OPEN ACCESS

Scholars International Journal of Obstetrics and Gynecology

Abbreviated Key Title: Sch Int J Obstet Gynec
ISSN 2616-8235 (Print) |ISSN 2617-3492 (Online)
Scholars Middle East Publishers, Dubai, United Arab Emirates
Journal homepage: https://saudijournals.com

Original Research Article

Amniotic Fluid Index in Post Date Pregnancy and Its Perinatal Outcome

Dr. Utkranti Masal[1*], Dr. Payal Jadhavar[2], Dr. Deepak Kamat[3], Dr. Vidyadhar Bangal[4]

[1]Postgraduate Resident, Pravara Institute of Medical Sciences, Loni
[2]Postgraduate Resident, Pravara Institute of Medical Sciences, Loni
[3]Professor and Guide, Pravara Institute of Medical Sciences, Loni
[4]Professor and Head of Dept. of Gynecology, Pravara Institute of Medical Sciences, Loni

DOI: https://doi.org/10.36348/sijog.2025.v08i05.003 | **Received:** 19.01.2025 | **Accepted:** 24.02.2025 | **Published:** 12.05.2025

***Corresponding author:** Dr. Utkranti Masal
Postgraduate Resident, Pravara Institute of Medical Sciences, Loni

Abstract

Introduction: One key aspect of fetal assessment is the measurement of amniotic fluid volume (AFV) which has been linked to various pregnancy complications. Postdated pregnancies those extending beyond 40 weeks of gestation present significant risks such as fetal distress, oligohydramnios, meconium staining, macrosomia and fetal post-maturity syndrome. Management of these pregnancies varies with some advocating expectant monitoring while others recommend induction of labor to mitigate risks. Ultrasound assessments like the amniotic fluid index (AFI) are crucial in guiding decisions about timing and mode of delivery, balancing the risks of prolonged pregnancy with those of premature birth. The aim of this study was to evaluate the AFI in postdated pregnancies and assess the associated maternal and fetal outcomes at Pravara Rural Hospital (PRH), Loni. ***Materials and Methods:*** This descriptive cross-sectional study was conducted at PRH, Loni with a sample size of 220 postdated pregnant women over two years. The inclusion criteria were women aged 18-35 years with a single live intrauterine gestation, cephalic presentation, and gestational age >40 weeks, who provided informed consent. The women underwent history-taking, obstetric examination and investigations including ultrasound and fetal Doppler. Delivery outcomes, including Apgar scores, birth weight, NICU admissions, and perinatal follow-up were recorded. ***Results:*** Among 220 participants, 92.72% were under 20 years old, with a mean age of 19.49 ± 1.44 years. Meconium-stained liquor occurred in 55.91% of cases. Most deliveries were vaginal (79.55%), followed by LSCS (16.36%). The mean birth weight was 3.03 ± 0.37 kg with 50.45% of infants having an Apgar <7. Maternal complications included atonic PPH (2.73%) and perineal tear (2.27%). Fetal complications included meconium aspiration syndrome (4.09%) and perinatal mortality (4.09%). ***Conclusion:*** Postdated pregnancies carry significant risks. Early assessment and careful monitoring, along with timely interventions, improve both maternal and fetal outcomes.

Keywords: post-date, outcome, pregnancy.

INTRODUCTION

The health and welfare of the mother and the unborn child are both important considerations in contemporary obstetrics. The cornerstones of contemporary perinatal medicine are the identification of a foetus at risk for harm or death in utero, measuring that risk, weighing it against the danger of neonatal problems from prematurity, and figuring out the best time and method of intervention. An essential component of foetal assessment is the clinical measurement of amniotic fluid volume (AFV), as variations in this volume have been linked to a number of pregnancy problems. For the developing foetus, amniotic fluid creates a protective environment that insulates it from physical and biological harm. The International Federation of Gynaecology and Obstetrics and the World Health Organization both recognize the phrases postdate, post term, post maturity, and prolonged pregnancy to refer to pregnancies that extend past due dates (anticipated dates of delivery)

Postdated pregnancies, occurring beyond 40 weeks gestation, pose significant risks to both mother and fetus, including increased rates of fetal distress, oligohydramnios, meconium staining, macrosomia, and fetal post maturity syndrome, often necessitating cesarean delivery.

