



**URGANCH DAVLAT TIBBIYOT INSTITUTI
JANUBIY OROLBO'YI TIBBIYOT JURNALI**

2 - TOM, MAXSUS SON-3. 2026

14.00.00 - TIBBIYOT FANLARI ISSN: 3093-8740

UDK: 618.3/.5-06:618.33-06

**CLINICAL CHARACTERISTICS OF LABOR AND PERINATAL OUTCOMES IN
PREGNANCIES COMPLICATED BY OLIGOHYDRAMNIOS**



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Annotation: This study evaluates the clinical course of labor and perinatal outcomes in pregnancies complicated by oligohydramnios. Particular attention was given to the effects of reduced amniotic fluid volume on labor progression, fetal condition, mode of delivery, and early neonatal adaptation. The analysis showed that oligohydramnios may be associated with a higher frequency of labor induction, non-reassuring fetal heart rate patterns, meconium-stained amniotic fluid, and operative delivery. The findings emphasize the importance of timely diagnosis, antenatal surveillance, continuous assessment of fetal well-being, and individualized obstetric management to reduce adverse perinatal outcomes.

Keywords: Oligohydramnios, pregnancy, labor, perinatal outcomes, fetal distress, amniotic fluid.

**КЛИНИЧЕСКИЕ ОСОБЕННОСТИ ТЕЧЕНИЯ РОДОВ И ПЕРИНАТАЛЬНЫХ
ИСХОДОВ ПРИ БЕРЕМЕННОСТИ, ОСЛОЖНЁННОЙ ОЛИГОГИДРАМНИОМ**

Аннотация: В данной работе изучены особенности течения родов и перинатальные исходы при беременности, осложнённой олигогидрамниом. Проанализировано влияние уменьшения объёма околоплодных вод на родовую деятельность, состояние плода, способ



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родоразрешения и раннюю адаптацию новорождённых. Установлено, что при олигогидрамнионе могут чаще наблюдаться индукция родов, признаки дистресса плода, мекониальные воды и оперативное родоразрешение. Особое значение имеют своевременная диагностика, антенатальное наблюдение, мониторинг состояния плода и индивидуальный выбор акушерской тактики для предупреждения неблагоприятных перинатальных исходов.

Ключевые слова: Олигогидрамнион, беременность, роды, перинатальные исходы, дистресс плода, околоплодные воды.

OLIGOGIDRAMNION BILAN KECHUVCHI HOMILADORLIKDA TUG'RUQ JARAYONI VA PERINATAL NATIJALARNING KLINIK XUSUSIYATLARI

Annotatsiya: Ushbu tadqiqot oligogidramnion bilan kechuvchi homiladorliklarda tug'ruq jarayonining klinik kechishi va perinatal natijalarni baholashga bag'ishlangan. Oligogidramnionning tug'ruq faoliyati, homila yurak urishi, tug'ruq usuli va yangi tug'ilgan chaqaloqning dastlabki holatiga ta'siri tahlil qilindi. Tadqiqotda oligogidramnionli homiladorliklarda tug'ruqni induksiya qilish, homila distressi, mekoniyli amniotik suyuqlik va operativ tug'ruq holatlari ko'proq uchradi mumkinligi aniqlandi. Shuningdek, perinatal natijalarni yaxshilashda antenatal kuzatuv, homila holatini muntazam monitoring qilish va individual akusherlik taktikasini tanlash muhimligi ko'rsatildi.

Kalit so'zlar: Oligogidramnion, homiladorlik, tug'ruq, perinatal natijalar, homila distressi, amniotik suyuqlik.

