

Evaluating the Risk Factors and Outcomes of Postdated Pregnancy: A Clinicopathological Perspective

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Abstract:

Background: Postdated pregnancy (gestation over 42 weeks) is recognized as being associated with increased maternal and fetal risk as a result of declining placental function and increased incidence of macrosomia, complications of labor, and perinatal morbidity.

Aim: To assess the risk factors, maternal and fetal outcomes and clinicopathological associations in postdated pregnancies compared with term pregnancies.

Methods: A prospective observational study was conducted over one year at the Department of Obstetrics and Gynaecology, Phulo Jhano Medical College & Hospital, Dumka, Jharkhand, India, which involved 90 women. Cases (n=45) were those who had a gestational age of greater than 40 weeks when they were delivered, whereas the controls (n=45) delivered between 37-40 weeks. Data collected from labour room admission regarding demographic, parity, method of delivery, maternal and other complications and stillbirths was analyzed in SPSS v27 with p<0.05 regarded as statistically significant.

Results: Primigravida were more prevalent in cases (62% vs 52%). The cesarean section rate was almost double in cases (28% vs 14%), with fetal distress and meconium-stained liquor as the most frequent indications. Cases reported more maternal complications: postpartum hemorrhage (16% vs 6%) and sepsis (12% vs 4%). The fetal outcomes also experienced worse outcomes in postdated pregnancies: those admitted to the NICU (14% vs 8%), fetal asphyxia (12% vs 6%) and one intrauterine death.

Conclusion: Postdated pregnancy is associated with increased intervention and maternal morbidity and adverse neonatal outcomes. Regular follow-up and appropriate obstetric intervention are very important in order to minimize complications in postdated pregnancies.

Keywords: Postdated Pregnancy, Maternal Morbidity, Fetal Distress, Cesarean Section, NICU Admission, Clinicopathological Correlate.

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Introduction

Post-term or post-date pregnancy, which is clinically defined as pregnancy of more than 294 days or 42 weeks of completed gestation, remains an issue in obstetric practice due to its effect on the health of the mother and fetus [1]. Its prevalence globally is estimated at up to 10% of all pregnancies, an overwhelming majority of obstetric cases. Despite the significant advances in antenatal surveillance,

intrapartum evaluation, and perinatal management, post-dated pregnancy still remains associated with an elevated risk of poor maternal and fetal outcome. Management of post-term pregnancy at the clinical level must be carefully planned, as the choice to induce or continue expectant management is based on balancing the risks of each approach [2].

Epidemiological research evidence has consistently demonstrated that postdated pregnancy is associated with increased risk for fetal and neonatal morbidity and mortality and increased maternal morbidity. Due to the multiple risks to the fetus, risks encompass metabolic disturbances, increased susceptibility to intrapartum complications, and potential long-term sequelae. Similarly, risks to the mother are significant, with increased risk of induction or operative delivery, and postpartum complications. The above evidence emphasizes the need to acquire a detailed insight into the pathophysiological responses to post-dated pregnancy to inform effective clinical management strategies [3].

Pathophysiologically, postdated pregnancies are characterized by a discrepancy between ongoing fetal growth and plateau placental growth and function. This placental functional impairment is associated with decreased nutrient and oxygen transfer, which may result in compromised fetal circulation and intrauterine distress. Extended gestation also increases the risk of macrosomia, birth weight of over 4,000 grams—and this is associated with metabolic derangement, in the form of hypoglycemia and polycythemia [4]. Macrosomic infants have a greater chance of shoulder dystocia, brachial plexus injury, and NICU admission. These complications account for much of perinatal morbidity and, in severe cases, mortality.

Maternal morbidity in postdated pregnancy is also well characterized. There is a clear association between extended gestation and increasing rates of labor dystocia, often due to cephalopelvic disproportion caused by increased fetal size. Other complications are increased perineal trauma—particularly in context of instrumental delivery, increased rates of operative vaginal delivery and cesarean section. These interventions, although often unavoidable, are associated with extended recovery periods, increased postpartum pain, increased risk of postpartum hemorrhage, and surgical complications in the form of wound infection and thromboembolic events. Such adverse effects not only impact maternal well-being but also contribute to extended hospitalization and increased healthcare expenditure [5].

