



CLINICAL OUTCOMES OF OLIGOHYDRAMNIOS AT TERM PREGNANCY

Khan Aimen¹, Khan Shaheryar², Khan Tajallah³, Liao Wenyan^{4*} and Shafaqat Shazia⁵

¹ The First Affiliated Hospital of University of South China, Department of Obstetrics and Gynecology, Hengyang Medical School, University of South China, Hengyang, Hunan, 421001, China

² The First Affiliated Hospital of University of South China, Department of Hepatobiliary Surgery, Hengyang Medical School, University of South China, Hengyang, Hunan, 421001, China

³ Hengyang Medical College, University of South China, Hengyang, Hunan, 421001, China

^{4*} The First Affiliated Hospital of University of South China, Department of Obstetrics and Gynecology, Hengyang Medical School, University of South China, Hengyang, Hunan, 421001, China

⁵ Hengyang Medical College, University of South China, Hengyang, Hunan, 421001, China

ABSTRACT

Background: Oligohydramnios at term pregnancy is a common obstetric finding associated with increased rates of labor induction, operative delivery, and suspected fetal compromise. However, its independent predictive value for adverse perinatal outcomes remains controversial, particularly in cases of isolated oligohydramnios [1–3].

Objective: To evaluate maternal, intrapartum, and neonatal outcomes in term pregnancies complicated by oligohydramnios at a tertiary care hospital in China.

Methods: A retrospective pilot cohort study was conducted at the First Affiliated Hospital of the University of South China from July 27, 2025 to February 18, 2026. A total of 26 singleton term pregnancies (≥ 37 weeks gestation) diagnosed with oligohydramnios (AFI ≤ 5 cm) were included. Maternal characteristics, intrapartum events, and neonatal outcomes were extracted from electronic medical records and analyzed using descriptive statistics.

Results: Among 26 cases, increased cesarean delivery rate, fetal distress, and meconium-stained amniotic fluid were observed. Neonatal outcomes showed variable NICU admission rates and low Apgar scores; however, most neonates had favorable outcomes. These findings align with previously reported heterogeneity in outcomes across studies [4–7].

Conclusion: Term oligohydramnios is associated with increased obstetric intervention but does not consistently predict severe neonatal morbidity. Clinical management should therefore be individualized based on fetal monitoring rather than AFI alone [6,8].

INTRODUCTION

Oligohydramnios is defined as a reduction in amniotic fluid volume, most commonly diagnosed using ultrasonographic amniotic fluid index (AFI ≤ 5 cm) or single deepest vertical pocket < 2 cm [1]. Amniotic fluid plays a critical role in fetal development, including lung maturation, musculoskeletal development, and protection against mechanical compression.

The prevalence of oligohydramnios at term ranges from 0.5% to 5%, depending on population characteristics and diagnostic thresholds [2]. It is frequently associated with post-term pregnancy, hypertensive disorders, placental insufficiency, and fetal growth restriction [3].

The pathophysiological mechanism is primarily attributed to reduced fetal urine production secondary to chronic uteroplacental insufficiency and fetal hypoxia [4]. Reduced placental perfusion leads to decreased fetal renal blood flow, subsequently lowering amniotic fluid volume [5].

Clinically, oligohydramnios has been associated with increased rates of fetal distress, meconium aspiration, operative delivery, and NICU admission [6]. However, several studies have questioned whether isolated oligohydramnios independently worsens perinatal outcomes or merely increases obstetric intervention rates due to clinical concern [7–9].

A major source of variability arises from diagnostic inconsistency between AFI and single deepest pocket (SDP), with evidence suggesting that AFI may overdiagnose oligohydramnios and increase cesarean rates without improving neonatal outcomes [8,10].

Given the ongoing debate, particularly in Asian populations where limited real-world data exist, this study was conducted to evaluate maternal and neonatal outcomes of term oligohydramnios in a tertiary care center in China.

MATERIALS AND METHODS

Study Design and Setting: This retrospective observational pilot cohort study was conducted in the Department of Obstetrics and Gynecology at the First Affiliated Hospital of the University of South China, a tertiary referral center providing comprehensive maternal-fetal care.

Study Duration: The study period extended from July 27, 2025 to February 18, 2026.

Study Population: The study included women with singleton pregnancies at term gestation (≥ 37 weeks) diagnosed with oligohydramnios.

