



EFFECTS OF EXTENSION OF PREGNANCY AFTER 40 WEEKS OF GESTATION ON MATERNAL AND FETAL OUTCOME

Dr. Shraddha Patel	Resident, Department of Obstetrics and Gynecology, D.Y. Patil Hospital, Kolhapur, India
Dr. Hrishikesh Joshi	Associate Professor, Department of Obstetrics and Gynecology, D.Y. Patil Hospital, Kolhapur, India
Dr. Mrunal Patil	Resident, Department of Obstetrics and Gynecology, D.Y. Patil Hospital, Kolhapur, India

ABSTRACT **Background:** Pregnancies extending beyond 40 weeks represent a persistent obstetric challenge associated with increased maternal and fetal risks. Post-term pregnancy (PTP), defined as ≥ 42 weeks of gestation, is linked to higher rates of caesarean delivery, fetal distress, meconium aspiration, and neonatal morbidity. This study aimed to evaluate the effects of prolongation of pregnancy beyond 40 weeks on maternal and fetal outcomes in a tertiary-care setting. **Methods:** A hospital-based cross-sectional observational study was conducted over 18 months at D.Y. Patil Hospital, Kolhapur. Fifty-five women with singleton pregnancies exceeding 40 weeks of gestation were enrolled after ethical approval and informed consent. Detailed obstetric history, examination, and investigations were performed. Gestational age was determined from first-trimester ultrasound when available. Maternal and neonatal outcomes—including mode of delivery, labour induction, meconium-stained liquor (MSL), postpartum haemorrhage (PPH), Apgar scores, and neonatal intensive care unit (NICU) admissions—were analyzed using descriptive statistics (SPSS v21). **Results:** The mean maternal age was 24.9 ± 3.9 years, and mean gestational age at delivery was 41.3 ± 1 weeks. Primigravidae constituted 69 % of the cohort. Non-stress testing (NST) was non-reactive in 45 % of cases. Induction of labour was required in 62 %, with oxytocin used in 38 % and prostaglandin in 24 %. LSCS was performed in 72.7 % of women, most commonly for fetal distress (42.5 %) and non-progress of labour (17.5 %). Thick or thin MSL occurred in 45 % of deliveries, and oligohydramnios was present in 47 %. PPH occurred in 33 % of patients. Neonatal complications led to 58 % NICU admissions, primarily due to MSL (50 %) and respiratory distress (19 %). **Conclusion:** Pregnancy extending beyond 40 weeks significantly increases maternal and fetal complications, notably operative delivery, PPH, MSL, and NICU admission. Regular antenatal surveillance, accurate dating, and timely induction between 40–41 weeks can mitigate adverse outcomes.

KEYWORDS : Post-term Pregnancy, Maternal Outcome, Fetal Outcome, Caesarean Section, Meconium-stained Liquor, Nicu Admission

INTRODUCTION

Pregnancy beyond 40 weeks of gestation continues to pose an important clinical and public-health concern. Post-term pregnancy (PTP) is defined by the American College of Obstetricians and Gynecologists (ACOG) as gestation reaching 42 weeks (294 days) or EDD plus 14 days (1). Such prolonged pregnancies affect 4–14 % of deliveries, with a mean incidence around 7 % (2). Though most extended pregnancies are benign, the likelihood of maternal and perinatal morbidity rises after 40 weeks (3).

Inaccurate gestational dating is a major cause of apparent post-term status, as only 10–40 % of women recall the exact last-menstrual-period (LMP). Early-trimester ultrasonography has markedly improved dating accuracy (4). Factors contributing to PTP include nulliparity, previous post-term pregnancy, obesity, and male fetus (5). With increasing gestational age, risks of labour dystocia, shoulder dystocia, operative delivery, postpartum haemorrhage, and neonatal morbidity such as meconium aspiration syndrome (MAS) escalate (6–8).

Several studies report that perinatal mortality doubles at 42 weeks and is sixfold higher at 43 weeks (9). Declining placental function and oligohydramnios contribute to fetal distress and intrauterine hypoxia (10). Given these risks, timely recognition and management of prolonged pregnancies are essential. The present study evaluates the maternal and fetal outcomes of pregnancies extending beyond 40 weeks in a tertiary-care hospital in western India.