Fetal consequences of post-dated pregnancy are beyond macrosomia. Postdated pregnancy also has a higher risk of mechanism-stained amniotic fluid, which is at risk of meconium aspiration syndrome and ensuing respiratory distress. Prolonged gestation has been associated with increased fetal distress during labor, perinatal asphyxia, and intrauterine fetal demise. These conditions require intense fetal monitoring throughout the second half of pregnancy by modalities such as non-stress testing, biophysical profiles, and Doppler

velocimetry to avoid delays in the diagnosis of fetal compromise.

Clinically and pathologically, postdated pregnancy morbidity is directly proportional to alterations that are recognizable morphologically and functionally in the placenta. Histopathological alterations can routinely consist of increased rates of placental infarction, calcification, and syncytial knotting, all signs of an aging, less efficient placenta. These alterations are histo-pathologically related to the physiological decline in placental transport function and provide a mechanistic explanation for the apparent increase in fetal distress and perinatal morbidity. These alterations are critical in guiding appropriate timely obstetric intervention to minimize maternal and fetal risk.

Because the spectrum of complications of postdated pregnancy is so wide, clinicopathological evaluation is of particular benefit to obstetric practice and to clinical research. Even though induction of labor at less than 42 weeks' gestation is recommended by most clinical guidelines, choices must be made dependent on maternal preference, cervical maturity, and availability of monitoring facilities. This is particularly the case in resource-poor settings, where continuous fetal monitoring is not always possible, thereby increasing expectant management risks.

The present study has been undertaken to critically evaluate postdated pregnancy from a clinicopathological perspective, with a focus to elucidate the socio-epidemiological determinants of its occurrence, define its obstetric implications, and ascertain its impact on perinatal morbidity and mortality. Systematically evaluating these determinants, the present study is oriented to contribute useful inputs to existing literature and inform evidence-based interventions for post-dated pregnancy management. The findings are likely to have pertinent clinical implications for obstetricians, neonatologists, and public health policymakers, primarily in situations where postdated pregnancy is a leading cause of unfavorable maternal and fetal outcomes.

Rationale of Study: With no potential risk of life of patient in this study, we benefit by getting data of postdated pregnancy deliveries and its outcome, like the need of more caesarian delivery or normal delivery and their complications. In cases of foetal distress, meconium stained liquor, asphyxiated babies or IUD the proper measure can be taken to avoid consequences.

Methodology

Study Design: This was a prospective observational study aimed at evaluating the risk factors and outcomes of postdated pregnancy from a clinicopathological perspective.

Study Area: The study was conducted in the Department of Obstetrics and Gynecology, Phulo Jhano Medical College and Hospital, Dumka, Jharkhand, India.

Study Duration: The study was carried out over a period of one year, from January 2025 to December 2025.

Sample Size: A total of 90 patients admitted to the labour room emergency during the study period were included.

Study Population: The study population consisted of antenatal women admitted for delivery who met the inclusion criteria. Participants were divided into two groups based on their gestational age at admission: the control group included women with gestational age between 37–40 weeks, while the study group comprised of women with gestational age greater than 40 weeks.

Inclusion Criteria

- 1) Female with pregnancy of more than 294 days or 42 weeks from LMP or First Trimester USG findings.
- 2) Singleton pregnancy
- 3) Cephalic presentation
- 4) Absence of other maternal complications
- 5) Those who gave consent for the study

Exclusion Criteria

- 1) Previous cesarean section
- 2) Gestational hypertension
- 3) Gestational diabetes mellitus
- 4) Malpresentation
- 5) Placental abruption
- 6) Placenta praevia
- 7) Maternal anemia
- 8) Fetal anomalies
- 9) Those who did not gave consent for the study

Data Collection: This is a prospective study. Data was collected from patients attending Labour Room

Emergency. Maternal Characteristics including maternal age, maternal parity and gestational age was documented, while complications of pregnancy such as oligohydramnios and intrauterine growth restrictions were noted. Maternal outcome was reported identifying the need for caesarean sections, postpartum haemorrhage, infection(sepsis). Fetal outcome was reported as intrapartum asphyxia, Intra Uterine Fetal Death, admission to Neonatology (NICU). All documentation was collected from predesign performs for consistency and completeness.

