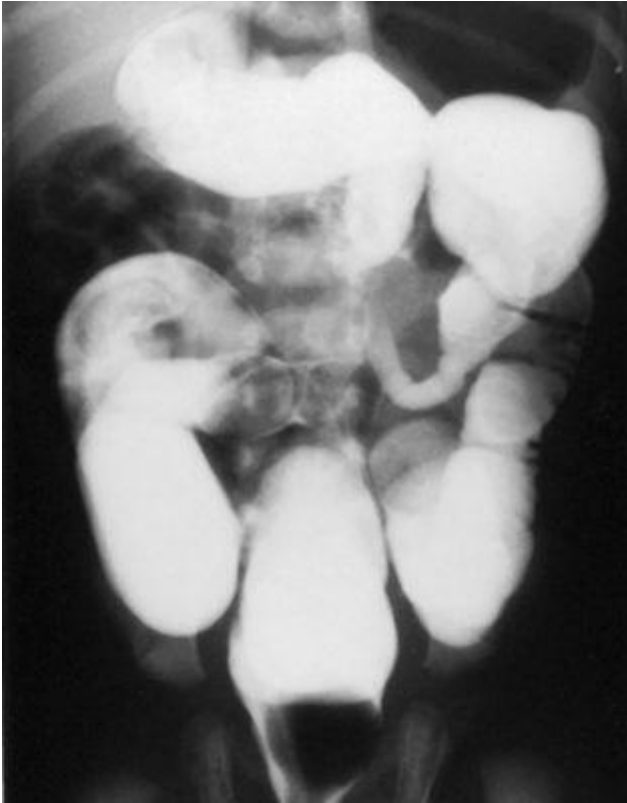
a



Description: Plain abdominal radiograph shows a large air bubble in the stomach suggesting gastric distention. **Origin:**

Figure 2

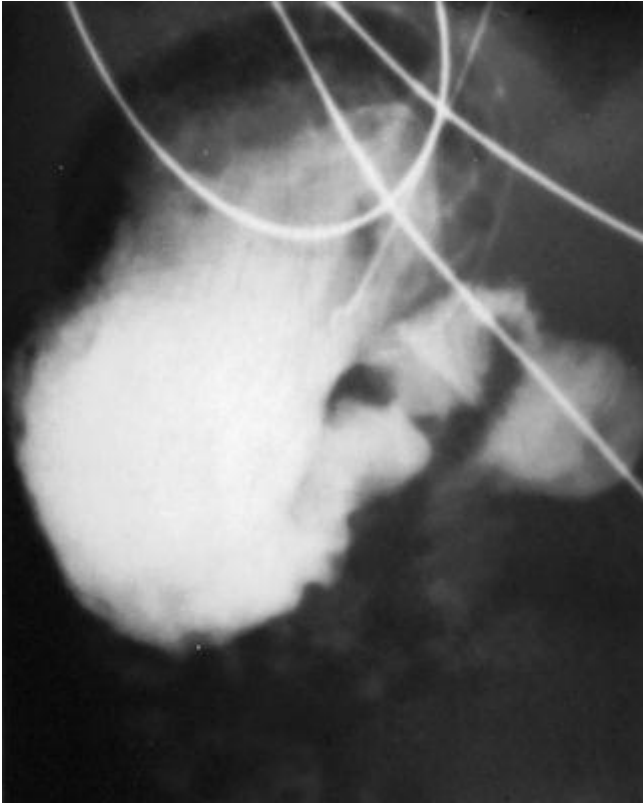
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Description: Barium enema demonstrates malposition of the cecum and appendix which are both located in the left upper quadrant of the abdomen. **Origin:**

Figure 3

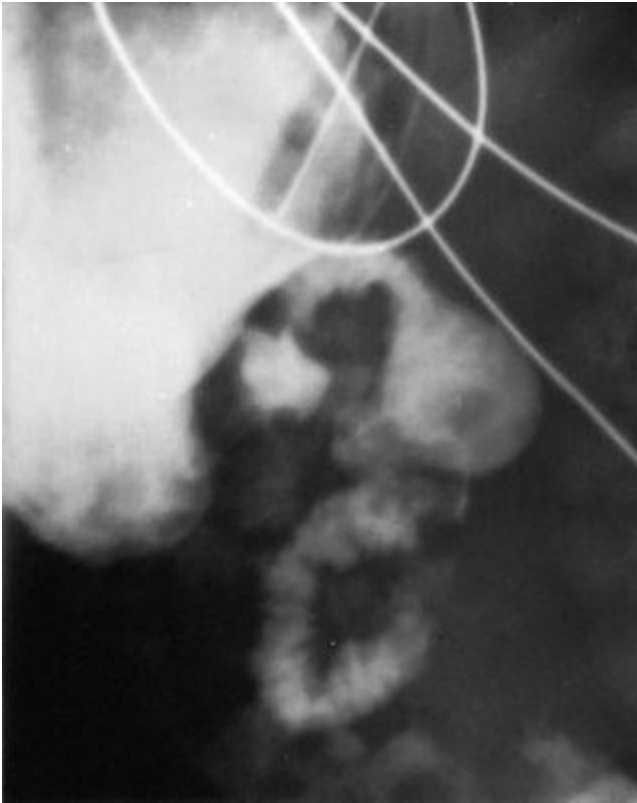
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Description: Barium meal shows distention of the proximal portion of the descending duodenum.

Origin:

b



Description: Delayed filling of the distal portion of the duodenum, especially in the left posterior prone position. The duodenojejunal junction is located on the midline. **Origin:**