MATERIALS AND METHODS

Study Design and Setting

A hospital-based cross-sectional observational study was carried out in the Department of Obstetrics and Gynecology, D.Y. Patil Hospital, Kolhapur, over 18 months following institutional ethics-committee approval.

Sample Size and Participants

Fifty-five women with singleton pregnancies beyond 40 weeks who provided informed consent were enrolled. Sample size was derived assuming prevalence $\approx 7\%$, 5 % margin of error, and 95 % confidence level, with 10 % drop-out allowance.

Inclusion Criteria

- Singleton pregnancies with gestational age > 40 weeks.
- Live fetus without major anomalies.
- Women willing to participate and deliver in the hospital.

Exclusion Criteria

- Multiple gestations.
- Known fetal anomalies or intrauterine fetal demise.
- Severe medical/obstetric complications unrelated to gestational age (e.g., preeclampsia, diabetes, placenta previa).

Data Collection

After detailed history (menstrual, obstetric, medical, surgical, and family), gestational age was confirmed using LMP or first-trimester ultrasound. Physical and obstetric examinations assessed fundal height, fetal presentation, heart rate, amniotic-fluid volume, and cervical status (Bishop score). Non-stress testing (NST) evaluated fetal well-being. Labour was induced using oxytocin or prostaglandins where indicated. Mode of delivery, intrapartum complications, and postpartum events were recorded. Neonatal assessment included Apgar score, birth weight, congenital anomalies, and need for NICU admission.

Statistical Analysis

Data were entered and analyzed using SPSS v21. Categorical variables were expressed as frequencies and percentages; continuous variables as mean $\pm$ SD. Associations were interpreted descriptively since inferential testing was not powered.

RESULTS

Demographic Characteristics

The mean maternal age was 24.87 ± 3.88 years (range 18–33). Most participants (69 %) were primigravida, indicating a predominance of first-time mothers. Mean gestational age at delivery was 41.29 ± 0.97 weeks.

Fetal Surveillance

NST was reactive in 54.6 % and non-reactive in 45.4 %, indicating a high proportion requiring close monitoring.

Labour Induction and Mode of Delivery

Induction was performed in 62 % of patients: 38 % with oxytocin and 24 % with prostaglandins. The remaining 38 % entered spontaneous labour. Overall, 72.7 % underwent LSCS, while 27.3 % had full-term vaginal delivery. The leading indication for LSCS was fetal distress (42.5 %), followed by non-progress of labour (17.5 %). Women who laboured spontaneously but without induction showed higher LSCS rates, suggesting that absence of cervical readiness contributed to operative delivery.

Amniotic-Fluid Findings

MSL was observed in 45 % of cases—27 % thick and 18 % thin—while 55 % had clear liquor. Oligohydramnios occurred in 47 % (18 % severe, 29 % mild/moderate), consistent with reduced placental perfusion in post-term gestations.

Maternal Morbidity

Post-partum haemorrhage affected 32.7 % of participants. Perineal or cervical tears occurred in about one-third of vaginal births, and fever or wound infection in a small minority. No maternal mortality was recorded.

Neonatal Outcomes

Mean Apgar score at 1 minute was 6.6 ± 2.1 ; mean birth weight 3.18 ± 0.49 kg. Of 55 newborns, 58 % required NICU admission. Meconium-stained liquor accounted for half of these admissions, followed by respiratory distress (19 %) and transient tachypnoea (9 %). Isolated cases of hypoxia, hypotonia, and IUGR with meconium aspiration were also noted. No neonatal deaths occurred during hospitalization.

DISCUSSION

This study confirms that pregnancies extending beyond 40 weeks are associated with significantly higher maternal and fetal morbidity. The mean gestational age of 41.3 weeks aligns with findings from Awoyesuku et al. (11) and Botcha et al. (4), who reported similar durations in Indian cohorts.

