

A 12-hour-old girl in the neonatal intensive care unit has bilious emesis. She was born at 35 weeks gestation by vaginal delivery to a 22-year-old woman who did not receive prenatal care and used cocaine during her pregnancy. The infant has urinated but has not had a bowel movement. She was able to take 2 bottle feeds by mouth but has been vomiting since the third feed. Birth weight was 2 kg (4 lb 6 oz), small for gestational age. Temperature is 36.9 C (98.4 F), pulse is 150/min, and respirations are 40/min. The abdomen is distended, and the skin is loose with diffuse lanugo. Subcutaneous fat tissue is minimal. The rest of the examination is unremarkable. Abdominal radiograph is shown below.



Which of the following is the most likely diagnosis in this patient?

- ☐ A. Cocaine withdrawal
- ☐ B. Duodenal atresia
- ☐ C. Hirschsprung disease
- ☐ D. Jejunal atresia
- ☐ E. Necrotizing enterocolitis
- ☐ F. Pyloric stenosis

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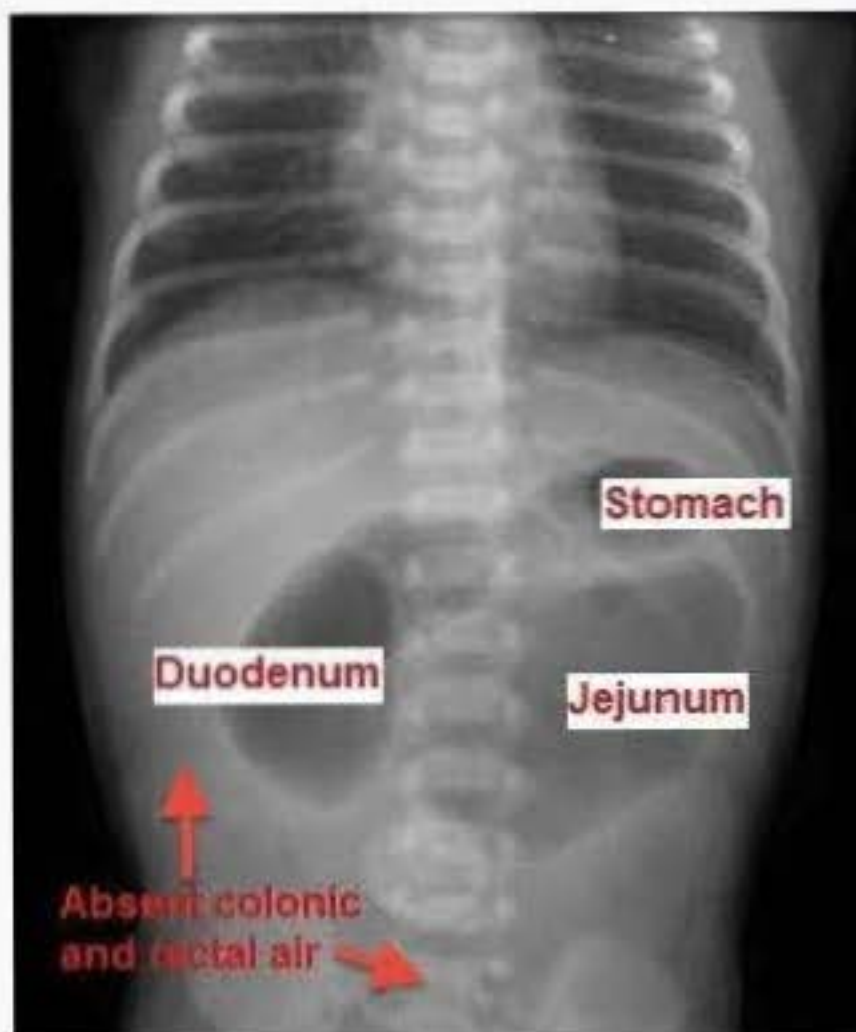
Which of the following is the most likely diagnosis in this patient?

