

Hydramnios and the Double-Bubble Sign: Diagnosing Duodenal Atresia in a Resource-Limited Setting

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Objective

This case from **Jambi Province Indonesia**, highlights how **prenatal ultrasound can effectively detect duodenal atresia**, even in a resource-limited setting.

while **Chromosomal abnormalities could not be excluded**, early diagnosis contributes significantly to better **maternal and neonatal outcomes**.

Case Report

1

A 27 y.o primigravida at 32 weeks' gestation presented for a routine gender scan-yet what was expected to be joyful moment revealed a serious congenital anomaly instead. Ultrasound revealed a **Hydramnios** (AFI 35.7 cm), a **double bubble sign** (indicating duodenal atresia), **suspect ambiguous genitalia & low-set ears**. The first-trimester antenatal care examination was not performed at our facility, so there is **no data available regarding nuchal translucency**. [figure 1]

2

Fetomaternal specialist confirmed the findings, and she was referred to one of the most comprehensive hospital in this province (**Jambi, Indonesia**) for anticipated neonatal surgery and intensive care. **Chromosomal analysis was not performed due to diagnostic limitations**.

3

A male infant weighing 2300 grams was delivered via C-section exhibiting **abdominal distention, hypospadias, a bifid scrotum**, and **low-set ears**. He had a **weak general condition**, an Apgar score of 6/4, and developed **respiratory distress with black-brownish vomiting**.

4

Two days after birth, an **abdominal X-ray confirmed duodenal atresia**, leading to exploratory laparotomy with side-to-side duodenojejunostomy. Postoperatively, he was admitted to the NICU but **died on day 7** due to respiratory arrest.

5

Although the baby passed away, **the patient was able to accept the outcome**, as **the condition had been detected prenatally** and she had received **comprehensive counseling throughout the pregnancy**.

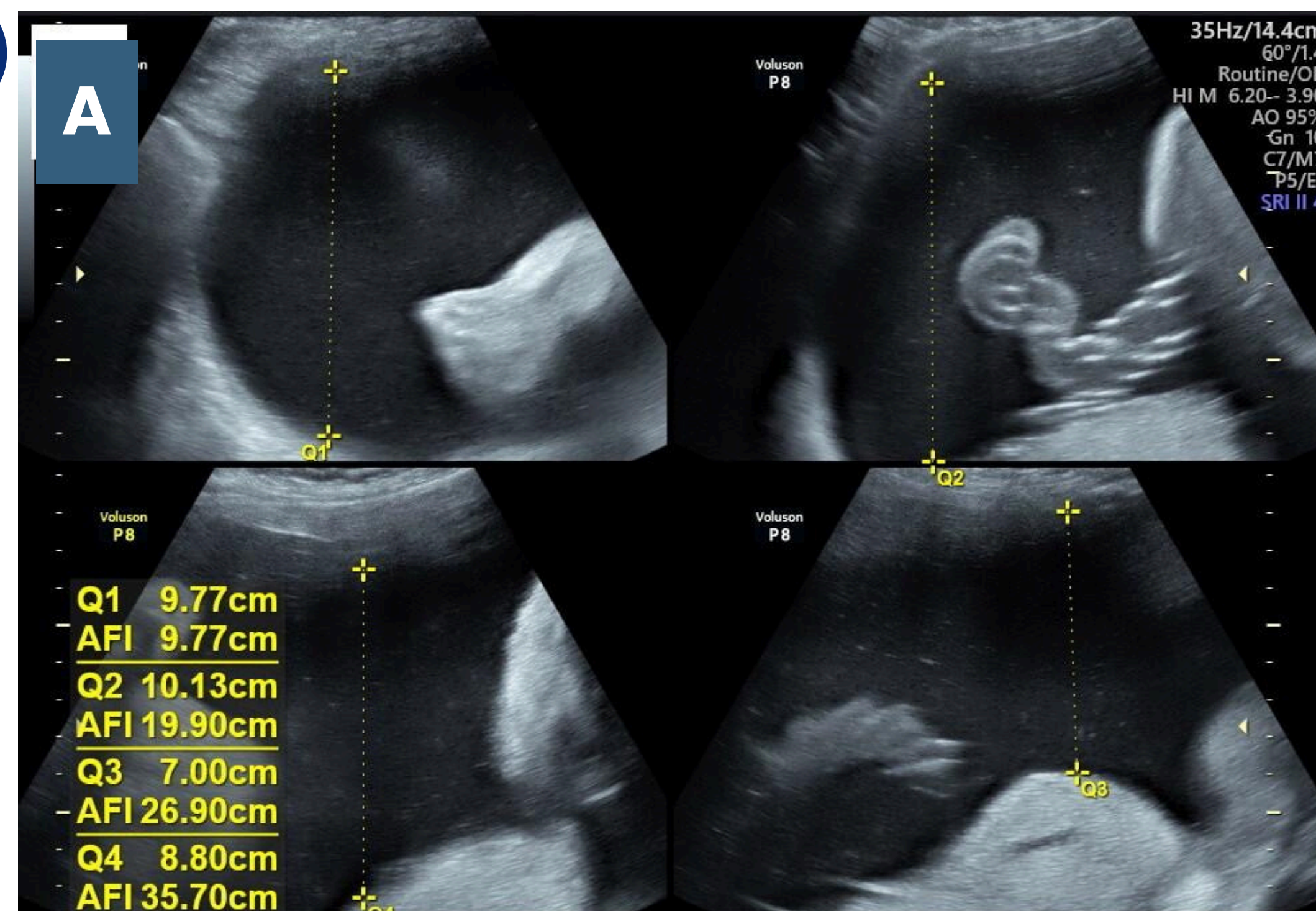


Figure 1.A a single intrauterine live fetus with severe hydramnios.