Procedure: Relevant patient records were reviewed and data were extracted based on the study inclusion and exclusion criteria. Patients were classified into the control or study group based on gestational age at admission. Outcome was compared between the two groups, looking for any association between post-dated pregnancy and negative maternal or fetal events.

Statistical Analysis: Data was compiled and analyzed with Statistical Package for the Social Sciences (SPSS) version 27. Categorical variables were expressed as frequencies and percentages, and continuous variables were expressed as mean $\pm$ standard deviation (SD). Chi-square test was employed to compare categorical data between groups. A p-value of <0.05 was considered statistically significant.

Result

Table 1 shows that the majority of both cases and controls belonged to the 26–30 years age group, comprising 48% (22 cases) and 50% (22 controls) respectively. The 20–25 years group accounted for 28% (13 cases) and 30% (14 controls), while the 31–35 years group represented 24% (10 cases) and 20% (9 controls). The mean age was slightly higher in cases (28 ± 3.30 years) compared to controls (27 ± 3.169 years), indicating a relatively similar age distribution between the two groups

Table 1: Age-wise Distribution of Cases and Controls		
Age (Years)	Number of Cases (%)	Number of Controls (%)
31–35	10 (24%)	9 (20%)
26–30	22 (48%)	22 (50%)
20–25	13 (28%)	14 (30%)
Total	45	45
Mean $\pm$ SD	28 ± 3.30	27 ± 3.169

Table 2 indicates that among the cases, 26% (12) had a gestational age of 41–42 weeks and 74% (33) were between 40–41 weeks, whereas all controls (100%, 45) delivered between 37–40 weeks. This clearly shows that the case group exclusively comprises postdated pregnancies, while the control group consisted entirely of term pregnancies.

Table 2: Distribution by Gestational Age		
Gestational Age	Number of Cases (%)	Number of Controls (%)
41–42 weeks	12 (26%)	0 (0%)
40–41 weeks	33 (74%)	0 (0%)
37–40 weeks	0 (0%)	45 (100%)
Total	45	45

Table 3 shows that primigravida women constituted a higher proportion in the case group, accounting for 62% (28), compared to 52% (23) in the control group. In contrast, multigravida women made up 38% (17) of cases and 48% (22) of controls, indicating a slightly greater representation of first-time mothers among postdated pregnancies

Table 3: Distribution According to Parity		
Parity	Number of Cases (%)	Number of Controls (%)
Multigravida	17 (38%)	22 (48%)
Primigravida	28 (62%)	23 (52%)
Total	45	45

Table 4 reveals that normal vaginal delivery (NVD) was more common in controls (84%, 38) than in cases (64%, 29). Cesarean sections (LSCS) were performed in 28% (12) of cases compared to 14% (6) of controls, while instrumental deliveries were also higher in cases (8%, 4) than controls (2%, 1), indicating a greater need for operative interventions in postdated pregnancies.

Table 4: Distribution According to Type of Delivery		
Type of Delivery	Number of Cases (%)	Number of Controls (%)
LSCS	12 (28%)	6 (14%)
Instrumental delivery	4 (8%)	1 (2%)
NVD	29 (64%)	38 (84%)
Total	45	45

Table 5 shows that the most common indication for LSCS among cases was acute fetal distress or meconium-stained liquor 14%, (6), followed by cephalopelvic disproportion 6%, (2) and failed induction 4%, (2). Non-reactive CTG and non-progress of labour were less frequent, accounting for 2% (1) each. In controls, the main reasons for LSCS were non-progress of labour 6%, (3) and acute fetal distress/MSL 4%, (2), with non-reactive CTG observed in 2% (1). This indicates that fetal distress-related causes were more frequent in postdated pregnancies.

Table 5: Indications of LSCS		
Indication of LSCS	Number of Cases (%)	Number of Controls (%)
CPD	2 (6%)	0 (0%)
Non-reactive CTG	1 (2%)	1 (2%)
Non-progress of labour	1 (2%)	3 (6%)
Failed induction	2 (4%)	0 (0%)
Acute fetal distress/MSL	6 (14%)	2 (4%)
Total	12	6

Table 6 shows that maternal complications were more frequent in cases than in controls, with postpartum hemorrhage (PPH) occurring in 16% (7) of cases versus 6% (3) of controls, and sepsis in 12% (5) of cases compared to 4% (2) of controls. Additionally, LSCS, considered here as a procedural complication, was performed in 28% (12) of cases versus 14% (6) of controls, indicating a higher overall complication burden in postdated pregnancies

