

Fetomaternal Outcomes in Pregnancies Complicated by Oligohydramnios at Term: A Prospective Observational Study

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Abstract:

Background: Oligohydramnios at term is a relatively common obstetric finding that may be associated with increased obstetric intervention and variable neonatal outcomes. The clinical significance of reduced amniotic fluid volume, particularly with increasing severity, remains an area of clinical interest. This study was undertaken to evaluate maternal, fetal and neonatal outcomes among women with oligohydramnios at term and to assess the relationship between the severity of oligohydramnios and selected pregnancy outcomes.

Methods: This prospective observational study was conducted in the Department of Obstetrics and Gynaecology, DMCH, over a period of April 2025 to March 2026. A total of 100 pregnant women with singleton term pregnancies complicated by oligohydramnios were included. Oligohydramnios was defined as an amniotic fluid index (AFI) ≤ 5 cm and was categorized according to severity as AFI ≤ 3 cm and AFI 3.1–5.0 cm. Maternal outcomes included induction of labour, mode of delivery, prolonged labour and postpartum haemorrhage. Fetal and neonatal outcomes included birth weight, Apgar scores, meconium-stained liquor, neonatal resuscitation, small-for-gestational-age status and NICU admission. Comparisons between severity groups were performed using appropriate parametric or non-parametric tests for continuous variables and chi-square or Fisher's exact test for categorical variables. Multivariable logistic regression was performed to identify factors associated with adverse neonatal outcome.

Results: Among the 100 women, the mean maternal age was 26.1 ± 3.7 years, mean gestational age at delivery was 38.9 ± 0.8 weeks and mean AFI was 4.1 ± 0.8 cm. Severe oligohydramnios (AFI ≤ 3 cm) was present in 32 (32.0%) women. Labour was induced in 68 (68.0%) women, while vaginal, instrumental and caesarean deliveries occurred in 67 (67.0%), 22 (22.0%) and 11 (11.0%) women, respectively. Induction was significantly more frequent in women with severe oligohydramnios than in those with AFI 3.1–5.0 cm (90.6% vs 57.4%, $p=0.002$), and caesarean delivery was also more frequent in the severe group (21.9% vs 5.9%, $p=0.041$). The mean birth weight was significantly lower among neonates in the severe oligohydramnios group (2685 ± 380 g vs 2964 ± 401 g, $p=0.001$), while small-for-gestational-age status was more frequent (28.1% vs 8.8%, $p=0.026$). NICU admission was numerically higher in the severe group (21.9% vs 7.4%), although the difference was not statistically significant ($p=0.079$). On multivariable logistic regression, severe oligohydramnios (adjusted OR 2.86, 95% CI 1.04–7.86; $p=0.041$) and small-for-gestational-age status (adjusted OR 3.12, 95% CI 1.08–9.01; $p=0.036$) were independently associated with adverse neonatal outcome.

Conclusion: Term pregnancies complicated by oligohydramnios were associated with a substantial requirement for labour induction, although vaginal delivery remained the predominant mode of delivery. Severe oligohydramnios was associated with increased obstetric intervention, lower neonatal birth weight and a higher frequency of small-for-gestational-age infants. Careful antenatal surveillance and individualized assessment of fetal growth and clinical status may help guide management and optimize maternal and neonatal outcomes.

Keywords: Oligohydramnios; Term Pregnancy; Amniotic Fluid Index; Maternal Outcome; Neonatal Outcome; Labour Induction; Small-For-Gestational-Age.

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Introduction

Amniotic fluid plays an important role in fetal growth, movement, pulmonary development and protection of the fetus from mechanical trauma. Abnormalities in amniotic fluid volume are therefore clinically relevant during pregnancy. Oligohydramnios refers to a reduction in amniotic fluid volume below the expected level for gestational age and is commonly diagnosed by ultrasonographic assessment using the amniotic fluid index (AFI) or single deepest vertical pocket (SDP). An AFI ≤ 5 cm or SDP < 2 cm is commonly used to identify oligohydramnios. [1]

At term, reduced amniotic fluid may reflect decreased fetal urine production, placental insufficiency, fetal growth restriction, rupture of membranes or other maternal and fetal conditions. In some pregnancies, however, no underlying cause is identified and the condition is classified as isolated or idiopathic oligohydramnios. [2] The clinical relevance of isolated oligohydramnios remains debated because reduced amniotic fluid may represent either a marker of placental dysfunction or simply a sonographic finding with limited independent prognostic significance.

