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**Original Research Article**

# Study of maternal and perinatal outcome in post-dated pregnancy

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## ABSTRACT

**Background:** It has been reported that in a pregnancy which has crossed the expected date of delivery, there is an increased risk of oligohydramnios, meconium stained amniotic fluid, macrosomia, fetal postmaturity syndrome, and cesarean delivery, all of which endanger the baby as well as the mother. The present study focus to investigate maternal and perinatal outcome in postdated pregnancies.
**Methods:** The prospective observational study included primigravida and multigravida beyond 40 weeks of gestation admitted from September 2019 to September 2020 in obstetrics and gynaecology department B. J. medical college, civil hospital, Ahmedabad.
**Results:** Out of 100 patients, majority were primigravida 62%, meconium stained liquor with fetal distress was the most common indication for LSCS 23.5 %, fetal distress was the most common fetal complications, rate of NICU admission was 33.33% between 41 weeks 1 day to 42 weeks, rate of induced labour was 71.43% between 41 weeks 1 day to 42 weeks. 88% patients were between 40 weeks 1 day to 41 weeks.
**Conclusions:** Prolonged pregnancy was associated with remarkable risk of perinatal complications like fetal distress, meconium aspiration syndrome, IUGR, obstetric complications like oligohydramnios, perineal tear, atonic PPH and shoulder dystocia. The adverse outcome can be reduced by making accurate gestational age and diagnosis of postterm gestation as well as identifiable and management of risk factors. Considering the maternal and neonatal morbidity associated with prolonged pregnancy, pregnancy should not be permitted to go postterm.

**Keywords:** Fetal distress, Meconium aspiration syndrome, Postdated pregnancies, Primigravida

## INTRODUCTION

As per WHO, post term pregnancy (PTP) is defined as a pregnancy that persists after 294 days or 42 weeks of gestation.[1] In late 2012, a work group including representatives from the American college of obstetricians and gynecologists (ACOG), the society for maternal-fetal medicine (SMFM) and other professional societies recommended that the label "term" be replaced by early term, full term, late term and post-term to more accurately describe deliveries occurring at or beyond 37 weeks of gestation.[2] The incidence of PTP varies depending on whether the calculation is based on the history and clinical examination alone, or whether early pregnancy ultrasound examination is used to estimate gestational age.[3,4] The assessment of the gestational age by early ultrasound examination has reduced the "incidence" of PTP by 50.0%.[5]

Complications to both mother and fetus are seen in postdated pregnancies. It has been reported that in a pregnancy which has crossed the expected date of delivery; there is an increased risk of oligohydramnios, meconium stained amniotic fluid, macrosomia, fetal postmaturity syndrome, and caesarean delivery, all of which jeopardize the baby as well as the mother. Prolonged pregnancy has always been regarded as a high-risk condition because perinatal morbidity and mortality is known to rise.[6] The most frequent cause of prolonged pregnancy is inaccurate dating. The risk factors are

primiparity, maternal genetic factors, previous postdatism, obesity and male gender of the fetus. Criteria for diagnosing postdates are correlation of menstrual history, clinical findings and USG. Ultrasonographic dating in early pregnancy can improve reliability of EDD. The aim of the present study was to analyse the outcome of pregnancies which crossed the expected date of delivery.

### *Aims and objectives*

Aim and objective of current study was to evaluate the incidence of post-dated pregnancy and to assess maternal and fetal outcome in post-dated pregnancy.

## METHODS

Current study design was prospective observational study and sampling technique followed was non random sampling method. Sample size was taken to be 100. This study includes both primigravida and multigravida beyond 40 weeks of gestation admitted from September 2019 to october 2020 in obstetrics and gynaecology department B. J. Medical college, civil hospital, Ahmedabad. History was taken and general physical and systemic examination was performed. Per abdominal examination was done. Mode of delivery, any operative interference, perinatal morbidity by low APGAR score, meconium aspiration syndrome, neonatal intensive care unit (NICU) admission and mortality if any such as atonic PPH, 3rd degree and 4th degree perineal tear was noted.

### *Inclusion criteria*

Inclusion criteria for current study were; ppregnant women more than 40 weeks of gestation (last three menstrual cycles regular, not used contraceptive pills for the past 3 months, not conceived during lactational amenorrhea), singleton pregnancy and cephalic presentation.

### *Exclusion criteria*

Exclusion criteria for current study were; any associated complications such as previous lower segment cesarean section (LSCS), malpresentations, placenta previa, abruption, PIH, gestational diabetes, anemia, and other medical complications and fetal anomalies.