Table 6: Maternal Complications		
Maternal Complication	Number of Cases (%)	Number of Controls (%)
Sepsis	5 (12%)	2 (4%)
PPH	7 (16%)	3 (6%)
LSCS	12 (28%)	6 (14%)
Total	24	11

Table 7 indicates that adverse fetal outcomes were more frequent in cases, with intrauterine death (IUD) occurring in 2% (1) of cases and none in controls. NICU admissions were higher in cases 14%, (6) compared to controls 8%, (4), and fetal asphyxia (APGAR < 6/10) was observed in 12% (5) of cases versus 6% (3) of controls. A greater

proportion of controls 86%, (38) had no asphyxia compared to cases 72%, (33), reflecting a higher incidence of compromised neonatal outcomes in post-dated pregnancies

Table 7: Foetal Outcome		
Foetal Outcome	Number of Cases (%)	Number of Controls (%)
IUD	1 (2%)	0 (0%)
Admission to NICU	6 (14%)	4 (8%)
Fetal asphyxia (APGAR < 6/10)	5 (12%)	3 (6%)
No asphyxia	33 (72%)	38 (86%)
Total	45	45

Discussion

The present study estimated the prevalence and severity of anemia among antenatal women, by age taking into consideration the maternal and neonatal outcomes in postdated pregnancy in comparison of the cases and controls. Our findings demonstrated that the most frequent age group in both study groups was the 26–30 years age group, and 48% of the cases and 50% of the controls had mean ages of 28 ± 3.30 years and 27 ± 3.169 years respectively. This is slightly higher than that of the mean maternal ages of Mahapatro (2015) (24.19 ± 3.30 years) and Eden et al. (1982) (25.8 years) and could be suggestive of a possible temporal trend towards later maternal age at birth in our study group [6,7]. The age profile of our cohort is consistent with the peak reproductive years, but the slightly higher mean age could be suggestive of socioeconomic, delayed marriage, or higher educational attainment among contemporary antenatal women.”

Parity distribution in this study showed that primigravida women were more common in the cases (62%) than controls (52%). The findings are consistent with those of Mahapatro (2015) and Alexander et al. (2000) [6,8], who also reported higher prevalence among primigravida in postdated pregnancy. Greater vulnerability among primigravidas could be due to longer latent labor duration, higher rates of induction, and reduced previous cervical favorability, which could result in higher rates of intervention. Some earlier studies, however, have reported a more balanced parity distribution, perhaps because there were differences in the demographics in their population samples.

Distribution of gestational age in our study revealed a remarkable discrepancy between the cases and controls. The controls all delivered between the 37–40 weeks range, whereas 74% of the cases delivered between the 40–41 weeks range and 26% between the 41–42 weeks range. The trend is in line with earlier work which has identified prolonged gestation as an important risk factor for maternal and perinatal complications (Alexander et al., 2000; Singhal, 2001) [8,9]. The isolated single occurrence of post-term gestation in our case group also supports the correlation between prolonged pregnancy and the occurrence of complications like

labor dystocia, fetal distress, and rising rates of cesarean section.

Concerning mode of delivery, normal vaginal delivery was again the most common mode in the two groups but more common in controls (84%) than in cases (64%). Cesarean section delivery was much more common in cases (28% vs. 14% in controls), as was also noted by Mahapatro (28.9%) [6] and more than by Singhal (14.7%) [9] and Kaur et al. (1997) [10]. Frequencies of instrumental deliveries were also higher in cases (8% vs. 2%), as were also noted by Mahapatro (5.72%) and Davinder et al. (10.35%) [6,10]. Increased surgical and assisted deliveries in cases may be indicative of the higher incidence of labor complications in post-term pregnancies.

While determining the indications for cesarean delivery, the most common cause was acute fetal distress, e.g., meconium-stained liquor (14% in cases vs. 4% in controls) in our study. The same is observed by Bhriegu et al. (2017) [11], where they documented meconium-stained liquor with fetal distress as the most common indication (23.5%), and Mahapatro (2015) [6], where they documented a much greater percentage (65.5%). Cephalopelvic disproportion and failed induction were observed in our cases only, indicating the mechanical and physiological problems more frequently encountered with prolonged gestation.