The method used for assessing amniotic fluid may also influence the frequency with which oligohydramnios is diagnosed. Randomized evidence has demonstrated that use of the AFI results in more diagnoses of oligohydramnios and more labour inductions compared with the single deepest pocket approach, without a corresponding improvement in important perinatal outcomes. [3,4] Consequently, the interpretation of low amniotic fluid measurements should be considered in conjunction with gestational age, fetal growth, fetal surveillance and the overall clinical context.

Oligohydramnios at term has been associated with increased rates of labour induction and caesarean delivery. A systematic review and meta-analysis reported increased obstetric intervention among pregnancies with isolated oligohydramnios at term, although several important neonatal outcomes were not consistently different from those in pregnancies with normal amniotic fluid volume. [5] Similarly, another meta-analysis involving more than 35,000 women reported higher rates of labour induction, caesarean delivery and some short-term neonatal morbidity among women with isolated oligohydramnios. [6]

The association between oligohydramnios and adverse neonatal outcomes remains inconsistent. Some studies have reported increased risks of meconium aspiration, caesarean delivery for fetal distress and NICU admission, [7] whereas other large cohort studies have found that isolated oligohydramnios itself may not independently

increase adverse perinatal morbidity after adjustment for potential confounding factors. [8,9] These conflicting observations suggest that oligohydramnios may be associated with obstetric intervention without necessarily representing severe fetal compromise in every case.

Recent evidence has also suggested a possible association between isolated oligohydramnios and small-for-gestational-age status. A recent meta-analysis reported an increased risk of small-for-gestational-age infants among pregnancies complicated by isolated oligohydramnios at term.¹⁰ This finding supports the possibility that low amniotic fluid may sometimes reflect underlying placental dysfunction.

The management of oligohydramnios at term remains individualized. The American College of Obstetricians and Gynecologists recognizes isolated oligohydramnios as a condition that may warrant antenatal fetal surveillance when delivery is not undertaken. [11] Nevertheless, the decision regarding induction of labour should consider gestational age, fetal growth, fetal testing, maternal condition and other obstetric factors rather than relying exclusively on the AFI value.

Therefore, the present study was designed to evaluate the fetomaternal outcomes of pregnancies complicated by oligohydramnios at term, with particular emphasis on mode of delivery, maternal complications, neonatal condition and the relationship between the severity of oligohydramnios and pregnancy outcomes.

Aim

To evaluate maternal, fetal and neonatal outcomes in pregnancies complicated by oligohydramnios at term.

Objectives

1. To assess the maternal outcomes of pregnancies complicated by oligohydramnios at term.
2. To determine the mode of delivery and requirement for labour induction.
3. To evaluate fetal and neonatal outcomes including birth weight, Apgar scores, meconium-stained liquor and NICU admission.
4. To assess the relationship between severity of oligohydramnios and selected maternal and neonatal outcomes.

Materials and Methods

Study Design: A prospective observational study was conducted in the Department of Obstetrics and Gynaecology, DMCH, over a period of April 2025 to March 2026

Study Population: Pregnant women with singleton pregnancies at term who were diagnosed with oligohydramnios on ultrasonographic examination were considered for inclusion in the study.

Sample Size: All consecutive eligible women fulfilling the predefined inclusion criteria during the 12-month study period were recruited. A total of 100 women were included in the final analysis.

Inclusion Criteria

The inclusion criteria were:

- Pregnant women aged 18 years or older.
- Singleton pregnancy.
- Cephalic presentation.
- Gestational age ≥ 37 completed weeks.
- Ultrasonographic evidence of oligohydramnios.
- Women willing to participate in the study.

Exclusion Criteria

The exclusion criteria were:

- Multiple pregnancy.
- Major congenital fetal anomaly.
- Placental abruption.
- Known fetal chromosomal abnormality.
- Preterm pregnancy.
- Previous caesarean section, as per the institutional study protocol.
- Maternal medical disorders requiring planned delivery for reasons other than oligohydramnios.
- Patients with incomplete outcome data.

Definition of Oligohydramnios: Oligohydramnios was defined as an amniotic fluid index (AFI) ≤ 5 cm on ultrasonographic assessment. [1,2]

For analysis according to severity, oligohydramnios was categorized into:

- **Severe oligohydramnios:** AFI ≤ 3.0 cm.
- **AFI 3.1–5.0 cm:** less severe oligohydramnios.

Data Collection: Maternal demographic and obstetric characteristics were recorded. Ultrasonographic AFI, gestational age, fetal presentation and fetal growth parameters were documented. Intrapartum outcomes, including induction of labour, duration of labour, mode of delivery and maternal complications, were recorded.