Post-dated pregnant patients fulfilling my inclusion and exclusion criteria were included in the study. Detailed history was obtained from the patient about the socioeconomic status, booked/unbooked, the patient's age, gestational age, menstrual history and obstetric history. General physical examination, systemic examination and obstetric examination was carried out. Per speculum and per vaginal examination was done. Blood investigations - complete blood counts, liver function tests, kidney function tests, blood sugar, blood grouping, urine analysis, HIV, VDRL, HBsAg, were done. USG Doppler and NST were done. Decision of delivery route was done as required. Some patients were already in spontaneous labour, some were subjected to induction of labour. If delivery was by caesarean section, the indication was recorded. Perinatal morbidity by low Apgar score meconium aspiration syndrome, neonatal intensive care unit (NICU) admission and mortality if any was recorded. Maternal complications such as postpartum haemorrhage (PPH), perineal tear, etc were also recorded.

### *Statistical analysis*

The data gathered of all 100 patients were analyzed using Microsoft excel and presented in number and percentages.

## RESULTS

In our study, out of 100 cases, 79 (79%) were of age group 20–25 years, 19 (19%) cases were of age group 26-30 years, and 2 (2%) cases were under 31-35 years. While the mean age was 23.56±2.75 (20-35 years). In our study, majority cases were primigravida (62%). Out of 100 cases, 56 were residing in rural area and 44 were in urban area (Table 1).

**Table 1: Demographic distribution.**

| Parameters | N | % |
|---|---|---|
| **Age (years)** | | |
| 20-25 | 79 | 79 |
| 26-30 | 19 | 19 |
| 31-35 | 02 | 02 |
| **Parity** | | |
| Primigravida | 62 | 62 |
| Multigravida | 38 | 38 |
| **Residence** | | |
| Rural | 56 | 56 |
| Urban | 44 | 44 |

Out of 100 patients, 88 had gestation age between 40 weeks 1 day to 41 weeks and 12 patients had gestational age between 41 weeks 1 day to 42 weeks (Table 2).

**Table 2: Distribution of cases according to period of gestation**

| Period of gestation | N (%) |
|---|---|
| **40 weeks 1 day to 41 weeks** | 88 (88) |
| **41 weeks 1 day to 42 weeks** | 12 (12) |
| **Total** | 100 (100) |

It was observed that out of 64 vaginal deliveries, 57 delivered between 40.1 weeks and 41 weeks of gestational age. Out of 57 patients, 35 (61.4%) progressed and delivered spontaneously, and 22 patients (38.6%) delivered after induction of labor. Out of 64 vaginal deliveries 7 were between 41 weeks 1 day and 42

weeks out of which 2 patients (28.57%) progressed and delivered spontaneously and 5 (71.43%) were delivered after induction of labor (Table 3).