Management approaches vary widely, with some advocating expectant monitoring while others recommend induction of labor to mitigate these risks. Amniotic fluid assessment, particularly via ultrasound methods like the amniotic fluid index (AFI), plays a crucial role in evaluating fetal health and predicting adverse outcomes such as meconium staining and low birth weight. Clinicians use AFI measurements to guide decisions on timing and mode of delivery, aiming to balance the risks of prolonged pregnancy against those of premature birth. Future research is needed to refine guidelines and improve outcomes in postdated pregnancies. The objective of the present study was to study aimed at finding out the outcome of post-dated pregnancies.

MATERIALS AND METHODS

The study was conducted in the Obstetrics and Gynecology department at Pravara Rural Hospital, Loni, to evaluate the outcomes of postdated pregnancies (gestational age >40 weeks) in antenatal women. It was a descriptive cross-sectional study with a sample size of 220, using purposive sampling over two years. Data were analyzed using statistical tests to assess maternal and fetal outcomes, including perinatal complications, interventions, and post-delivery follow-up.

The inclusion criteria were pregnant women aged 18-35 years with a single live intrauterine gestation, cephalic presentation, gestational age >40 weeks, and intact membranes, who provided written informed consent. These women underwent detailed history-taking, general and obstetric examinations, and routine investigations. Obstetric ultrasound and fetal Doppler were performed for expectant management, and patients were monitored with continuous fetal heart rate tracking and amniotic fluid index measurements. Exclusion criteria included ruptured membranes, multiple gestations, high-risk conditions, fetal malformations, and certain medications.

After informed consent, delivery outcomes, including amniotic fluid color, Apgar scores, birth weight, and NICU admissions, were recorded. Perinatal outcomes were followed for 28 days after delivery. The data were documented in a study proforma, and statistical analysis was performed. The study aimed to provide insights into the management and outcomes of postdated pregnancies to improve obstetric care and fetal well-being.

RESULTS

In the present study, total 220 mothers were studied and among them 92.72% of mothers were under 20 years old (mean age 19.49 ± 1.44 years). Most were multiparous (54.55%).

Table 1: Amniotic fluid Index (AFI)

AFI	Frequency	Percentage	Mean ±SD
≤5	137	62.3	5.1±1.7
>5	83	37.7	
Total	**220**	**100**	

The majority of patients, 137 (62.27%), have an AFI ≤ 5 cms followed by AFI > 5 cms was observed in 83 (37.73%). These data reveals that 14.09 % cases were having severe oligohydramnios (AFI <3 cm). The AFI levels often varies in post-dated pregnancies, which is critical for optimal mother and fetal health

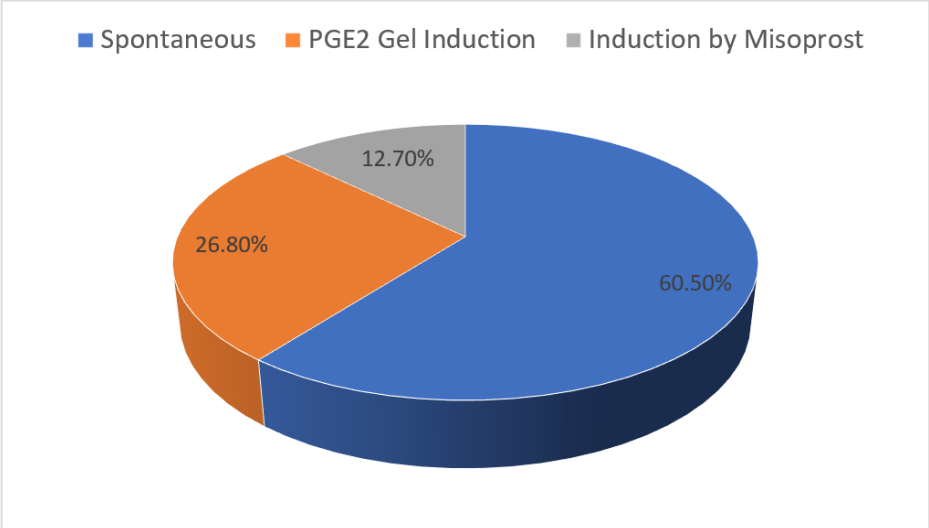

Figure 1: Type of labour

Above table shows that in most of cases 133 (60.45%) were having spontaneous labour followed by PGE2 Gel Induction done in 59 (26.82%) of cases and remaining cases 28 (12.73%) induction of labour was done by tab. Misoprostol.