Maternal outcomes included induction of labour, mode of delivery, prolonged labour, postpartum haemorrhage, perineal trauma and maternal fever.

Fetal and neonatal outcomes included birth weight, Apgar scores at one and five minutes, meconium-stained liquor, non-reassuring fetal heart rate pattern, fetal distress requiring intervention, cord around the neck, neonatal resuscitation, small-for-gestational-age status, NICU admission, respiratory distress, neonatal sepsis and perinatal death.

Statistical Analysis: Continuous variables were summarized as mean $\pm$ standard deviation, while categorical variables were expressed as frequency and percentage. Comparisons between women with severe oligohydramnios (AFI ≤ 3 cm) and those with AFI 3.1–5.0 cm were performed using the independent-samples t-test or Mann–Whitney U test for continuous variables, as appropriate. Categorical variables were compared using the chi-square test or Fisher's exact test, as appropriate.

For exploratory analysis, multivariable logistic regression was used to identify factors independently associated with adverse neonatal outcome. Adverse neonatal outcome was defined as the occurrence of one or more of the following: NICU admission, neonatal resuscitation, respiratory distress, neonatal sepsis or Apgar score < 7 at five minutes. Results of the regression analysis were expressed as adjusted odds ratios (ORs) with 95% confidence intervals (CIs).

A two-sided p-value < 0.05 was considered statistically significant.

Results

Baseline Maternal and Obstetric Characteristics:

A total of 100 pregnant women with term oligohydramnios were included in the study. The mean maternal age was 26.1 ± 3.7 years, while the mean gestational age at delivery was 38.9 ± 0.8 weeks. The mean AFI was 4.1 ± 0.8 cm.

Among the participants, 58 (58.0%) were primigravida and 42 (42.0%) were multiparous. Severe oligohydramnios (AFI ≤ 3 cm) was present in 32 (32.0%) women, whereas 68 (68.0%) had an AFI of 3.1–5.0 cm.

These baseline characteristics are summarized in Table 1.

Table 1: Baseline maternal and obstetric characteristics of study participants

Variable	Value
Number of women	100
Maternal age (years), mean $\pm$ SD	26.1 ± 3.7
Gestational age (weeks), mean $\pm$ SD	38.9 ± 0.8
AFI (cm), mean $\pm$ SD	4.1 ± 0.8
Primigravida, n (%)	58 (58.0)
Multiparous, n (%)	42 (42.0)
Severe oligohydramnios (AFI ≤ 3 cm), n (%)	32 (32.0)
AFI 3.1–5.0 cm, n (%)	68 (68.0)

Severity of Oligohydramnios and Obstetric Management: Labour was induced in 68 (68.0%) women, whereas 32 (32.0%) women entered spontaneous labour. Induction was significantly more frequent among women with severe oligohydramnios compared with those with AFI 3.1–5.0 cm (90.6% vs 57.4%, $p=0.002$).

The mean duration of labour was 8.1 ± 2.7 hours. Prolonged labour (>12 hours) occurred in 18 (18.0%) women.

The comparison of obstetric management according to severity of oligohydramnios is shown in Table 2 and illustrated in Figure 1.

Table 2: Obstetric management according to severity of oligohydramnios

Obstetric variable	AFI ≤ 3 cm (n=32)	AFI 3.1–5.0 cm (n=68)	p-value
Labour induction, n (%)	29 (90.6)	39 (57.4)	0.002
Spontaneous labour, n (%)	3 (9.4)	29 (42.6)	0.002
Prolonged labour >12 h, n (%)	9 (28.1)	9 (13.2)	0.067
Labour duration (hours), mean $\pm$ SD	8.8 ± 2.9	7.8 ± 2.5	0.081