Introduction

Oligohydramnios is an important obstetric condition characterized by an abnormally reduced volume of amniotic fluid and is associated with increased risks during late pregnancy, labor, and the early neonatal period. Amniotic fluid performs essential physiological functions by providing mechanical protection to the fetus, allowing normal fetal movement and growth, supporting pulmonary and musculoskeletal development, and reducing the risk of umbilical cord compression. A significant reduction in amniotic fluid may therefore disrupt the intrauterine environment and increase the likelihood of adverse obstetric and perinatal outcomes. The clinical significance of oligohydramnios depends on the gestational age at onset, severity of fluid reduction, underlying maternal or placental pathology, and fetal condition. During labor, reduced amniotic fluid volume may contribute to umbilical cord compression, abnormal fetal heart rate patterns, meconium-stained amniotic fluid, fetal intolerance of labor, and an increased need for operative delivery. Oligohydramnios may also be associated with induction of labor, dysfunctional labor, and prolonged monitoring because of the increased risk of intrapartum fetal compromise. From the neonatal perspective, these intrapartum complications may contribute to low Apgar scores, the need for neonatal resuscitation, and admission to specialized neonatal care. Therefore, accurate antenatal diagnosis, systematic assessment of maternal and fetal status, and appropriate intrapartum surveillance are essential components of obstetric management. A detailed evaluation of the course of labor and perinatal outcomes in pregnancies complicated by oligohydramnios is clinically relevant for identifying high-risk patients, selecting appropriate obstetric management, and reducing preventable maternal and neonatal complications. This study focuses on the clinical characteristics of labor and perinatal outcomes in pregnancies complicated by oligohydramnios, with particular attention to the relationship between reduced amniotic fluid volume and adverse obstetric events.

Relevance

Oligohydramnios is a clinically important obstetric condition because reduced amniotic fluid volume may negatively affect the course of labor and increase the risk of fetal and neonatal complications. In particular, umbilical cord compression, abnormal fetal heart rate patterns,



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meconium-stained amniotic fluid, fetal distress, induction of labor, and operative delivery may occur more frequently in pregnancies complicated by oligohydramnios.

Aim

The aim of the study was to evaluate the clinical characteristics of labor and perinatal outcomes in pregnancies complicated by oligohydramnios and to determine the main obstetric and neonatal complications associated with reduced amniotic fluid volume.

Main part

Oligohydramnios is an important obstetric condition characterized by a reduction in amniotic fluid volume during pregnancy. Its development may be associated with maternal, fetal, placental, and pregnancy-related factors. Maternal hypertension, dehydration, placental insufficiency, and certain chronic diseases may contribute to reduced amniotic fluid production. Fetal causes may include abnormalities of the urinary system and restricted fetal growth. Premature rupture of membranes is also an important cause of oligohydramnios. Amniotic fluid provides a protective environment for fetal growth, movement, and development and helps prevent mechanical compression of the umbilical cord. Reduction in its volume may therefore alter the intrauterine environment and increase the risk of pregnancy complications. Prolonged oligohydramnios may restrict fetal movement and increase the possibility of umbilical cord compression. These changes are particularly important during the late stages of pregnancy and labor. Therefore, identification of oligohydramnios should be accompanied by evaluation of its underlying cause. Ultrasound examination is important for assessing amniotic fluid volume and fetal growth. Fetal movement, placental function, and general fetal well-being should also be monitored regularly. Identification of the underlying cause helps determine the appropriate obstetric management strategy.

Labor in pregnancies complicated by oligohydramnios may have several clinical features that differ from those observed in uncomplicated pregnancies. Reduced amniotic fluid decreases the natural mechanical protection of the fetus during uterine contractions. As a result, compression of the umbilical cord may become more pronounced during labor. This may lead to temporary changes in fetal heart rate and increase the risk of fetal intolerance of labor. Continuous assessment of fetal heart activity is therefore important during labor. In some cases, induction of labor may be considered depending on gestational age, fetal condition, cervical status, and associated risk factors. However, oligohydramnios alone does not determine the mode of delivery in every patient. The progress of cervical dilation, uterine contractions, fetal presentation, and maternal condition should be evaluated together. When signs of fetal compromise appear, rapid clinical assessment and appropriate obstetric intervention are required. Some pregnancies complicated by oligohydramnios may have a higher risk of dysfunctional labor or operative delivery. However, these outcomes may also be influenced by other maternal and fetal factors. Careful monitoring of both mother and fetus allows complications to be recognized at an early stage.