Maternal complications among the case group were significantly greater, with 16% having postpartum hemorrhage (compared to 6% in the controls) and 12% having sepsis (compared to 4% in the controls). This is in keeping with Bhriegu et al. (2017) [11] and Singhal (2001) [9], both of whom reported increased rates of postpartum hemorrhage, perineal trauma, and infection morbidity in postdated pregnancies. Increased rates of LSCS in our study would have put the patients at increased postoperative complications, while prolonged labor and operating procedures would have put them at risk of sepsis.

Fetal outcomes were also typically different between groups. NICU admissions were more frequent in cases (14% vs. 8%), and fetal asphyxia (APGAR <6 at 10 minutes) was more frequent (12% vs. 6%). One intrauterine death occurred in the case group and none in the control group. These findings

are consistent with Alexander et al. (2000) [8] and Singhal (2001) [9] that reported elevated NICU admissions and low Apgar scores in post-term pregnancy. Fetal distress and asphyxia occurred more frequently in our study because of placental insufficiency, meconium aspiration, and intrapartum hypoxia—well-documented conditions in the literature to be more frequent after 40 weeks gestation.

Overall, our results support earlier reports of an association between post-term pregnancy and higher rates of obstetric intervention, maternal complication, and perinatal morbidity. Our study also found slightly lower rates of cesarean section and instrumental delivery compared to some earlier reports, perhaps because of improved antenatal surveillance, policy-driven induction protocols, and intrapartum management in our tertiary referral unit. Such observations suggest that, while risks unique to protracted gestation remain a dominant risk, innovative management can mitigate some perinatal morbidity from earlier reports.

Conclusion

The study highlights that postdated pregnancy is associated with distinct maternal and fetal risks when compared to term pregnancies. Women with postdated pregnancies showed higher rates of operative and instrumental deliveries, with a notable proportion undergoing cesarean sections primarily for fetal distress and failed induction. Maternal complications such as postpartum hemorrhage and sepsis were more frequent in postdated cases, and adverse fetal outcomes, including fetal asphyxia, NICU admissions, and rare intrauterine deaths, were also observed more often in this group. These findings underscore the importance of close monitoring and timely intervention in postdated pregnancies to minimize adverse outcomes.

References

1. Olesen AW, Westergaard JG, Olsen J. Perinatal and maternal complications related to postterm delivery: A national register-based study, 1978-1993. *Am J Obstet Gynecol* 2003;189:222-227.
2. Caughey AB, Stotland NE, Washington AE et al. Maternal obstetric complications of pregnancy are associated with increasing gestational age at term. *Am J Obstet Gynecol* 2007;196:155.
3. Fernando Arias. Practical guide to high risk pregnancy and delivery 3 Edition; India Harcourt private limited, 2008, 255-270.
4. Rand L, Robinson JN, Economy KE. Post-term induction of labor revisited. *Obstet Gynecol* 2000;96(5 Pt 1):779-83.
5. Norwitz ER, Snegovskikh VV, Caughey AB. Prolonged pregnancy: when should we intervene? *Clin Obstet Gynecol* 2007;50:547-57.
6. Mahapatro A. Fetomaternal outcome in pregnancy beyond 40 weeks. *Int J Pharm Bio Sci* 2015;6:53-8.
7. Eden RD, Gergely RZ, Schiffrin BS, Wade ME. Comparison of antepartum testing schemes for the management of the postdate pregnancy. *Am J Obstet Gynecol* 1982;144:683-92.
8. Alexander JM, McIntire DD, Leveno KJ. Forty weeks and beyond: Pregnancy outcomes by week of gestation. *Obstet Gynecol* 2000;96:291-4.
9. Singhal P. Fetomaternal outcome following postdate pregnancy. A prospective study. *J Obstet Gynecol India*. 2001;51:89-93.
10. Kaur D, Saini AS, Kaur J. Maternal and fetal outcome in postdated pregnancies. *J Obstet Gynecol India* 1997;47:331-4.
11. Bhriegu R, Agrawal M, Hariharan C. Assessment of maternal and perinatal outcome in postdated pregnancy. *J Datta Meghe Inst Med Sci Univ* 2017;12:35-40.