



PERINATAL OUTCOMES OF FETUSES WITH SECOND-TRIMESTER RENAL PYELECTASIS: A PROSPECTIVE OBSERVATIONAL STUDY

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ABSTRACT

Background: Fetal renal pyelectasis is a common ultrasonographic finding during second-trimester anomaly scans, with outcomes ranging from spontaneous resolution to significant postnatal renal anomalies (Pereira et al., 2011; Cohen-Overbeek et al., 2005). This study evaluates the perinatal outcomes associated with antenatally diagnosed pyelectasis. **Aim:** To assess perinatal outcomes in pregnancies with fetal renal pyelectasis detected in the second trimester. **Methods:** A prospective observational study was conducted at Bharati Hospital, Pune, from October 2023 to October 2025, including 97 pregnant women diagnosed with fetal pyelectasis in the second trimester. Maternal, fetal, and neonatal outcomes were assessed. Statistical analysis was performed using SPSS v26.0. **Results:** The mean maternal age was 28.8 ± 5.0 years. Most women delivered at term (90.7%), with 59.8% undergoing LSCS. Among neonates, 36.1% required NICU admission. Hydronephrosis was absent in 28.9%, mild in 35.1%, moderate in 29.9%, and severe in 6.2%. Antibiotics were required in 10.3% of neonates. Larger renal pelvic diameters in the second trimester were significantly associated with preterm birth ($p < 0.01$), NICU stay ($p < 0.001$), and postnatal antibiotic use ($p < 0.05$). **Conclusion:** Fetal renal pyelectasis is associated with increased risk of NICU admission and postnatal interventions. AP diameters in the second trimester serve as predictive markers for adverse perinatal outcomes (Bendre et al., 2025, submitted).

KEYWORDS : Fetal renal pyelectasis, Hydronephrosis, Perinatal outcomes, Antenatal ultrasonography

INTRODUCTION

Fetal renal pyelectasis, defined as dilation of the renal pelvis seen on prenatal ultrasonography, occurs in about 1–5% of second-trimester anomaly scans (Cohen-Overbeek et al., 2005; Pereira et al., 2011). While many cases resolve spontaneously, others progress to hydronephrosis, obstructive uropathy, or vesicoureteric reflux, necessitating neonatal evaluation (Havutcu et al., 2017). It is also considered a soft marker for trisomy 21 (Gao et al., 2021). The predictive value of second-trimester anteroposterior (AP) pelvic diameter thresholds has been demonstrated in multiple studies (Signorelli et al., 2005; Smith et al., 2022). However, limited data are available from Indian centers. This study aimed to assess perinatal outcomes in fetuses with renal pyelectasis diagnosed during the second trimester.

MATERIALS AND METHODS

This prospective observational study was carried out in the Department of Obstetrics and Gynecology, Bharati Hospital, Pune, between October 2023 and October 2025. Ninety-seven pregnant women with fetuses diagnosed with renal pyelectasis on second-trimester anomaly scan were included after informed consent. Maternal variables included gravida, parity, mode of delivery, and gestational age at delivery. Neonatal outcomes included birth weight, APGAR, NICU admission, need for antibiotics, and postnatal renal ultrasonography within 72 hours (Li et al., 2023). Hydronephrosis was graded as absent, mild, moderate, or severe. Data were analyzed with SPSS v26.0 using chi-square and correlation analysis.

RESULTS

The mean maternal age was 28.8 ± 5.0 years. Term deliveries accounted for 90.7%, and 59.8% delivered by LSCS. NICU admission was required for 36.1% of neonates. Postnatal renal ultrasound showed hydronephrosis absent in 28.9%, mild in 35.1%, moderate in 29.9%, and severe in 6.2%. Antibiotics were required in 10.3% of neonates. Larger AP diameters in the second trimester were significantly correlated with preterm birth, NICU admission, and postnatal antibiotic requirement ($p < 0.05$).

DISCUSSION

This study demonstrates that fetal pyelectasis detected in the second trimester carries significant perinatal implications. Our NICU admission rate (36.1%) aligns with prior studies reporting 25–40% (Signorelli et al., 2005; Smith et al., 2022). Severe hydronephrosis invariably required NICU admission, consistent with Albani et al. (2023). AP diameters were predictive of adverse outcomes, reinforcing earlier findings (Gao et al., 2021; Li et al., 2023). Mild cases generally had favorable outcomes, echoing Pereira et al. (2011) and Havutcu et al. (2017). Our findings contribute valuable Indian tertiary-center data (Bendre et al., 2025, submitted).

CONCLUSION

Fetal renal pyelectasis in the second trimester is an important predictor of perinatal outcomes. Larger AP diameters correlate with increased NICU admission, preterm delivery, and antibiotic use. Mild isolated pyelectasis is usually benign, while moderate-to-severe cases warrant close monitoring and standardized follow-up. This study adds Indian prospective data and emphasizes the importance of structured counseling and postnatal evaluation.

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