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Original Research Article

Retrospective study of maternal and neonatal outcomes in post-dated pregnancies

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ABSTRACT

Background: Postdated pregnancy is one of the most common obstetric conditions. Pregnancy is a term between 37 weeks to 42 weeks from the last menstrual period (LMP). Postdated pregnancy causes specific hazards to both mother and fetus. Hence, we aimed to assess maternal and fetal outcomes in postdated pregnancy.
Methods: A retrospective analysis of twelve months was done in the department of obstetrics and gynaecology at Al-Ameen medical college, Vijaypura, Karnataka, India. Records of 150 postdated pregnancies were taken in the study.
Results: The study, involving 150 cases, revealed diverse baseline characteristics in postdated pregnancies. Predominantly aged 25-30 (70%), with 85.33% reaching 40-41 weeks' gestation, 65.33% were primigravida. Caesarean indications included cephalopelvic disproportion (10.42%) and meconium-stained liquor with fetal distress (37.50%). Complications, notably postpartum haemorrhage (PPH) (46.67%) and fetal meconium aspiration (39.13%) were observed. Neonatal outcomes showed 10% NICU admission, with 93.33% having APGAR scores >7. This abstract offers concise insights into obstetric characteristics and outcomes in postdated pregnancies.
Conclusions: Early intervention in postdated pregnancies reduces maternal and perinatal complications. Managing postdated pregnancies poses challenges, but careful advice and monitoring mitigate untoward outcomes for both mother and baby.

Keywords: Postdated, Maternal complications, Perinatal complications, LSCS, Instrumental delivery

INTRODUCTION

Pregnancy that extends beyond the conventional 40 weeks of gestation, commonly known as postdate pregnancy, occurs in approximately 4-14% of cases and is recognized by the international federation of gynecology and obstetrics (FIGO) and the world health organization (WHO). The term "post-term" specifically refers to pregnancies that extend to or beyond 42 weeks, amounting to 294 days. This condition is associated with increased obstetric intervention and heightened risks of maternal and fetal morbidity.[1] The precise etiology of postdate pregnancy remains incompletely understood, attributed to multifactorial pathogenesis. Recognized risk factors include maternal age, nulliparity, obesity, genetics, a history of previous postdate pregnancy, and carrying a male fetus.[3] Inaccurate dating of pregnancy often leads to the misdiagnosis of prolonged pregnancy.[4] Reliance on the LMP for estimating the estimated delivery date (EDD) can introduce inaccuracies due to recall bias, irregular cycles, prior use of hormonal contraceptives, and many more.[5] While ultrasound scans can enhance accuracy in early pregnancy, limitations arise in later gestational ages.[4] The combined effects of continued fetal growth and compromised placental development may increase the risk of adverse outcomes.[6] Beyond 40 weeks, the risk of stillbirth rises significantly, with a twofold increase at 42 weeks, escalating to fourfold at 43 weeks and five to sevenfold at 44 weeks.[7,8] Maternal complications of postdate pregnancy encompass increased rates of dystocia, maternal birth lacerations, operative vaginal delivery due to a large baby, and a higher likelihood of caesarean delivery (CD). There is also an elevated risk of infection, wound complications, and PPH.[9,10] In light of these

potential complications, the Royal college of obstetricians and gynaecologists (RCOG) and WHO guidelines advocate for the consideration of induction of labour after 41 weeks. Women who decline induction should be offered expectant management with heightened antenatal monitoring, and induction at the 43rd week is recommended.[11] Studies have demonstrated that elective induction between 40-41 weeks in low-risk women results in lower CD rates and more favourable fetal outcomes compared to expectant management.[12] Nonetheless, no significant differences in neonatal morbidity, mode of delivery, and general outcomes between induced labour at 41 weeks and spontaneous follow-up until 42 weeks in women with unfavourable cervical scores were reported by another study.[13] Therefore, the present study aimed to assess the maternal and fetal outcomes in postdated pregnancy.