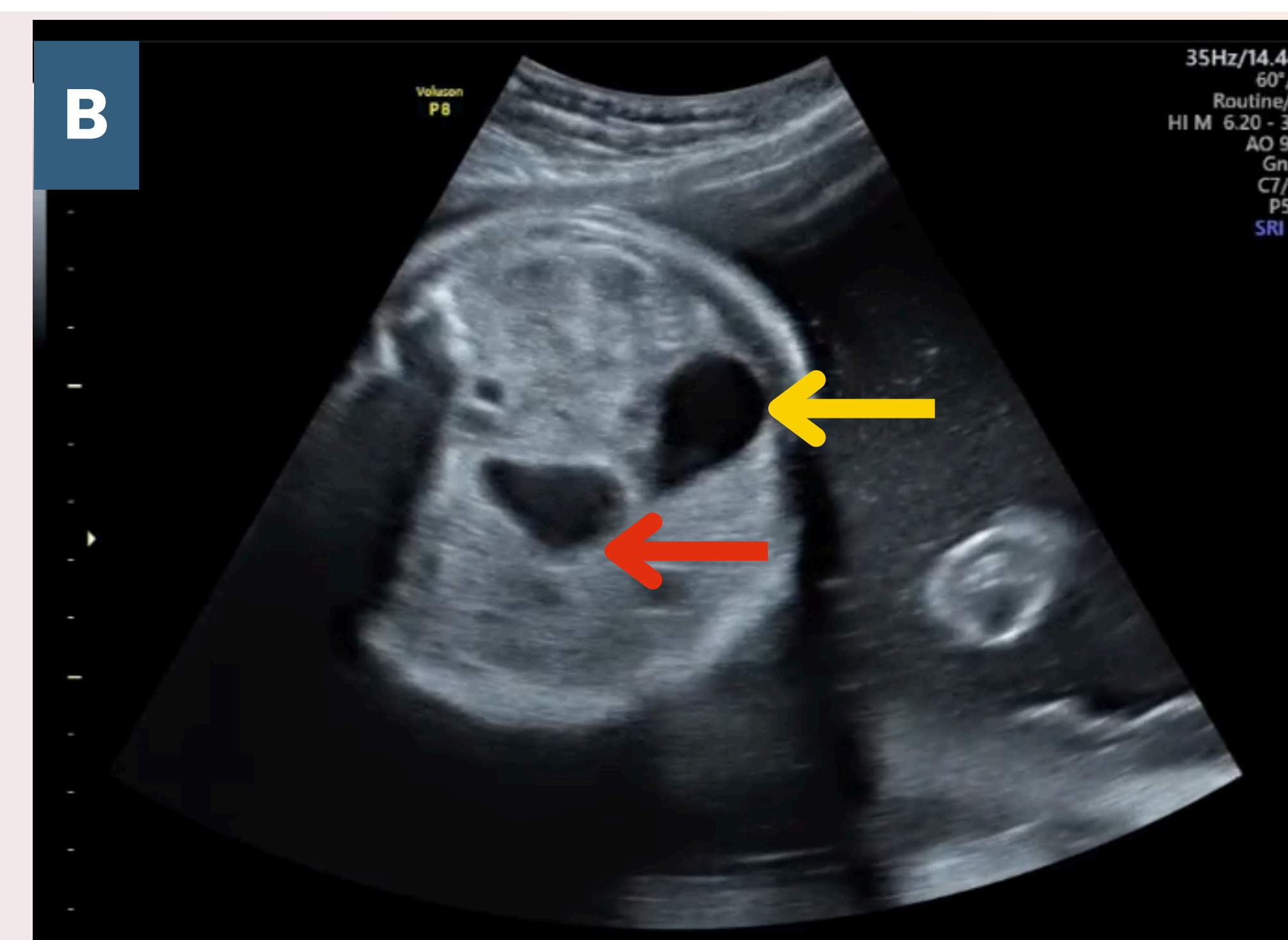


Figure 1.B The presence of dilated stomach (yellow arrow) & duodenum (red arrow) giving rise to double signs, suggesting duodenal atresia.