Sample Size: A total of 26 cases were included in this pilot analysis.

Eligibility Criteria:

Inclusion Criteria

- Singleton pregnancy
- Gestational age ≥ 37 weeks [1]
- AFI ≤ 5 cm on ultrasound

- Complete clinical and neonatal records

Exclusion Criteria

- Multiple gestation
- Major fetal anomalies
- Preterm delivery (<37 weeks)
- Prolonged rupture of membranes (>24 hours)
- Incomplete records

Data Collection: Data were extracted from hospital electronic medical records, including antenatal ultrasound reports, labor ward records, and neonatal charts.

Variables Assessed:

Maternal Variables:

- Age
- Gravidity and parity
- Gestational age at delivery

Intrapartum Variables:

- Mode of delivery
- Induction of labor
- Fetal distress
- Meconium-stained amniotic fluid
- Indication for cesarean section

Neonatal Variables:

- Birth weight
- Apgar scores at 1 and 5 minutes
- NICU admission

Outcome Measures

Primary Outcome

Composite neonatal morbidity including NICU admission, low Apgar score, and fetal distress [6].

Secondary Outcomes

- Cesarean section rate
- Meconium-stained liquor
- Birth weight distribution

Statistical Analysis: Data were analyzed using descriptive statistics. Continuous variables were expressed as mean $\pm$ SD, while categorical variables were presented as frequencies and percentages. Inferential statistics were not performed due to the pilot nature of the study.

Ethical Considerations

Ethical approval was obtained from the institutional ethics committee of the First Affiliated Hospital of the University of South China. Data were anonymized to ensure patient confidentiality.

Study Limitations

The study is limited by its small sample size, retrospective design, and lack of control group, which may limit generalizability and statistical inference.

RESULTS

Baseline Characteristics:

A total of 26 term pregnancies with oligohydramnios were included. Maternal age and parity distribution were consistent with typical obstetric populations in tertiary care settings.

Maternal Outcomes:

Cesarean delivery was observed in a substantial proportion of cases. The most common indication was fetal distress, followed by failed induction and non-progress of labor [6,7].

Intrapartum Findings:

Meconium-stained amniotic fluid and abnormal fetal heart rate patterns were frequently observed, supporting previous findings that reduced amniotic fluid volume may correlate with intrapartum fetal compromise [5,6].

Neonatal Outcomes:

Neonatal outcomes were generally favorable, with most infants demonstrating normal Apgar scores. However, a subset required NICU admission, primarily due to suspected intrapartum hypoxia or respiratory distress [7–9].

DISCUSSION

Principal Findings:

This pilot study demonstrates that term oligohydramnios is associated with increased cesarean delivery and intrapartum fetal distress, but not consistently with severe neonatal morbidity.

Comparison with Previous Studies:

These findings are consistent with Casey et al., who reported increased operative delivery in pregnancies with low amniotic fluid but no proportional increase in neonatal mortality [6]. Similarly, Rossi and Prefumo demonstrated that isolated oligohydramnios does not significantly worsen perinatal outcomes in systematic review data [7].

Conversely, some studies have suggested increased NICU admissions and fetal distress, although results remain inconsistent due to heterogeneity in diagnostic criteria [8,9].

Pathophysiological Interpretation: Oligohydramnios is believed to reflect chronic uteroplacental insufficiency leading to fetal hypoperfusion and reduced renal output. This mechanism explains the

association with fetal heart rate abnormalities and meconium passage [4,5].

Clinical Implications: The findings suggest that oligohydramnios should not be considered an automatic indication for cesarean delivery. Instead, continuous fetal surveillance and individualized decision-making are recommended [6,10].

Strengths:

- Real-world tertiary care data
- Standard diagnostic criteria
- Comprehensive maternal and neonatal assessment

Limitations:

- Small sample size
- Retrospective design
- No control group
- Limited statistical power

Future Directions: Future research should include multicenter prospective cohort studies with larger sample sizes and randomized controlled trials comparing induction versus expectant management strategies in isolated oligohydramnios [8,10].

CONCLUSION

Term oligohydramnios is associated with increased obstetric intervention, particularly cesarean delivery and fetal distress. However, neonatal outcomes are generally favorable, suggesting that clinical management should rely on comprehensive fetal assessment rather than AFI alone.

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