METHODS

This retrospective study took place at the department of obstetrics and gynaecology, Al-Ameen medical college and hospital in Vijayapur, Karnataka, India, spanning a duration of 12 months from October 2022 to October 2023. During the study period, 2178 women delivered, of which 150 were postdated deliveries and were included in the study. Inclusion criteria comprised singleton pregnancies, cephalic presentation, absence of maternal complications, and gestation beyond 40 weeks. Exclusions encompassed previous caesarean section, gestational hypertension, gestational diabetes, malpresentation, and abruption. Data on age, parity, gestational age, and maternal complications (e.g., intrauterine growth restriction, oligohydramnios) were collected. Maternal outcomes included caesarean section, PPH, instrumental delivery, and sepsis. Fetal outcomes encompassed intrapartum asphyxia, intrauterine fetal death, neonatal intensive care unit admission, and NICU admission incidence documented. A comprehensive statistical analysis was conducted to elucidate the findings presented in tables and figures. Descriptive statistics, such as frequencies and percentages, were utilized to summarize categorical data, providing the clear overview of the distribution of variables among the study participants.

RESULTS

The study encompassed 150 cases with diverse baseline characteristics. The majority (70%) of participants were aged 25-30, while 20% were below 25 and 10% were above 30. In terms of gestation, 85.33% fell within 40-41 weeks, 0.67% within 37-40 weeks, and 14.00% exceeded 41 weeks. Primigravida constituted 65.33%, multigravida 34.67%, and 83.33% were booked for medical care, with 16.67% remaining unbooked. Delivery modes varied, with 66.67% normal vaginal, 32.00% caesarean, and 1.33% instrumental (Table 1). In the analysis of caesarean indications (Figure 1), 10.42% had cephalopelvic disproportion, 37.50% meconium-stained liquor with fetal distress, 27.08% severe oligohydramnios, 18.75% non-progression of labour, and 6.25% failed induction of labour. These factors reflected diverse obstetric considerations leading to caesarean selection. Complications were observed in 15 cases, primarily PPH (46.67%). Fetal complications occurred in 23 cases, with meconium aspiration in 39.13% (Table 2). Neonatal outcomes (Table 3) indicated 10% NICU admission, while 93.33% had APGAR scores >7, signifying good health. The study provides concise insights into the obstetric characteristics, caesarean indications, and outcomes of mothers and infants in postdated pregnancies.

Table 1: Baseline characteristics of the cases enrolled in the study, (n=150).

Baseline characteristics	N (%)
Age (In years)	
Below 25	30 (20)
25-30	105 (70)
>30	15 (10)
Period of gestation (Weeks)	
37-40	1 (0.67)
40-41	128 (85.33)
>41	21 (14)
Parity	
Primigravida	98 (65.33)
Multigravida	52 (34.67)
Booking status	
Booked	125 (83.33)
Unbooked	25 (16.67)
Mode of delivery	
Normal vaginal delivery	100 (66.67)
Caesarean section	48 (32)
Instrumental delivery	2 (1.33)

Table 2: Feto-maternal complications.

Variables	N (%)
Maternal complications, (n=15)	
PPH	7 (46.67)
Perineal tears	5 (33.33)
Cervical tears	3 (20)
Fetal complications, (n=23)	
Birth asphyxia	5 (21.74)
Macrosomia	3 (13.04)
Hyperbilirubinemia	3 (13.04)
Intrauterine growth restriction	3 (13.04)
Meconium aspiration	9 (39.13)

Table 3: Neonatal outcomes following delivery, (n=150).