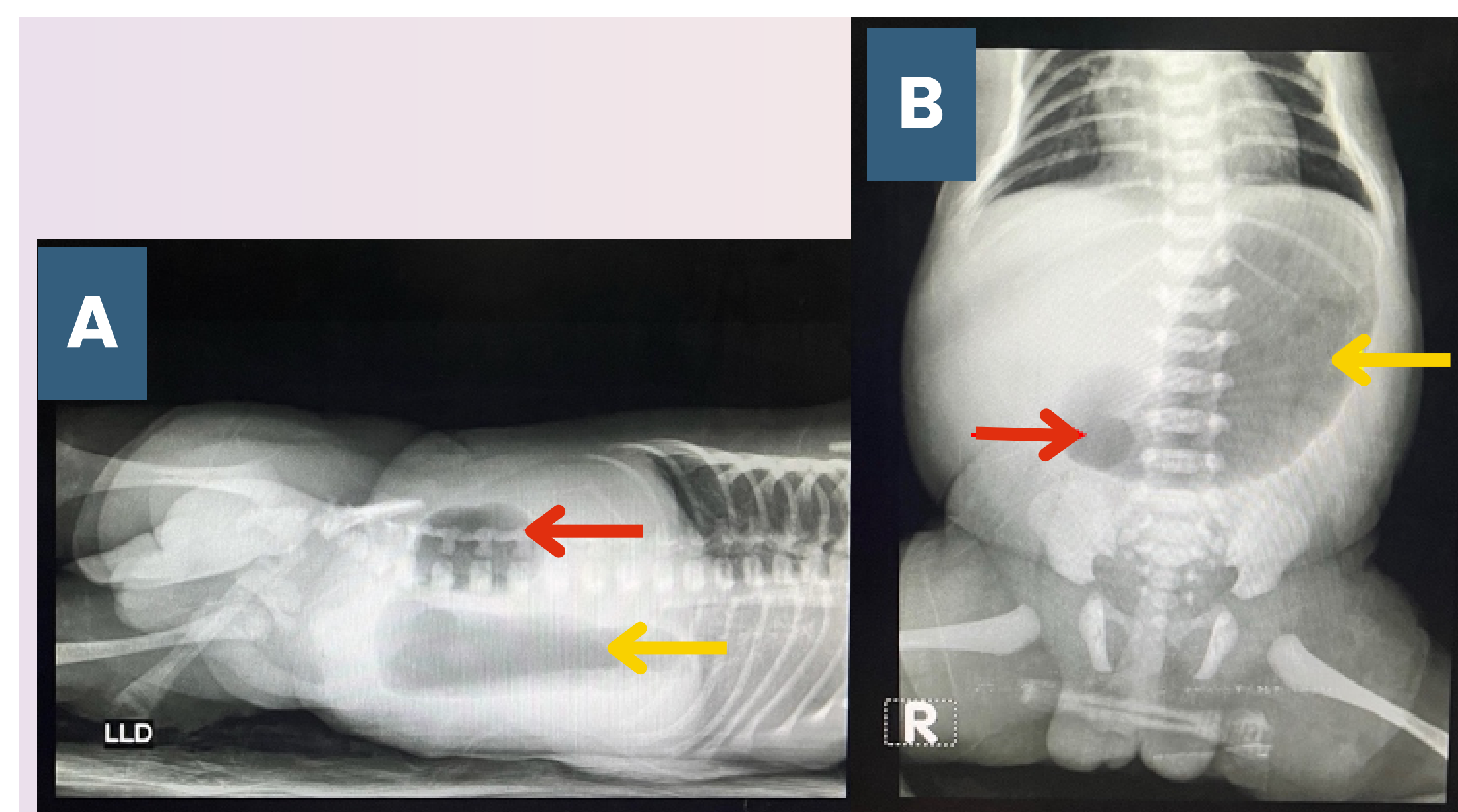


Figure 2. Newborn abdominal radiograph confirmed duodenal atresia. It showing air-filled dilated stomach (yellow arrow) and duodenum (red arrow) with absence of distal bowel gas.



Figure 3.A Black-brownish gastric aspirate in newborn (day1).

Figure 3.B Newborn postoperative status after exploratory laparotomy

Discussion

01.

After marriage, many women think about having a child who is healthy, adorable, and intelligent. However, **this was not the reality for the patient in this case**.

02.

The **double bubble sign** on prenatal ultrasound indicates **proximal gastrointestinal obstruction**, with specificity approaching 100% when combined with hydramnios.

03.

Duodenal atresia is frequently associated with **chromosomal abnormalities**. In this case, the initial first-trimester scan was performed elsewhere, **missing early NT markers**.

04.

NIPT could have been an initial option, followed by CVS to confirm any chromosomal abnormalities. Unfortunately, **chromosomal analysis was not performed due to limitations**.

05.

Postnatal radiographic evaluation & exploratory laparotomy **confirm the diagnosis of duodenal atresia**. While duodenal atresia repair has a high survival rate of 96%, outcomes worsen in the presence of chromosomal abnormalities or other major anomalies.

Conclusion

Early detection of congenital anomalies is essential for optimizing perinatal outcomes. Hydramnios and the double-bubble sign remain key prenatal markers for duodenal atresia, particularly when advanced chromosomal analysis is inaccessible. **In resource-limited settings, improving prenatal screening and referral systems can enhance neonatal care and survival rates.** Future research should explore cost-effective and efficient screening strategies for congenital anomalies, particularly chromosomal analysis.

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