- ☐ A. Cocaine withdrawal [2%]
- ☐ B. Duodenal atresia [36%]
- ☐ C. Hirschsprung disease [12%]
- ☒ D. Jejunol atresia [42%]
- ☐ E. Necrotizing enterocolitis [7%]
- ☐ F. Pyloric stenosis [1%]

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Explanation:

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The bilious emesis, abdominal distension, and x-ray findings in this neonate are consistent with jejunal atresia. Intestinal atresia can occur anywhere along the gastrointestinal tract. Atresia of the jejunum or ileum is thought to occur due to a **vascular accident in utero** that causes necrosis and resorption of the fetal intestine, sealing off and leaving behind blind proximal and distal ends of intestine. Risk factors include poor fetal gut perfusion from maternal use of **vasoconstrictive medications** or drugs such as **cocaine** and tobacco. Some cases have been associated with meconium ileus/cystic fibrosis during which inspissated meconium causes a localized volvulus that results in ischemic necrosis. In contrast to duodenal atresia, jejunal and ileal atresia are not associated with chromosomal abnormalities.

The presence of the **"triple bubble" sign** and **gasless colon** on abdominal x-ray (above) reflects gas trapping in the stomach, duodenum, and jejunum. Treatment should be focused initially on resuscitation and stabilization of the patient, followed by surgical correction. The prognosis depends on the length of affected bowel as well as the patient's gestational age and birth weight.

(Choice A) This infant suffered from prematurity and intrauterine growth restriction (low

(Choice A) This infant suffered from prematurity and intrauterine growth restriction (low birth weight, minimal subcutaneous fat) secondary to prenatal cocaine exposure. Although she is at risk for withdrawal, irritability, tremors, high-pitched cry, and other symptoms usually manifest on day 2-3 of life due to the long half-life of cocaine. This patient's bilious emesis and x-ray are highly suggestive of bowel obstruction rather than withdrawal.

(Choice B) One third of infants with duodenal atresia have chromosomal abnormalities, most commonly Down syndrome. During the first trimester of pregnancy, part of the intestinal tract becomes occluded and later recanalizes. Duodenal atresia is thought to result from failure of the duodenum to recanalize and gives the appearance of a "double bubble" on radiography.

(Choice C) Hirschsprung disease can present with abdominal distension and bilious emesis, but patients usually have delayed passage of meconium (age >48 hours). This infant is only 12 hours old and is not expected to have passed meconium yet. Because the obstruction is typically at the level of the rectosigmoid junction, dilated loops of bowel would be seen on x-ray, making this diagnosis less likely.

(Choice E) Necrotizing enterocolitis typically presents as abdominal distension, bloody stools, and vital sign instability in premature infants. The hallmark finding on x-ray is pneumatosis intestinalis (extravasation of gas into the damaged bowel wall).

(Choice F) Pyloric stenosis most commonly presents at age 3-6 weeks with nonbilious, projectile vomiting. An olive-shaped mass is sometimes palpable in the epigastric area. This patient's age and bilious emesis make this diagnosis unlikely.

Educational objective:

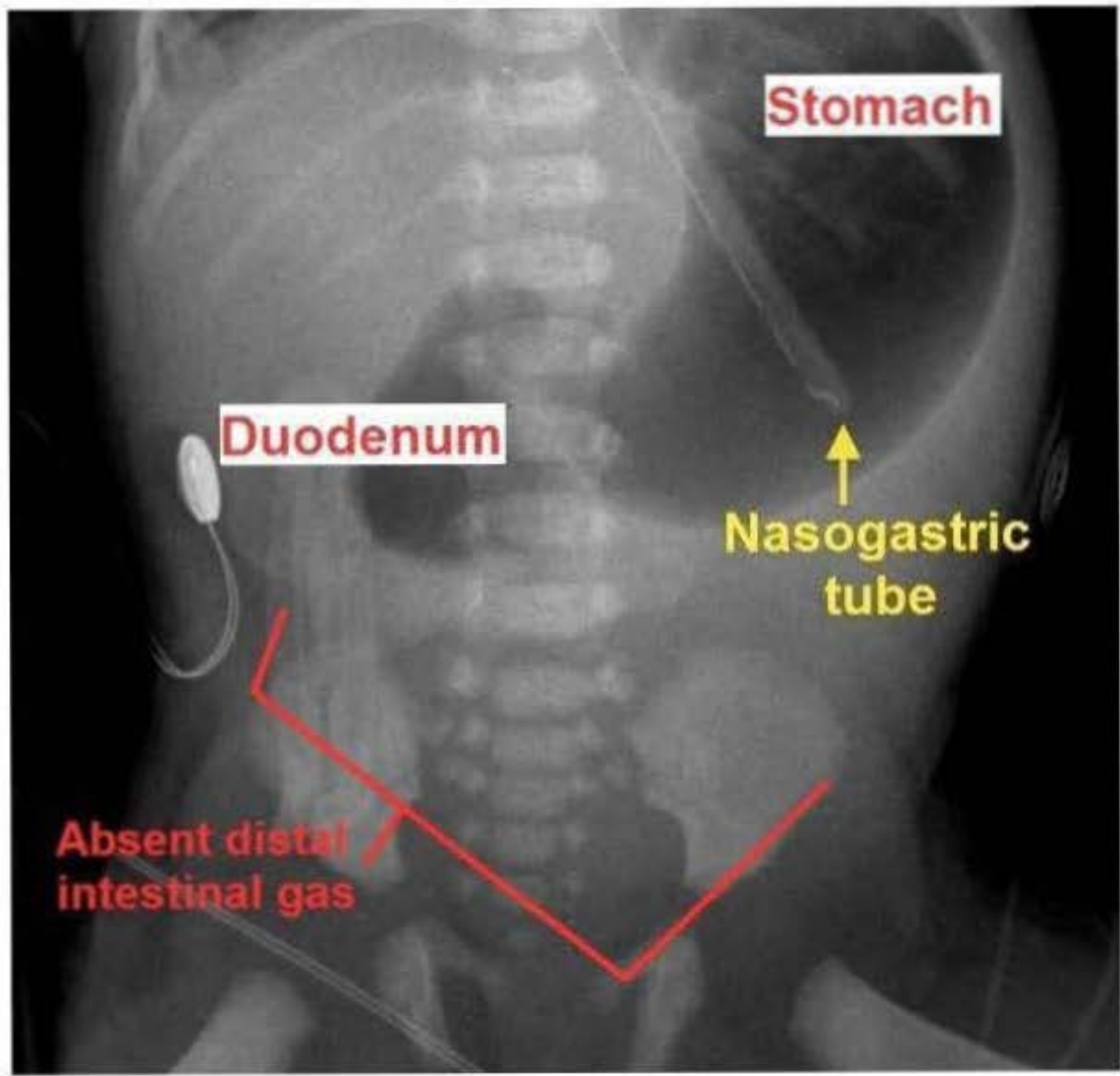
Jejunal atresia presents with bilious vomiting and abdominal distension. Abdominal x-ray shows a "triple bubble" sign and gasless colon. Risk factors include prenatal exposure to cocaine and other vasoconstrictive drugs.