Figure 1. Labour induction according to severity of oligohydramnios

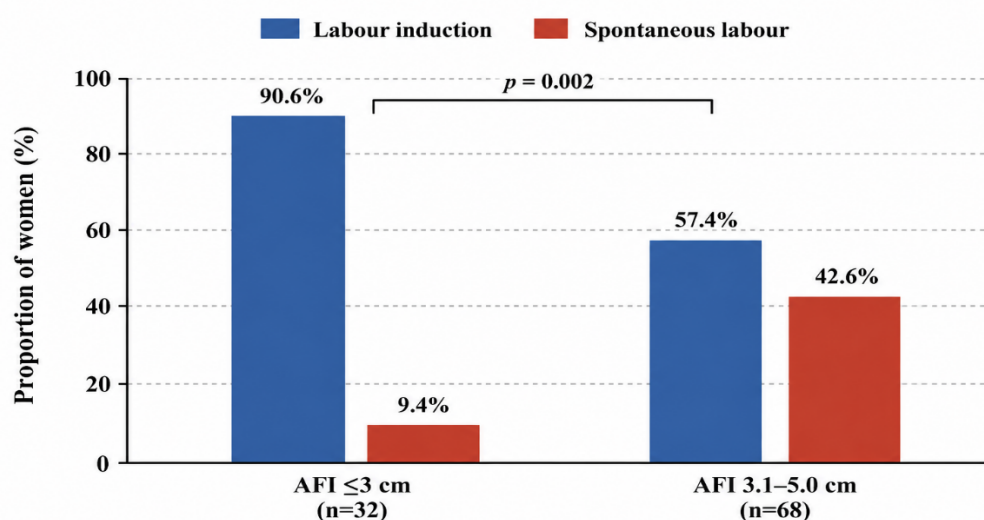


Figure 1: Labour induction according to severity of oligohydramnios

Maternal Outcomes: Vaginal delivery occurred in 67 (67.0%) women, instrumental delivery in 22 (22.0%), and caesarean delivery in 11 (11.0%).

Caesarean delivery was more frequent among women with severe oligohydramnios than among

those with AFI 3.1–5.0 cm (21.9% vs 5.9%, $p=0.041$).

Postpartum haemorrhage occurred in 7 (7.0%) women, while perineal trauma requiring repair was observed in 18 (18.0%) women.

Maternal outcomes are presented in Table 3.

Table 3: Maternal outcomes according to severity of oligohydramnios

Maternal outcome	AFI ≤ 3 cm (n=32)	AFI 3.1–5.0 cm (n=68)	p-value
Vaginal delivery, n (%)	17 (53.1)	50 (73.5)	0.041
Instrumental delivery, n (%)	8 (25.0)	14 (20.6)	0.616
Caesarean delivery, n (%)	7 (21.9)	4 (5.9)	0.041
Postpartum haemorrhage, n (%)	4 (12.5)	3 (4.4)	0.213
Perineal trauma, n (%)	7 (21.9)	11 (16.2)	0.493
Maternal fever, n (%)	3 (9.4)	3 (4.4)	0.389

Overall, most women achieved vaginal delivery, although caesarean delivery was more frequent among women with severe oligohydramnios.

Fetal and Intrapartum Outcomes: Meconium-stained liquor was observed in 18 (18.0%)

pregnancies, while non-reassuring fetal heart rate patterns occurred in 14 (14.0%) cases.

The frequency of meconium-stained liquor was higher in the severe oligohydramnios group (28.1% vs 13.2%), although the difference was not statistically significant ($p=0.126$).

These findings are summarized in Table 4.

Table 4: Fetal and intrapartum outcomes according to severity of oligohydramnios

Outcome	AFI ≤ 3 cm (n=32)	AFI 3.1–5.0 cm (n=68)	p-value
Meconium-stained liquor, n (%)	9 (28.1)	9 (13.2)	0.126
Non-reassuring fetal heart rate, n (%)	7 (21.9)	7 (10.3)	0.116
Cord around neck, n (%)	6 (18.8)	9 (13.2)	0.558
Fetal distress requiring intervention, n (%)	6 (18.8)	7 (10.3)	0.236

Neonatal Outcomes: The mean birth weight of the neonates was 2875 ± 420 g. The mean Apgar scores at one and five minutes were 7.8 ± 0.9 and 9.1 ± 0.5 , respectively.

Small-for-gestational-age status was observed in 15 (15.0%) neonates, neonatal resuscitation was required in 10 (10.0%), and 12 (12.0%) neonates required NICU admission.

The mean birth weight was significantly lower among neonates born to women with severe oligohydramnios (2685 ± 380 g vs 2964 ± 401 g; $p=0.001$). Apgar scores at one and five minutes were

also significantly lower in the severe oligohydramnios group ($p=0.024$ and $p=0.011$, respectively). Small-for-gestational-age status was more frequent among neonates in the severe oligohydramnios group (28.1% vs 8.8%, $p=0.026$).

NICU admission was more frequent in the severe group (21.9% vs 7.4%), although this difference was not statistically significant ($p=0.079$).

The neonatal findings are presented in Table 5 and summarized graphically in Figure 2.

