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Maternal and Fetal Outcomes Beyond 40 Weeks of Gestation: A Cross-Sectional Study

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ABSTRACT
Prolonged pregnancies, defined as those extending beyond 40 weeks o fgestation, are associated with various maternal and fetal outcomes. T hisstudy aims to analyze the maternal and fetal outcomes and complic ationsin pregnancies beyond 40 weeks. Data from 120 mothers were a nalyzedbased on gestational age, mode of delivery, birth weight and as sociatedcomplications. The findings provide insights into the risks and outcomesassociated with prolonged pregnancies.

INTRODUCTION

Pregnancy duration is a critical determinant of maternal and fetal health. Term pregnancies, defined as those occurring between 37 and 40 weeks of gestation, are associated with optimal maternal and neonatal outcomes. However, pregnancies extending beyond 40 weeks, commonly referred to as prolonged pregnancies, are linked to increased risks of adverse outcomes, including maternal complications such as postpartum hemorrhage (PPH), cervical tears and infections, as well as fetal complications like meconium aspiration syndrome (MAS), low birth weight (LBW), and stillbirth[1,2]. Prolonged pregnancies are not uncommon, with an estimated global prevalence of 5-10%[3]. The risk factors for prolonged gestation include nulliparity, advanced maternal age and inaccurate estimation of gestational age. Additionally, prolonged pregnancies are often associated with increased rates of labor induction and operative deliveries, including cesarean sections, which may further contribute to maternal and neonatal morbidity[4,5]. From a fetal perspective, prolonged gestation is associated with increased risks of macrosomia, intrauterine growth restriction (IUGR) and stillbirth. Meconium-stained amniotic fluid and its complications, such as MAS, are particularly concerning in these pregnancies, as they can result in significant neonatal morbidity and mortality[6]. Monitoring and timely intervention in prolonged pregnancies are therefore essential to minimize risks and optimize outcomes. This study aims to evaluate maternal and fetal outcomes in pregnancies beyond 40 weeks of gestation. By analyzing data from 120 mothers, this research seeks to provide insights into the risks and complications associated with prolonged gestation, thereby aiding in clinical decision-making and improving maternal-fetal care.

Objectives:

- To evaluate maternal outcomes and complications in pregnancies beyond 40 weeks of gestation.
- To assess fetal outcomes and complications associated with prolonged pregnancies.

MATERIALS AND METHODS

This cross-sectional study was conducted on 120 pregnant women from a tertiary care centre visited in duration of 6 months after their informed consent, they were categorized by their gestational age:

- 40Wk-40Wk 6Days.
- 41Wk-41Wk 6Days.
- 42Wk.

Data were collected on maternal age, mode of delivery, maternal complications, fetal complications, and birth weight. Descriptive statistics were used to analyze the data.

Inclusion Criteria:

- Pregnant women aged 18-45 years.
- Singleton pregnancies at term (≥40 weeks of gestation).
- Patients with documented gestational age confirmed by early ultrasound or last menstrual period.
- Women who delivered either vaginally or via Caesarean section.
- Newborns with documented birth weights.
- Cases with recorded maternal complications (e.g., PPH, cervical tears, obstructed labor, infections, or perineal injuries).
- Willingness to participate and provide informed consent.

Exclusion Criteria:

- Women with multiple pregnancies (e.g., twins or triplets).
- Pregnancies with unknown or uncertain gestational age.
- Preterm deliveries (<37 weeks of gestation).
- Incomplete or missing medical records regarding delivery, maternal complications, or newborn birth weight.
- Refusal to provide informed consent or participate in the study.

RESULTS AND DISCUSSIONS

Table 1: Distribution of Mothers According to Gestational Age

Gestational Age	Number Of Patients	Percentage (%)
40W-40W6D	79	65.8
41W-41W6D	32	26.6
>42W	9	7.5
Total	120	100

We found that 40 weeks to 40 weeks and 6 days (40W-40W6D), this group constitutes the majority, with 79 patients, accounting for 65.8% of the total. This distribution highlights that most pregnancies were carried to term within the 40W-40W6D range.

Table 2: Age Distribution of Mothers Beyond 40 Weeks of Gestation

Age (Years)	Number of cases	Percentage (%)
<20	16	13.3
20-30	101	84.2
>30	3	25
Total	120	100

The table shows the age distribution of 120 mothers, with the majority (84.2%) aged between 20 and 30 years. A smaller proportion includes mothers under 20 years (13.3%) and over 30 years (2.5%).

Table 3: Mode Of Delivery in Beyond 40 Weeks of Gestation Cases

Mode Of Delivery	40W-40W6D	41W-41W6D	>42W	Total
Vaginal Delivery	47	18	3	68(56.7)
Caesarean Section	32	14	6	52 (43.3)
Total	79	32	9	120 (100)

The (table 3) shows the mode of delivery for 120 mothers categorized by gestational age. Vaginal delivery was the most common mode (56.7%), with 47 cases at 40W-40W6D, 18 at 41W-41W6D and 3 at >42W. Caesarean sections accounted for 43.3%, with 32, 14 and 6 cases across the same gestational age groups, respectively.