References:

1. [Jejunioileal atresia and associated malformations: correlation with the timing of in utero insult.](#)
2. [Trends in the management and outcome of jejuno-ileal atresia.](#)
3. [The diagnostic value of the triple bubble sign in proximal jejunal atresia: a case report.](#)
4. [Neonatal drug withdrawal.](#)

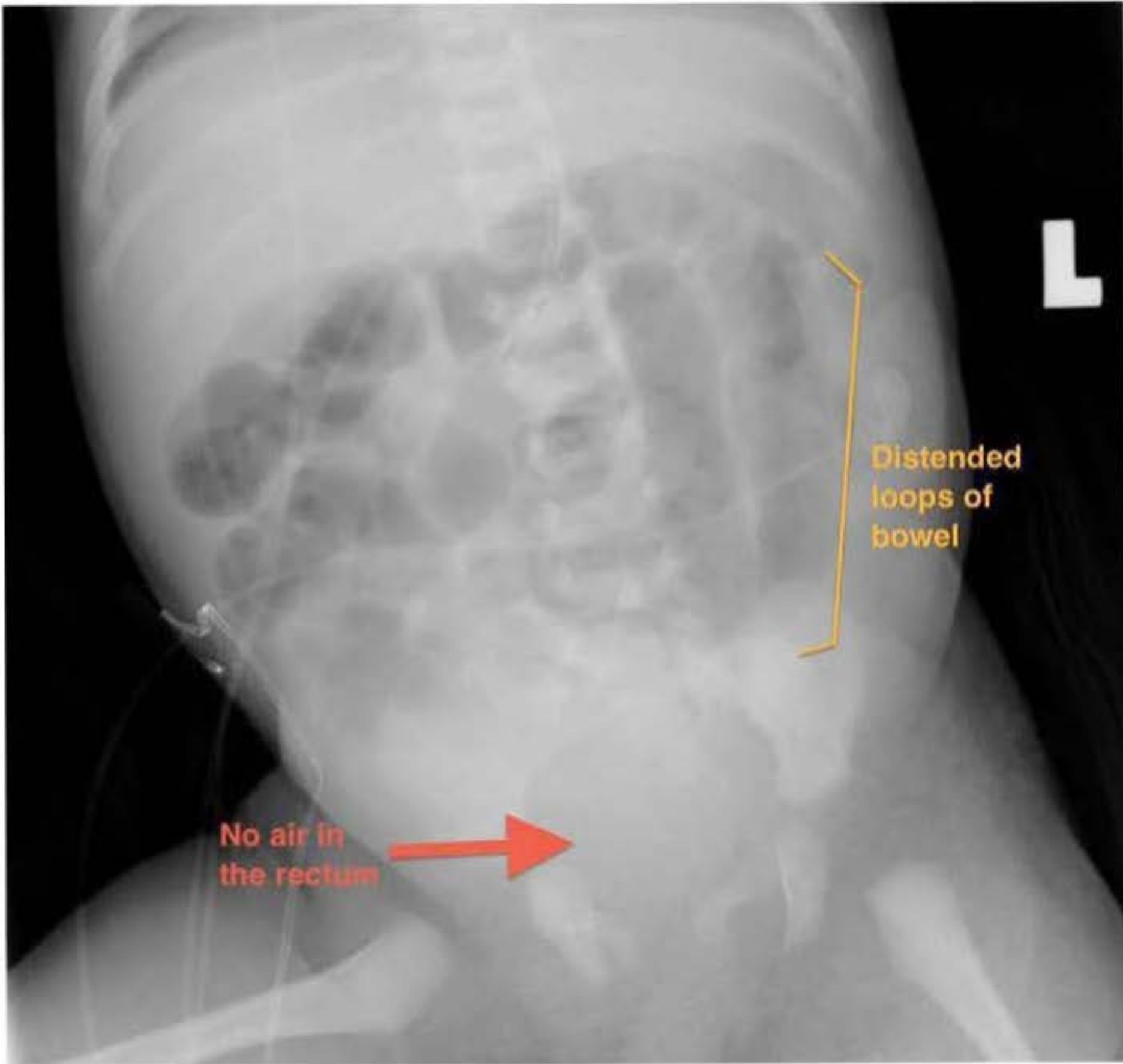
Media Exhibit

al atresia



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Small bowel obstruction



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