Table 2: Pregnancy outcome

Parameter	Frequency	Percentage
Meconium stained liquor	123	55.9
Mode of Delivery		
Vaginal	175	79.5
Vaccum	9	16.4
LSCS	36	4.1
APGAR score <7	111	50.4
NICU Admission		
Required	120	54.5
Maternal complications		
Atonic PPH	6	2.7
Perineal tear	5	2.2
Traumatic PPH	4	1.8
Fetal complications		
Meconium aspiration	9	4.1
Respiratory distress	4	1.8
Macrosomia	3	1.4
Shoulder dystocia	1	0.5

In the study, meconium-stained liquor was observed in 55.91% of the cases. Most deliveries were normal vaginal deliveries (79.55%), followed by LSCS (16.36%) and vacuum deliveries (4.1%). The mean birth weight was 3.03 ± 0.37 kg, with 50.45% of infants having an Apgar score of less than 7 and 54.55% requiring NICU care. Maternal complications included atonic postpartum hemorrhage (PPH) in 2.73% of cases, perineal tears in 2.27%, and traumatic PPH in 1.82%.

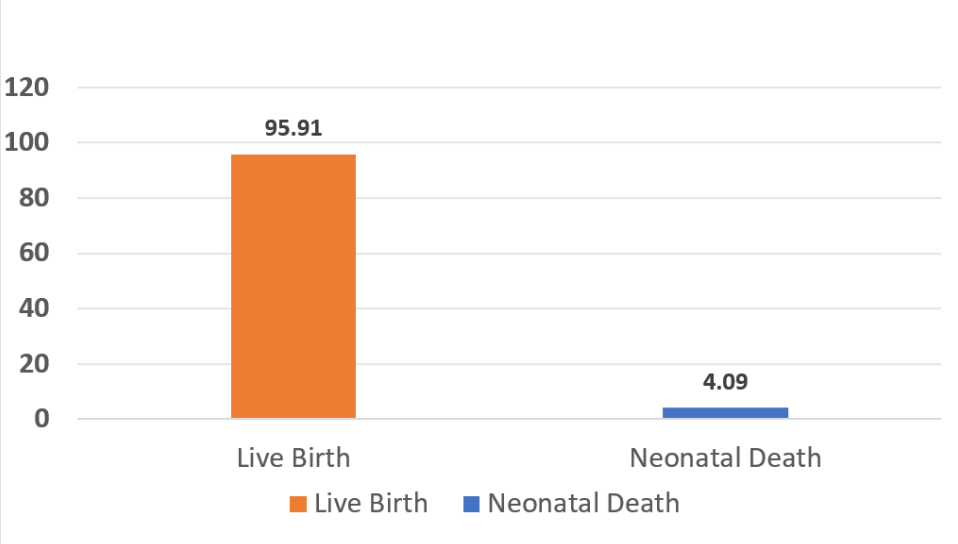

Figure 2: Fetal outcome

Fetal Complications:

Meconium aspiration syndrome (4.09%), perinatal mortality 4.09%; no maternal mortality.

DISCUSSION

In the present study, a total of 220 mothers were analyzed, with 92.72% of postdated mothers being under 20 years of age, having a mean age of 19.49 ± 1.44 years.

As per Tippoji *et al.*, [6] maximum postdated women lie in the age group of 21-25 yrs. and mean age of the all patients was 22.4 ± 3.16. Also study findings by Chanu NS. *et al.*, [7] reported the mean age was 29.21 years with a SD of 4.45 years.

In present study the majority of patients, 137 (62.27%), have an AFI ≤ 5 cms followed by AFI > 5 cms was observed in 83 (37.73%). These data reveals that 14.09 % cases were having severe oligohydramnios (AFI <3 cm). The AFI levels are often varies in post-dated pregnancies, which is critical for optimal mother and fetal health.

The present study showed that meconium-stained liquor was observed in 55.91% of the cases. The

majority of deliveries were normal vaginal deliveries (79.55%), followed by LSCS in 16.36% and vacuum deliveries in 4.1%. The mean birth weight was 3.03 ± 0.37 kg, with 50.45% of infants having an Apgar score of less than 7, and 54.55% requiring NICU care. Maternal complications included atonic postpartum hemorrhage (2.73%), perineal tear (2.27%), and traumatic PPH (1.82%). Fetal complications included meconium aspiration syndrome (4.09%) and perinatal mortality (4.09%), while no maternal mortality was reported.