Table 5: Neonatal outcomes according to severity of oligohydramnios

Neonatal outcome	AFI ≤ 3 cm (n=32)	AFI 3.1–5.0 cm (n=68)	p-value
Birth weight (g), mean $\pm$ SD	2685 ± 380	2964 ± 401	0.001
Apgar at 1 minute, mean $\pm$ SD	7.5 ± 0.9	7.9 ± 0.8	0.024
Apgar at 5 minutes, mean $\pm$ SD	8.9 ± 0.6	9.2 ± 0.4	0.011
Small-for-gestational-age, n (%)	9 (28.1)	6 (8.8)	0.026
Neonatal resuscitation, n (%)	5 (15.6)	5 (7.4)	0.285
NICU admission, n (%)	7 (21.9)	5 (7.4)	0.079
Respiratory distress, n (%)	4 (12.5)	4 (5.9)	0.255
Neonatal sepsis, n (%)	2 (6.3)	2 (2.9)	0.605

Figure 2. Comparison of selected neonatal outcomes according to severity of oligohydramnios

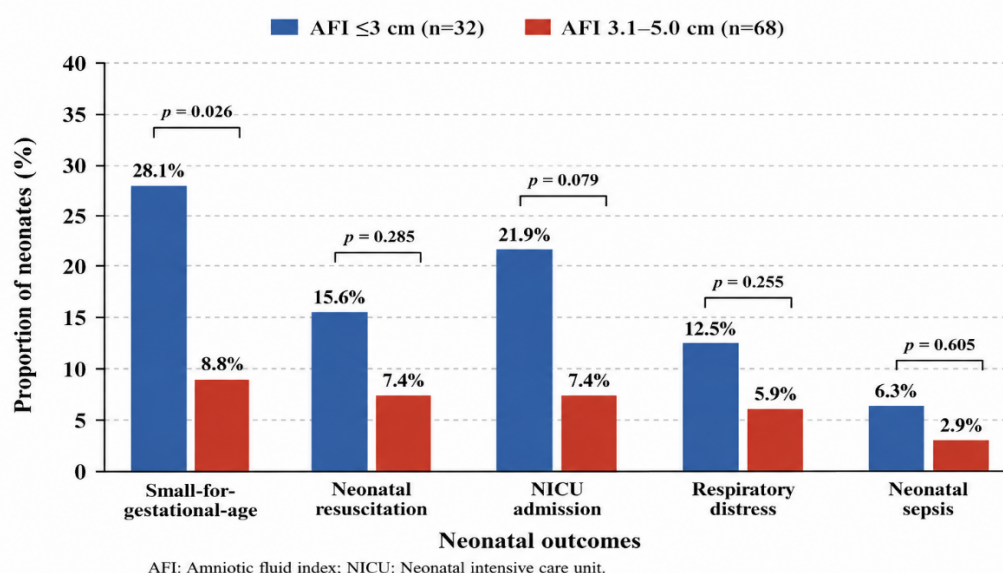


Figure 2: Comparison of selected neonatal outcomes according to severity of oligohydramnios

Overall Fetomaternal Outcomes: Among the 100 women, induction of labour was the most frequent obstetric intervention, occurring in 68 (68.0%) women. Vaginal delivery was achieved in 67

(67.0%), instrumental delivery in 22 (22.0%), and caesarean delivery in 11 (11.0%).

Among neonates, 18 (18.0%) had meconium-stained liquor, 15 (15.0%) were small for gestational age, and 12 (12.0%) required NICU admission.

The overall distribution of selected fetomaternal outcomes is presented in Table 6 and illustrated in Figure 3.

Table 6: Overall fetomaternal outcomes

Outcome	Number (%)
Labour induction	68 (68.0)
Vaginal delivery	67 (67.0)
Instrumental delivery	22 (22.0)
Caesarean delivery	11 (11.0)
Postpartum haemorrhage	7 (7.0)
Meconium-stained liquor	18 (18.0)
Non-reassuring fetal heart rate	14 (14.0)
Small-for-gestational-age neonate	15 (15.0)
Neonatal resuscitation	10 (10.0)
NICU admission	12 (12.0)
Respiratory distress	8 (8.0)
Neonatal sepsis	4 (4.0)
Perinatal death	1 (1.0)

Figure 3. Overall distribution of major fetomaternal outcomes among pregnancies complicated by term oligohydramnios