Neonatal outcomes	N (%)
NICU admission	15 (10)
APGAR score	
APGAR score <4	2 (1.33)
APGAR 4-7	8 (5.33)
APGAR >7	140 (93.33)

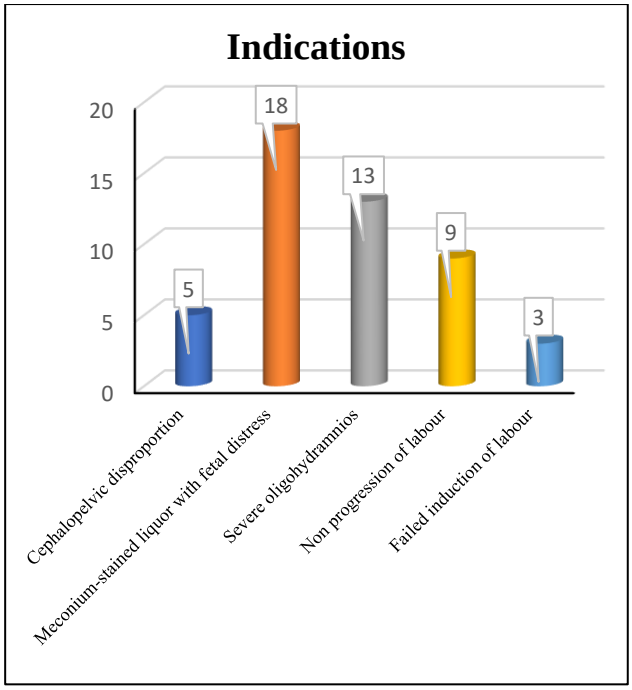

Figure 1: Indications for caesarean section among cases, (n=48).

DISCUSSION

The study encompassed 150 cases, each exhibiting diverse baseline characteristics. In terms of age distribution, 70% of participants were within the 25-30 age range, 20% below 25 years, and 10% above 30 years. Regarding the gestational period, the majority (85.33%) fell within 40-41 weeks, with only 0.67% at 37-40 weeks and 14.00% beyond 41 weeks. Another investigation similarly reported a predominant occurrence of postdated pregnancies in the 25-30 age group (60%).[14] Beischer et al observed a majority in the 25-30 age range among postdated patients.[15] Likewise, Alexander et al and Awoyesuku et al identified a prevalence of patients between 20-30 years. Existing research indicates a predominant occurrence of gestational age around 40 weeks.[16,17] Akhtar et al observed that the majority of patients (52%) fall between 41 to 42 weeks.[18] Similar findings were reported by Dobariya et al emphasizing a concentration of patients within 41 to 42 weeks.[19] Earlier studies also noted a peak in patients between 40- 40.6 weeks.[20,21] These consistent patterns underscore the significance of gestational age in postdate pregnancies, revealing a trend towards pregnancies extending beyond the conventional 40 weeks. These insights contribute to understanding demographic trends in postdate pregnancy without explicitly delving into their broader implications.

In our study, parity data revealed that 65.33% of cases were primigravida, representing first-time pregnancies, with 34.67% being multigravida, indicating multiple pregnancies. The majority (83.33%) were booked, signifying they had sought medical care during pregnancy, while 16.67% remained unbooked. Consistent with our findings, Bansal and others reported a prevalence of primigravida women ranging from 43.6% to 68%.[14,16,17,22] This parity distribution underscores the significance of understanding the obstetric history of postdate pregnancies, offering valuable insights into the demographics of both primigravida and multigravida cases.

Regarding delivery methods in our study, 66.67% experienced normal vaginal delivery, 32.00% underwent caesarean section, and a minimal 1.33% required instrumental delivery. Correspondingly, Bansal reported a caesarean section rate of 36% in their study group.[14] In Mahapatro's study, the rate of lower segment caesarean section (LSCS) was found to be 28.9%.[22] Additionally, Singhal observed an LSCS rate of 14.7%.[23] These diverse rates of delivery modes highlight the variability in approaches to childbirth in postdate pregnancies, emphasizing the importance of understanding and addressing factors influencing the choice of delivery method.