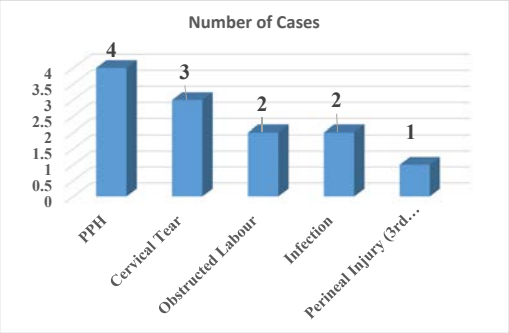

Fig.1: Maternal Complications Beyond 40 Weeks of Gestation Cases

The bar graph (Fig.1) depicts the frequency of maternal complications. The most common complication is Postpartum Hemorrhages (PPH), with 4 cases, followed by Cervical Tear with 3 cases. Both Obstructed Labour and Infection have 2 cases each, while Perineal Injury (3rd and 4th Degree Perineal Tear) is the least frequent, with only 1 case.

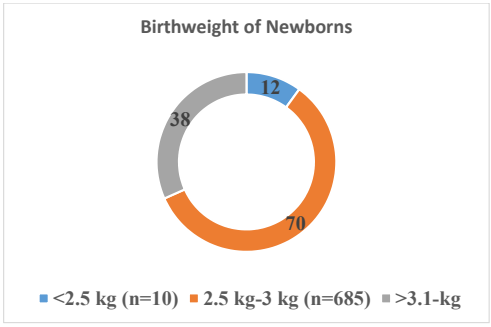

Fig.2: Birth Weight in Cases

The donut chart illustrates the distribution of newborn birth weights. The majority (70%) of newborns weighed between 2.5 kg and 3 kg. A smaller proportion (12%) 1 kg.

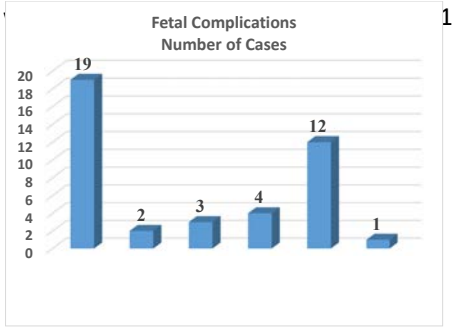

Fig.3: Fetal Complications Beyond 40 Weeks of Gestation Cases

Meconium aspiration syndrome (MAS) was the most common fetal complication observed, affecting 19 cases (15.8%), followed by low birth weight (LBW) in 12 cases (10%). Other complications included jaundice in 4 cases (3.3%), intrauterine growth restriction (IUGR) in 3 cases (2.5%) and asphyxia in 2 cases (1.7%). Stillbirth was the least frequent complication, occurring in 1 case (0.8%).

Maternal Outcomes: Prolonged pregnancies are associated with heightened maternal complications, as observed in this study. Postpartum hemorrhage (PPH) was the most common maternal complication, affecting 4 cases. Similar findings were reported by Boulvain *et al.*, who noted increased rates of PPH in prolonged gestation due to uterine atony and labor interventions[7,8]. Cervical tears and obstructed labor, each observed in 2-3 cases, corroborate findings by Caughey et al., highlighting the mechanical challenges posed by macrosomia and prolonged labor[2]. The low incidence of infections and perineal injuries in this study might reflect effective intra partum management and infection control protocols.

Fetal Outcomes: Meconium aspiration syndrome (MAS) was the most frequent fetal complication, observed in 15.8% of cases. This is consistent with findings from Alexander *et al.,* who reported an increased risk of MAS in prolonged pregnancies due to fetal distress and meconium-stained amniotic fluid[9]. Low birth weight (LBW) and intrauterine growth restriction (IUGR) were observed in 10% and 2.5% of cases, respectively. These findings align with studies by Divon *et al.,* which suggest that placental insufficiency in prolonged gestation contributes to fetal growth restriction[5]. Notably, stillbirth was the least frequent complication, occurring in 0.8% of cases. This is consistent with global estimates, which indicate a slight but significant increase in stillbirth risk after 41 weeks[11]. Timely induction of labor and vigilant fetal monitoring likely contributed to the low stillbirth rate in this cohort.

Mode of Delivery: The distribution of delivery modes in this study highlights the impact of prolonged gestation on obstetric management. Vaginal delivery was the most common mode (56.7%), though cesarean sections accounted for 43.3% of cases. This is higher than the average cesarean rate for term pregnancies, reflecting the increased need for operative interventions in prolonged gestation, as noted by Norwitz[10]. The trend toward higher cesarean rates beyond 42 weeks emphasizes the importance of individualized delivery planning to mitigate maternal and neonatal morbidity.

Birth Weight: Most newborns in this study had a birth weight between 2.5 and 3 kg (70%), with 12% weighing >2.5 kg and 18% exceeding 3.1 kg. These findings align with the bimodal distribution of birth weights observed in prolonged pregnancies, as reported by ACOG guidelines[11]. Macrosomia, though less frequent in this cohort, remains a significant concern due to its association with birth trauma and operative delivery.

CONCLUSION

Prolonged pregnancies are associated with increased risks of maternal and fetal complications, necessitating vigilant monitoring and timely interventions. The findings underscore the importance of individualized care and evidence-based guidelines to optimize outcomes for both mothers and neonates. Vigilant monitoring and timely interventions are essential to mitigate these risks and improve outcomes.

Recommendations:

- Routine antenatal monitoring for pregnancies beyond 40 weeks.
- Early identification and management of potential complications.
- Further studies with larger sample sizes to validate findings.

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