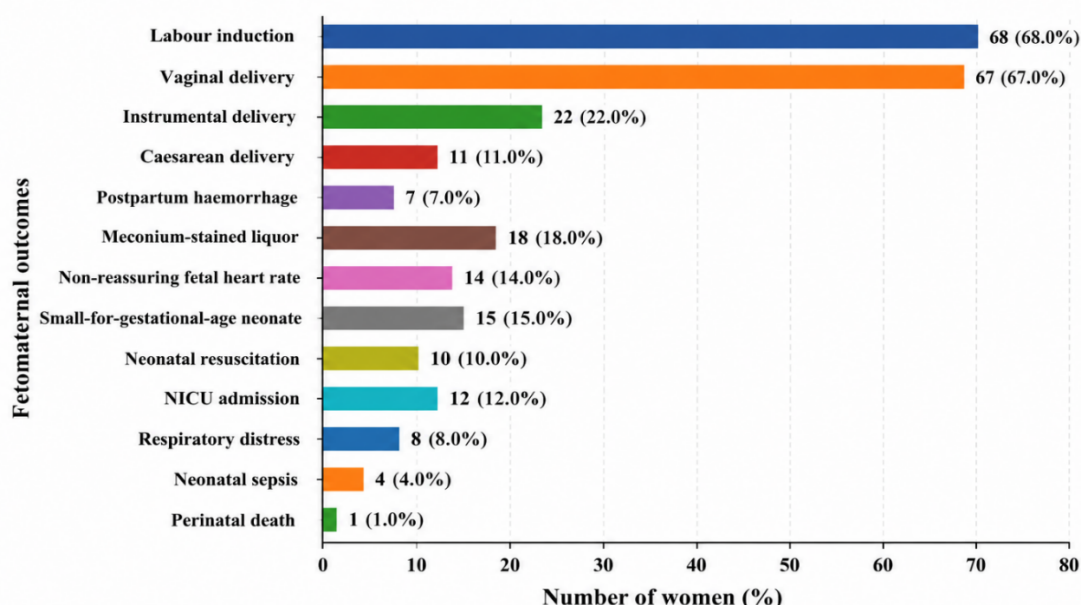


Figure 3: Overall distribution of major fetomaternal outcomes among pregnancies complicated by term oligohydramnios

Predictors of Adverse Neonatal Outcome: For exploratory analysis, adverse neonatal outcome was defined as the occurrence of one or more of the following: NICU admission, neonatal resuscitation, respiratory distress, neonatal sepsis or Apgar score <7 at five minutes.

On multivariable logistic regression analysis, severe oligohydramnios (AFI ≤ 3 cm) was independently associated with adverse neonatal outcome (adjusted OR 2.86, 95% CI: 1.04–7.86; $p=0.041$). Small-for-

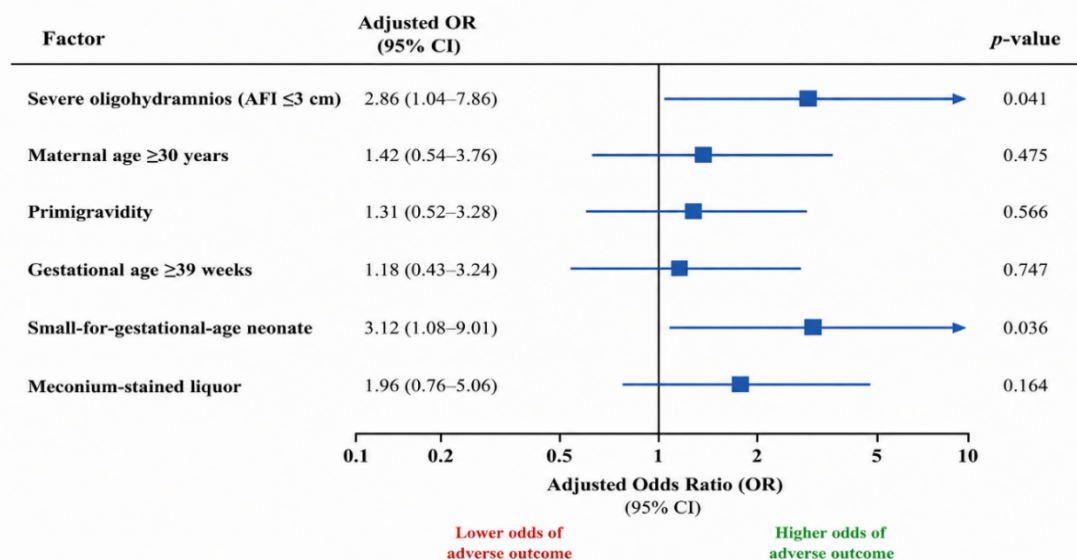
gestational-age status was also independently associated with adverse neonatal outcome (adjusted OR 3.12, 95% CI: 1.08–9.01; $p=0.036$).

Maternal age and gestational age at delivery were not independently associated with adverse neonatal outcome.

The regression analysis is shown in Table 7, and the adjusted odds ratios are presented graphically in Figure 4.