Among the 48 cases analyzed for caesarean section indications, various factors influenced the choice of delivery method. Cephalopelvic disproportion affected 10.42%, highlighting challenges in fetal head and maternal pelvis size matching. Meconium-stained liquor with fetal distress was the primary indication in 37.50%, emphasizing concerns for fetal well-being. Severe oligohydramnios, observed in 27.08%, prompted caesarean section due to associated risks. Non-progression of labour affected 18.75%, contributing to caesarean delivery. Failed labour induction was identified in 6.25%, indicating challenges in initiating or advancing labour artificially. These indications collectively emphasize diverse obstetric considerations guiding caesarean section choice. Similarly, another study identified acute fetal distress, including meconium-stained liquor (28.9%) and cephalopelvic disproportion (22.2%), as common indications. Bhriegu et al found meconium-stained liquor with fetal distress as the most common indication for LSCS (23.5%), while Mahapatro reported fetal distress as the predominant indication (65.5%). Kandalgaonkar and Kose also reported similar findings, reinforcing the consistency of fetal distress as a major factor influencing the decision for caesarean section.[22,24,25] These shared indications across studies underscore the importance of addressing fetal well-being and obstetric challenges in the decision-making process for caesarean delivery.

The analysis of complications considered both maternal and fetal outcomes. Of the 15 cases with maternal complications, PPH emerged as the predominant issue, impacting 46.67% of cases. Perineal tears affected 33.33% of cases, while cervical tears were present in 20.00%, highlighting the spectrum of challenges following caesarean sections. Consistent with our findings, Bansal identified maternal morbidities in 42 cases, with PPH being the most prevalent (n=30).[14] Similarly, the most typical complication was PPH, recorded in 61 cases

(19.4%).[17] Onyebuchi et al reported PPH as the primary maternal complication in 6.8%, and Botcha et al noted PPH in 6%.[5,26] Bhriegu et al reported maternal complications of perineal tear and PPH.[26] The occurrence of PPH may be associated with uterine atony related to induced labour and caesarean sections, suggesting the significance of addressing this complication in the postoperative care of caesarean section patients.

Regarding fetal complications in 23 cases, meconium aspiration, where newborns inhale meconium-stained amniotic fluid, affected the majority (39.13%), followed by birth asphyxia (21.74%). Examining neonatal outcomes in the cohort of 150 cases unveiled various aspects of newborn health. 10% of infants required admission to the neonatal intensive care unit (NICU). The assessment of APGAR scores revealed that the majority (93.33%) had scores greater than 7, indicating overall good health. In another study, 18.4% required NICU admission, with perinatal asphyxia (37.5%) and macrosomia (35.7%) being common indications.[17] Kandalgaonkar and Kose reported NICU admission in 12.5% of neonates, primarily due to respiratory distress syndrome in 33.33% of cases, aligning with findings from Maheshwari et al.[25,27] Bansal showed that 19.2% of neonates were admitted to NICU. Bhriegu et al identified perinatal complications such as fetal distress and meconium aspiration syndrome.[17,24] Similar studies by Singhal and Alexander et al revealed an increased incidence of maternal and perinatal complications, including low Apgar scores and NICU admissions.[16,24] These findings collectively underscore the importance of thorough monitoring and management strategies for neonates following caesarean sections, with a focus on mitigating complications such as meconium aspiration and birth asphyxia.

CONCLUSION

Timely intervention is crucial in postdated pregnancies to reduce maternal and perinatal complications. Postdated pregnancy correlates with perinatal issues such as fetal distress, meconium aspiration syndrome, and fetal asphyxia. Elevated risks of obstetric complications, including PPH, perineal tear, cervical tear, and shoulder dystocia, are observed. The management of postdated pregnancies poses a challenge to obstetricians, but meticulous guidance and monitoring mitigate adverse outcomes. One limitation of this study lies in its retrospective design, which may be susceptible to inherent biases and limitations associated with data collection. Additionally, the study focused on a specific set of complications, and other factors might influence outcomes that were not considered. Future prospective studies with larger sample sizes and diverse populations are warranted to validate and expand upon the findings of this study. Incorporating additional variables and exploring the impact of specific interventions on postdated pregnancies could enhance our understanding. Moreover, a comparative analysis of different management approaches could provide valuable insights for optimizing care in postdated pregnancies.

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