Oligohydramnios may influence several obstetric outcomes, particularly when it is detected at term or occurs together with other pregnancy complications. A reduction in amniotic fluid may lead to changes in the planning and management of labor. In some cases, induction of labor may be considered when the pregnancy has reached an appropriate gestational age or when additional maternal or fetal risk factors are present. During labor, abnormal fetal heart rate patterns may develop because of increased umbilical cord compression, potentially increasing the need for operative delivery. However, such outcomes cannot always be attributed to oligohydramnios alone because fetal growth restriction, placental insufficiency, maternal hypertension, and other conditions may also contribute. Therefore, the duration of labor, uterine contractility, cervical dilation, and fetal tolerance of labor should be assessed together. Proper individualization of labor management may help avoid unnecessary interventions while allowing timely intervention when fetal compromise develops. Assessment of maternal outcomes should include the mode of delivery, duration of labor, postpartum recovery, and possible obstetric complications.



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Assessment of perinatal outcomes is an important part of the management of pregnancies complicated by oligohydramnios. Reduced amniotic fluid may alter the intrauterine environment and increase the risk of umbilical cord compression. This may result in abnormal fetal heart rate patterns and signs of fetal distress during labor. Ultrasound assessment, evaluation of fetal movements, and fetal heart monitoring are important for determining fetal well-being. The risk of adverse outcomes may increase when oligohydramnios is accompanied by fetal growth restriction or placental dysfunction. Therefore, fetal growth and estimated fetal weight should be monitored throughout pregnancy. Meconium-stained amniotic fluid may also require more careful assessment of fetal condition during labor. After birth, neonatal adaptation should be evaluated by assessing respiratory function, heart rate, Apgar score, and overall clinical condition. In some cases, neonatal resuscitation or specialized neonatal care may be required. However, not every pregnancy with oligohydramnios results in an adverse perinatal outcome. The final outcome depends on gestational age, severity of oligohydramnios, underlying cause, fetal growth, and complications occurring during labor. Individual assessment of perinatal risk is therefore essential.

Management of oligohydramnios should be determined according to gestational age, degree of amniotic fluid reduction, fetal condition, maternal health, and the underlying cause. The diagnosis should first be confirmed by ultrasound, followed by assessment of fetal growth and placental function. When fetal well-being is maintained and no additional complications are present, careful antenatal surveillance may be appropriate. In later pregnancy, the timing of delivery should be considered individually according to the overall clinical situation. The expected risks of continuing pregnancy should be balanced against the potential risks associated with delivery. During labor, fetal heart rate monitoring is important because reduced amniotic fluid may increase the risk of umbilical cord compression. When fetal distress develops, timely obstetric intervention is required. The mode of delivery should be determined according to standard obstetric indications and the condition of the fetus and mother. Cesarean delivery should not be performed solely because oligohydramnios is present unless appropriate clinical indications exist. Prevention of complications depends mainly on early recognition of risk factors, regular fetal assessment, and appropriate timing of delivery. Monitoring maternal blood pressure, placental function, fetal growth, and possible membrane rupture is therefore important. A comprehensive antenatal and intrapartum management strategy may contribute to better maternal and perinatal outcomes in pregnancies complicated by oligohydramnios.

Results

The study included 60 pregnant women who were divided into two comparable groups: 30 women with oligohydramnios as the main group and 30 women with physiological pregnancy as the comparison group. The mean maternal age was 28.4 ± 4.6 years in the oligohydramnios group and 27.9 ± 4.3 years in the comparison group. Most participants were between 25 and 34 years of age. The mean gestational age at delivery was 38.1 ± 1.2 weeks in the oligohydramnios group and 39.0 ± 0.8 weeks in the physiological pregnancy group. Labor was induced in 16 women (53.3%) with oligohydramnios compared with 7 women (23.3%) in the comparison group. Spontaneous onset of labor occurred in 14 (46.7%) and 23 (76.7%) women, respectively. Prolonged labor was observed in 8 (26.7%) women with oligohydramnios and in 3 (10.0%) women with physiological pregnancy. Non-reassuring fetal heart rate patterns during labor were detected in 9 (30.0%) women in the oligohydramnios group compared with 3 (10.0%) in the comparison group. Meconium-stained amniotic fluid was recorded in 7 (23.3%) and 2 (6.7%) women, respectively. Operative delivery was required in 10 (33.3%) women with oligohydramnios, including cesarean delivery in 8 cases and operative vaginal delivery in 2 cases, whereas operative delivery occurred in 4 (13.3%) women in the comparison group. The mean duration of the active phase of labor was 7.8 ± 2.1 hours in the oligohydramnios group and 6.4 ± 1.7 hours in the comparison group. These findings indicate that pregnancies complicated by oligohydramnios were associated with a higher frequency of labor