Maternal Profile

Most patients were aged 20–30 years, consistent with the reproductive age distribution in comparable studies (4, 12). Primigravidae predominance (≈ 70 %) reflects literature noting nulliparity as a significant risk factor for prolonged gestation (5, 7). Genetic and hormonal influences, as well as cervical rigidity, may contribute to delayed labour onset in this group.

Induction and Mode of Delivery

Labour induction was required in nearly two-thirds of participants, comparable with previous studies (4, 83). A high LSCS rate (72.7 %) mirrors data from Singh et al. (86) and Patel & Modi (87), who reported caesarean rates exceeding 50 % in post-dated pregnancies. In contrast, Thobbi and Nazish (7) reported lower caesarean frequency (26.5 %), likely reflecting differing institutional thresholds for surgical intervention. The primary LSCS indications—fetal distress and non-progress of labour—underscore uteroplacental insufficiency and cephalopelvic disproportion due to macrosomia as major pathophysiologic mechanisms (9).

Amniotic-Fluid Changes

Almost half the patients demonstrated oligohydramnios, which is known to compromise fetal oxygenation. Placental aging and reduced perfusion explain this finding. Thick MSL, seen in 27 %, is an established marker of fetal hypoxia (40). The association between MSL and higher LSCS rates in our cohort supports prior findings (83, 89).

Maternal Morbidity

PPH occurred in about one-third of patients—higher than the 5–10 % typically reported at term (42, 54). The increased incidence may relate to uterine inertia after prolonged labour or operative delivery. Perineal and cervical tears were more frequent in vaginal births, reflecting fetal macrosomia and difficult delivery typical of post-term pregnancies (46). Although no maternal deaths occurred, prolonged gestation clearly amplifies intrapartum risks.

Neonatal Morbidity

More than half of the neonates required NICU care. Meconium aspiration and respiratory distress were the leading causes. These findings parallel Dobariya et al. (82) and Bhriegu et al. (83), who also observed MSL-related distress as the commonest neonatal complication. The mean birth weight of 3.18 kg corresponds to prior

reports linking post-term status with macrosomia (47). Despite relatively good Apgar scores, vigilant neonatal monitoring remains essential, as delayed respiratory adaptation and hypoxia are frequent (8, 49).

Comparison with Literature

Our results align with international data showing that perinatal mortality and morbidity rise steadily after 40 weeks (12, 50, 51). A meta-analysis by Caughey et al. (12) demonstrated increased operative deliveries and maternal infection rates beyond 40 weeks. Similarly, Yudkin et al. (51) reported a four-fold increase in stillbirth risk after 39 weeks. The consistent pattern across studies highlights the importance of proactive management strategies, including accurate dating, antenatal surveillance, and timely induction at 40–41 weeks.

Clinical Implications

The findings emphasize that expectant management beyond 40 weeks should be individualized but closely supervised. Twice-weekly fetal surveillance with NST and amniotic-fluid assessment is advisable (1, 2). Induction around 41 weeks reduces perinatal mortality without increasing caesarean rates (76–79). Early first-trimester ultrasound remains key to avoiding misclassification of gestational age and unnecessary interventions (59–61).

Study Limitations

The study was limited by its small sample size and single-centre design, restricting generalizability. Absence of a control group of term pregnancies (37–40 weeks) precluded direct comparison. The relatively high caesarean rate may reflect institutional practice. Long-term neonatal follow-up was not performed; thus, persistent developmental outcomes could not be assessed. Despite these constraints, the findings provide valuable regional data and underscore the continued clinical burden of prolonged gestation.

CONCLUSION

Pregnancy extending beyond 40 weeks of gestation is associated with increased maternal morbidity—particularly postpartum haemorrhage and operative delivery—and adverse fetal outcomes such as meconium aspiration, respiratory distress, and higher NICU admission rates. Accurate gestational dating, vigilant antepartum surveillance, and timely induction at 40–41 weeks can substantially improve outcomes. Multicentre studies with larger cohorts are warranted to refine clinical guidelines for optimal timing of delivery in post-term pregnancies.

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Ethical Approval

This study was approved by the Institutional Ethics Committee of D.Y. Patil Hospital, Kolhapur (Approval No. DYPMC/OBG/2023/17). Written informed consent was obtained from all participants.

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