In study by Chanu NS. *et al.,* [7] spontaneous delivery was high (70.4%) as compared to Misoprostol induction (19.8%) & Dinoprostone gel induction (9.9%). Study conducted by Tippoji *et al.,* [6], 20% patients went in for spontaneous labour, 51% patients went in for induction of labour by Foley/Gel Induction, 29% patients were taken up for LSCS. Some of these results were correlated to our study findings. In the study by Singh N. *et al.,* [8] maximum cases (66%) were delivered normally, caesarean section were performed in 32% while in 2% instrumental delivery were performed. Shinge N *et al.,* [9] studied that maximum patient (53.7%) underwent spontaneous vaginal delivery, 9.5% patients required instrumental delivery and 37% patients required caesarean section as mode of delivery.

Sharma HK. *et al.,* [10] reported meconium-stained liquor in 25% of participant and 6% had PPH. Contrary to our findings Tippoji *et al.,* [6] 75% cases had clear amniotic fluid and 25% had meconium stained amniotic fluid. In study conducted by Patel N *et al.,* [11] maximum morbidity was because of perineal tears/cervical tears in 10 patients (34.44%) and prolonged labour/shoulder dystocia in 10 patients (34.44%) followed by postpartum hemorrhage in 6 patients (20.47%). In study by Dobariya PV *et al.,* [12] the reported the Apgar scores < 7 in 11.25% of neonates, Sharma HK. *et al.,* [10] reported <7 score in 12.5% cases with a perinatal mortality of 3.6%.

CONCLUSION

This study concludes that postdate pregnancies are high-risk, often presenting with oligohydramnios and increased incidence of meconium-stained liquor (55.91%). Fetal distress (56.67%) frequently leads to cesarean sections. Early third-trimester AFI assessment, biophysical profiles, and careful fetal monitoring are crucial and guide decisions regarding induction and delivery methods. Timely interventions guided by ultrasound and fetal heart rate monitoring reduce perinatal complications. Access to neonatal intensive care improves outcomes, minimizing cesarean rates and enhancing maternal and neonatal health in postdate pregnancies.

REFERENCES

1. Baker, P. N., & Kenny, L. (Eds.). (2011). *Obstetrics by ten teachers*. CRC Press.
2. Fernando, A., Daftary, S. N., & Bhide, A. G. (2008). *Practical Guide to High-risk Pregnancy and Delivery: A South Asian Perspective*. Elsevier India.
3. Heimstad, R., Romundstad, P. R., & Salvesen, K. Å. (2008). Induction of labour for post-term pregnancy and risk estimates for intrauterine and perinatal death. *Acta obstetricia et gynecologica Scandinavica*, *87*(2), 247-249.
4. Caughey, A. B., Stotland, N. E., Washington, A. E., & Escobar, G. J. (2007). Maternal and obstetric complications of pregnancy are associated with increasing gestational age at term. *American journal of obstetrics and gynecology*, *196*(2), 155-e1.
5. Sarmah, H., Borah, B. K., Roy, D. K., & Ghosh, T. Assessment of maternal and perinatal outcome in postdated pregnancies in a tertiary care center.
6. Tippoji J., Gade R., B. Sweethi. & R. Padma Latha. (2022). Perinatal Outcomes in Amniotic Fluid Index in Postdated Pregnancies at Tertiary Care Center, Karimnagar. *IJTPR*. *12*(5); 68-75.
7. Chanu, N. S., Singh, C. D., & Singh, T. D. (2023). POSTDATED PREGNANCY AND ITS PERINATAL OUTCOME-A CLINICAL STUDY AT A TERTIARY CARE CENTRE. *management*, *8*, 10.
8. Karmakar, S., Bid, S., & Maiti, T. K. (2021). Effects of induction of labor on maternal and perinatal outcome in postdated nulliparous pregnancy. *Journal of South Asian Federation of Obstetrics and Gynaecology*, *13*(2), 106-110.
9. Shinge, N., MM, V. K., & Prashanth, S. (2013). Comparative study of maternal & fetal outcome in pregnancies of gestational age 40 completed weeks and beyond. *Journal of Evolution of Medical and Dental Sciences*, *2*(25), 4509-4516.
10. Sarmah, H., Borah, B. K., Roy, D. K., & Ghosh, T. Assessment of maternal and perinatal outcome in postdated pregnancies in a tertiary care center.
11. Patel, N., & Modi, P. (2017). A Study of Maternal and Fetal Outcome in Postdate Pregnancy. *Int J Sci Res*, *6*(9), 2015-8.
12. Dobariya, P. V., Shah, P. T., & Ganatra, H. K. (2017). Feto-maternal outcome in pregnancy beyond 40 weeks. *Int J Reprod Contracept Obstet Gynecol*, *6*(2), 527-31.