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induction, prolonged labor, abnormal fetal heart rate patterns, meconium-stained amniotic fluid, and operative delivery.

Table 1. Maternal and obstetric characteristics of the study groups

Parameter	Oligohydramnios (n=30)	Physiological pregnancy (n=30)
Mean maternal age, years	28.4 ± 4.6	27.9 ± 4.3
Gestational age at delivery, weeks	38.1 ± 1.2	39.0 ± 0.8
Labor induction	16 (53.3%)	7 (23.3%)
Spontaneous labor	14 (46.7%)	23 (76.7%)
Prolonged labor	8 (26.7%)	3 (10.0%)
Non-reassuring fetal heart rate	9 (30.0%)	3 (10.0%)
Meconium-stained amniotic fluid	7 (23.3%)	2 (6.7%)
Operative delivery	10 (33.3%)	4 (13.3%)
Active labor duration, hours	7.8 ± 2.1	6.4 ± 1.7

Table 2. Mode of delivery

Mode of delivery	Oligohydramnios (n=30)	Physiological pregnancy (n=30)
Spontaneous vaginal delivery	20 (66.7%)	26 (86.7%)
Cesarean delivery	8 (26.7%)	3 (10.0%)
Operative vaginal delivery	2 (6.7%)	1 (3.3%)

Among the newborns, the mean birth weight was **2,980 ± 420 g** in the oligohydramnios group and **3,260 ± 380 g** in the comparison group. A low Apgar score at the fifth minute was observed in **5 newborns (16.7%)** from the oligohydramnios group compared with **1 newborn (3.3%)** in the physiological pregnancy group. The need for neonatal observation or specialized neonatal care was recorded in **6 (20.0%)** and **2 (6.7%)** newborns, respectively. These findings suggest that oligohydramnios was associated not only with differences in the course of labor but also with less favorable early neonatal adaptation.

Table 3. Perinatal outcomes

Parameter	Oligohydramnios (n=30)	Physiological pregnancy (n=30)
Mean birth weight, g	2,980 ± 420	3,260 ± 380
Apgar score at 1 minute, mean	7.2 ± 0.8	7.8 ± 0.6
Apgar score at 5 minutes, mean	8.1 ± 0.7	8.7 ± 0.5
Apgar <7 at 5 minutes	5 (16.7%)	1 (3.3%)
Neonatal observation/specialized care	6 (20.0%)	2 (6.7%)
Meconium aspiration-related observation	2 (6.7%)	0 (0%)

Overall, the comparative analysis showed a higher frequency of adverse intrapartum and early perinatal findings among pregnancies complicated by oligohydramnios. The most notable differences were observed in labor induction, non-reassuring fetal heart rate patterns, prolonged labor, operative delivery, and lower early neonatal adaptation scores.

Discussion

The obtained results indicate that oligohydramnios is associated with several clinically significant changes in the course of labor and early perinatal outcomes. In the study group, labor induction was performed in 53.3% of cases compared with 23.3% in pregnancies with physiological amniotic fluid volume. Prolonged labor was also more frequent in the oligohydramnios group, occurring in 26.7% compared with 10.0% in the comparison group. These findings suggest that reduced amniotic fluid volume may influence labor management and contribute to a more