Table 7: Multivariable logistic regression analysis of factors associated with adverse neonatal outcome

Factor	Adjusted OR	95% CI	p-value
Severe oligohydramnios (AFI ≤ 3 cm)	2.86	1.04–7.86	0.041
Maternal age ≥ 30 years	1.42	0.54–3.76	0.475
Primigravidity	1.31	0.52–3.28	0.566
Gestational age ≥ 39 weeks	1.18	0.43–3.24	0.747
Small-for-gestational-age neonate	3.12	1.08–9.01	0.036
Meconium-stained liquor	1.96	0.76–5.06	0.164

Figure 4. Forest plot showing adjusted odds ratios and 95% confidence intervals for factors associated with adverse neonatal outcome**Figure 4: Forest plot showing adjusted odds ratios and 95% confidence intervals for factors associated with adverse neonatal outcome**

Discussion

Oligohydramnios at term is a common obstetric finding associated with increased antenatal surveillance and intervention, although its independent effect on maternal and neonatal outcomes remains debated. In the present study, 100 women with term oligohydramnios were evaluated, with particular attention to the severity of reduced amniotic fluid. The findings demonstrated that labour induction was common, vaginal delivery remained the predominant mode of delivery, and severe oligohydramnios was associated with a higher rate of caesarean delivery, lower neonatal birth weight and increased frequency of small-for-gestational-age (SGA) neonates.

The mean maternal age in the present study was 26.1 ± 3.7 years and the mean gestational age at delivery was 38.9 ± 0.8 weeks. These findings are broadly comparable with previous studies of term oligohydramnios, in which affected women were generally young and presented near term. Differences in maternal characteristics across studies may reflect variations in population demographics, referral patterns and inclusion criteria.

The mean AFI in the present study was 4.1 ± 0.8 cm. Oligohydramnios was defined as an AFI ≤ 5 cm, consistent with commonly used diagnostic criteria. [1,2] The use of AFI has been widespread in clinical practice; however, evidence has demonstrated that the single deepest vertical pocket may be preferable because AFI can lead to a greater number of oligohydramnios diagnoses and subsequent obstetric interventions without clear improvement in perinatal outcomes. [3,4]

Labour induction was performed in 68% of women in the present study. Induction was significantly more frequent among women with severe oligohydramnios than among those with AFI 3.1–5.0 cm (90.6% vs 57.4%, $p=0.002$). This finding is consistent with previous evidence demonstrating an association between oligohydramnios and increased induction of labour. A systematic review and meta-analysis by Shrem et al. reported that isolated oligohydramnios at term was associated with increased rates of labour induction and other obstetric interventions. [6] Similar findings have been reported in observational studies of pregnancies complicated by oligohydramnios. [7]

The high frequency of induction observed in the present study may reflect the clinical concern

regarding reduced amniotic fluid at term and the perceived risk of fetal compromise. However, induction itself may contribute to increased intervention rates. Therefore, the association between oligohydramnios and operative delivery should be interpreted in the context of institutional management protocols and clinician decision-making.

Vaginal delivery was achieved in 67% of women, while instrumental delivery and caesarean delivery occurred in 22% and 11%, respectively. Caesarean delivery was significantly more frequent among women with severe oligohydramnios than among those with AFI 3.1–5.0 cm (21.9% vs 5.9%, $p=0.041$). This finding suggests that greater reduction in amniotic fluid may be associated with increased obstetric intervention, possibly because of increased concern regarding fetal tolerance of labour. Previous studies have similarly reported increased caesarean delivery rates among pregnancies complicated by oligohydramnios. [5,7,8]

The relationship between oligohydramnios and caesarean delivery is, however, complex. Oligohydramnios may increase the likelihood of non-reassuring fetal heart rate patterns and meconium-stained liquor, which may subsequently increase the likelihood of operative delivery. At the same time, clinical management strategies and lower thresholds for intervention may contribute to the observed association.

Meconium-stained liquor occurred in 18% of pregnancies in the present study. Although the frequency was numerically higher in severe oligohydramnios, the difference was not statistically significant. Previous evidence regarding meconium is inconsistent. A systematic review of oligohydramnios reported increased risk of meconium aspiration syndrome in some populations, [7] whereas the meta-analysis by Rossi and Prefumo did not demonstrate a significant difference in meconium-stained liquor between isolated oligohydramnios and normal amniotic fluid groups. [5] Differences in study populations, diagnostic criteria and management protocols may explain these discrepancies.