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complicated obstetric course. Non-reassuring fetal heart rate patterns were observed in 30.0% of cases with oligohydramnios, compared with 10.0% in the physiological pregnancy group, which may be related to increased umbilical cord compression during uterine contractions. Meconium-stained amniotic fluid was also more frequent in the oligohydramnios group, while operative delivery was required in 33.3% of cases compared with 13.3% in the comparison group. The increased rate of cesarean and operative vaginal delivery may reflect a higher frequency of intrapartum fetal compromise and the need for timely obstetric intervention. Perinatal outcomes also demonstrated differences between the groups, with lower mean birth weight, lower Apgar scores, and a greater need for neonatal observation in the oligohydramnios group. However, these findings should not be attributed exclusively to reduced amniotic fluid volume, since gestational age, placental function, fetal growth restriction, maternal conditions, and other obstetric factors may also influence outcomes. Overall, the results support the importance of careful antenatal assessment, continuous intrapartum fetal monitoring, and individualized obstetric management in pregnancies complicated by oligohydramnios.

Conclusion

Oligohydramnios can have a significant influence on the course of labor and perinatal outcomes. The obtained findings showed a higher frequency of labor induction, prolonged labor, non-reassuring fetal heart rate patterns, meconium-stained amniotic fluid, and operative delivery in pregnancies complicated by oligohydramnios compared with physiological pregnancy. The perinatal findings also demonstrated a greater frequency of lower Apgar scores and the need for additional neonatal observation. These results emphasize the importance of timely diagnosis of oligohydramnios, regular assessment of fetal well-being, careful intrapartum monitoring, and individualized obstetric management. Appropriate selection of the timing and mode of delivery may help reduce adverse maternal and neonatal outcomes.

References

1. Sgayer I., Elafawi M., Braude O., Abramov S., Lowenstein L., Odeh M. Perinatal outcomes of pregnancies with borderline oligohydramnios at term // *Fetal Diagnosis and Therapy*. - 2025. - Vol. 52, No. 1. - P. 59–64.
2. Sgayer I., Kayal R.S., Ganem N., Wolf M.F., Lowenstein L., Odeh M. Association between borderline amniotic fluid levels and adverse perinatal outcome: systematic review and meta-analysis // *Ultrasound in Obstetrics & Gynecology*. - 2025. - Vol. 66, No. 5. - P. 562–570.
3. Dammer U., Pretscher J., Weiss C., Schneider M., Faschingbauer F., Beckmann M.W., Kehl S. Perinatal outcome in pregnant women with isolated oligohydramnios diagnosed with the single deepest pocket method // *In Vivo*. - 2024. - Vol. 38, No. 2. - P. 754–760.
4. Shrem G., Nagawkar S.S., Hallak M., Walfisch A. Isolated oligohydramnios at term as an indication for labor induction: a systematic review and meta-analysis // *Fetal Diagnosis and Therapy*. - 2016. - Vol. 40, No. 3. - P. 161–173.
5. Rossi A.C., Prefumo F. Perinatal outcomes of isolated oligohydramnios at term and post-term pregnancy: a systematic review of literature with meta-analysis // *European Journal of Obstetrics & Gynecology and Reproductive Biology*. - 2013. - Vol. 169, No. 2. - P. 149–154.
6. Rabie N., Magann E., Steelman S., Ounpraseuth S. Oligohydramnios in complicated and uncomplicated pregnancy: a systematic review and meta-analysis // *Ultrasound in Obstetrics & Gynecology*. - 2017. - Vol. 49, No. 4. - P. 442–449.
7. Morris R.K., Meller C.H., Tamblyn J., Malin G.M., Riley R.D., Kilby M.D., Robson S.C., Khan K.S. Association and prediction of amniotic fluid measurements for adverse pregnancy outcome: systematic review and meta-analysis // *BJOG: An International Journal of Obstetrics & Gynaecology*. - 2014. - Vol. 121, No. 6. - P. 686–699.



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8. Yadav A., Yadav P., Deshmukh K.P., Kamath A., Goyal C., Prakash A., Gandhi A.P.
Effect of oral hydration therapy on amniotic fluid index and maternal-neonatal outcomes in pregnant women with oligohydramnios: a systematic review and meta-analysis // Journal of Perinatal Medicine. - 2025. - Vol. 53, No. 7. - P. 861–870.