NICU admission occurred in 12% of neonates in the present study. Although NICU admission was more frequent in the severe oligohydramnios group, the difference did not reach statistical significance. Previous meta-analyses have reported increased NICU admission among pregnancies with isolated oligohydramnios, [6,7] while other studies have found no significant difference in neonatal outcomes. [5,8] Therefore, the neonatal consequences of isolated term oligohydramnios remain an area of ongoing debate.

The present study demonstrated a significant reduction in mean birth weight among neonates born to women with severe oligohydramnios compared with those with AFI 3.1–5.0 cm (2685 ± 380 g vs 2964 ± 401 g, $p=0.001$). Similarly, SGA was significantly more frequent among neonates in the severe oligohydramnios group (28.1% vs 8.8%, $p=0.026$). These findings support the possibility that more severe reduction in amniotic fluid may be associated with impaired fetal growth or underlying placental insufficiency. A recent meta-analysis by Salehi and Jenabi demonstrated an association between isolated oligohydramnios at term and increased risk of SGA, supporting the findings of the present study. [10]

Apgar scores at one and five minutes were also significantly lower among neonates in the severe oligohydramnios group. Although the absolute differences were small, these findings may indicate a greater likelihood of intrapartum fetal compromise in pregnancies with more severe reduction in amniotic fluid. Previous studies have reported variable associations between oligohydramnios and Apgar scores, with some demonstrating increased neonatal morbidity and others reporting no significant difference in short-term neonatal outcomes. [5,8,9]

The present analysis also demonstrated an association between severe oligohydramnios and adverse neonatal outcome after adjustment for selected maternal and obstetric variables. Severe oligohydramnios was independently associated with adverse neonatal outcome, while SGA was also independently associated with adverse neonatal outcome. These findings should be interpreted cautiously because of the relatively small sample size and limited number of adverse neonatal events. Larger studies with adequate statistical power are required to establish independent predictors reliably.

The management of oligohydramnios at term remains controversial. The American College of Obstetricians and Gynecologists notes that isolated oligohydramnios may warrant once- or twice-weekly antenatal fetal surveillance when delivery is not undertaken. [11] At the same time, randomized and meta-analytic evidence has questioned whether the AFI-based diagnosis alone should automatically lead to intervention. [3,4]

The SAFE trial and previous meta-analyses have suggested that the single deepest pocket may reduce unnecessary diagnosis and intervention compared with the AFI without worsening perinatal outcomes. [3,4] Thus, management should ideally incorporate the severity of reduced amniotic fluid, fetal growth, fetal surveillance, gestational age and maternal clinical status rather than relying on an isolated AFI measurement.

A recent prospective case-control study from Eastern India similarly evaluated idiopathic oligohydramnios after 34 weeks and reported higher rates of labour induction, caesarean delivery, SGA and NICU admission among women with oligohydramnios compared with women with normal amniotic fluid. [14] These findings provide relevant regional evidence and support the need for individualized assessment and close fetal monitoring rather than relying on oligohydramnios alone as an automatic indication for delivery.

Strengths: The prospective observational design allows maternal and neonatal outcomes to be recorded systematically. The study also considers both maternal and neonatal outcomes and evaluates the severity of oligohydramnios rather than treating all cases as clinically identical.

Limitations: The study was conducted at a single centre and included a relatively small sample, which may limit the generalizability of the findings. In addition, because all participants had oligohydramnios, comparison with a normohydramnios control group was not possible. Management-related outcomes such as induction and caesarean delivery may also have been influenced by clinician preference and institutional protocols. The observational design also limits the ability to establish causal relationships between oligohydramnios severity and maternal or neonatal outcomes.

Conclusion

Term pregnancies complicated by oligohydramnios were associated with a substantial frequency of labour induction and operative delivery, although vaginal delivery remained the predominant mode of delivery. Most neonates had favourable short-term outcomes. Severe oligohydramnios was associated with increased obstetric intervention, lower neonatal birth weight and a higher frequency of small-for-gestational-age infants.

These findings suggest that oligohydramnios at term should be interpreted as part of the overall maternal and fetal clinical picture. Appropriate antenatal surveillance, assessment of fetal growth and individualized decisions regarding timing and mode of delivery may help optimize outcomes.

Declarations

Ethics Approval: The study was conducted in accordance with the ethical principles for biomedical and health research involving human participants and was approved by the Institutional Ethics Committee prior to commencement of the study. Written informed consent was obtained from all participants before enrolment. Participant confidentiality was maintained throughout the study, and the data were used solely for research purposes.

Funding

Conflict of Interest: The authors declare no conflict of interest.

Data Availability: The actual study data should be made available according to institutional and journal policies.

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