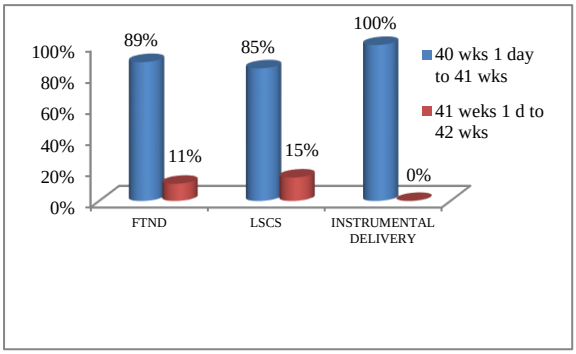


**Figure 1: Comparison of mode of delivery with gestational age.**

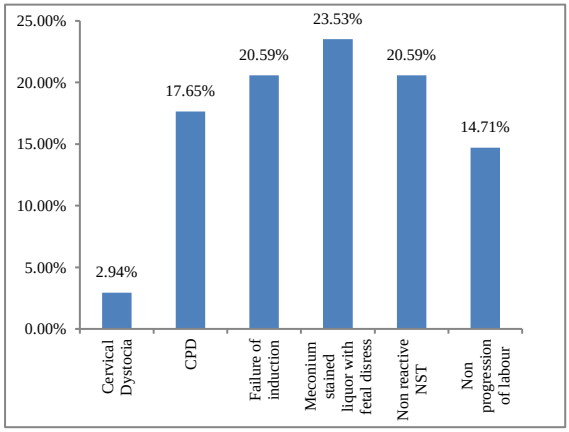


**Figure 2: Indications for lower segment cesarean section (n=34).**

Out of 64 FTNDs, 57 (89%) deliveries occured between gestational age 40 weeks 1 day to 41 weeks and 7 (11%) deliveries between gestational age 41 weeks 1 day to 42 weeks. Out of 34 cesarean sections, 29 (85%) deliveries occurred between gestational age 40 weeks 1 day to 41 weeks and 5 (15%) were between 41 weeks 1 day to 42 weeks. A total number of instrumental deliveries were only 2 (Figure 1). A total number of cesarean section were 34. Meconium stained liquor with fetal distress was the most common indication of cesarean section 23.53%, in 20.59% patients indication was failure of induction, in 20.59% it was nonreactive NST, in 17.61% indication was CPD, in 14.71% patients indication was non progress of labor, and in 2.94% it was cervical dystocia (Figure 2). Pregnancy beyond 41 weeks had increase rate of NICU admission which was 33.33% in my study (Table 4). Oligohydramnios found in 17% patients, perineal tear in 4%, atonic pph in 3%, and shoulder dystocia in 5% patients, Fetal distress found in 9% patients, meconium aspiration syndrome in 7%, and intra uterine growth restriction (IUGR) in 1% patients (Table 5). Out of 28 Patients with bishop's score <4, 24(86%) underwent caesarean section, 4(14%) delivered vaginally. Out of 26 patients with bishop's score between 4 to 6, 8 (31%) delivered by caesarean section, 16 (61%) delivered vaginally and only 2 (8%) underwent instrumental delivery. Out of 46 patients with bishop's score >6, 2 (4%) underwent caesarean section and 44 (96%) delivered vaginally (Table 6). Out of 64 foetus who delivered vaginally, 33 (51.5%) foetus had birth weight of <2.5 kg, 28 (43.75%) foetus had birth weight between 2.5-3.5 kg, 3 (4.6%) foetus had birth weight of >3.5 kg. Out of 34 foetus who delivered by LSCS, 2 (6%) had birth weight of <2.5 kg, 24 (70.5%) had birth weight between 2.5 to 3.5 kg and 8 (23.5%) had birth birth weight of >3.5 kg (Table 7).

**Table 3: Comparison of gestational age with type of delivery.**

| Gestational age | Total number of delivery N (%) | Induced labour N (%) | Spontaneous labour, N (%) |
|---|---|---|---|
| **40 weeks 1 day to 41 weeks** | 57 (100) | 22 (38.60) | 35 (61.40) |
| **41 weeks 1 day to 42 weeks** | 7 (100) | 5 (71.43) | 2 (28.57) |
| **Total** | 64 (100) | 27 (42.19) | 37 (57.81) |

**Table 4: Distribution of patients according to fetal outcome.**

| Gestational age | Total number of cases | Baby with mother, N (%) | NICU, N (%) |
|---|---|---|---|
| **40 weeks 1 day to 41 weeks** | 88 (100) | 75(85.23) | 13 (14.77) |
| **41 weeks 1 day to 42 weeks** | 12 (100) | 8 (66.67) | 4 (33.33) |
| **Total** | 100 (100) | 83 (83) | 17 (17) |

## DISCUSSION

***Distribution according to the age of the patient***

In our study, out of 100 cases, 79 (79%) cases were under 20-25 years, 19 (19%) cases were under 26-30 years, and 2 (2%) cases were under 31-35 years. While the mean age was 23.56±2.75 (20-35 years).

While the mean age in Mahapatro's[7] study was 24.19±3.30, while the mean age in Eden et al study was 25.8 years. In our study, majority cases were primigravida (62%) which is similar to Mahapatro and Alexander et al study.[8,9]

**Table 5: Distribution according to Maternal and fetal complications.**

| Maternal and fetal complications | N (%) |
|---|---|
| **Oligohydramnios** | 17 (17) |
| **Perineal tear** | 4 (4) |
| **Atonic PPH** | 3 (3) |
| **Shoulder dystocia** | 5 (5) |
| **Fetal distress** | 9 (9) |
| **Meconium aspiration syndrome** | 7 (7) |
| **IUGR** | 1 (1) |

**Table 6: Outcome according to Bishops score.**

| Parameters | <4 N (%) | 4 -6 N (%) | >6 N (%) |
|---|---|---|---|
| **Caesarean section** | 24 (86) | 8 (31) | 2 (4) |
| **FTND** | 4 (14) | 16 (63) | 44 (96) |
| **Instrumental delivery** | 0 | 2 (8) | 0 |
| **Total** | 28 (100) | 26 (100) | 46 (100) |

**Table 7: Outcome according to birth weight.**

| Weight (kg) | FTND, N (%) | Caesarean section, N (%) | Instrumental delivery, N (%) |
|---|---|---|---|
| **<2.5** | 33 (51.5) | 2 (6) | 0 |
| **2.5-3.5** | 28 (43.75) | 24 (70.5) | 2 (100) |
| **>3.5** | 3 (4.6) | 8 (23.5) | 0 |
| **Total** | 64 (100) | 34 (100) | 2 (100) |

***Distribution according to gestational age and mode of delivery***

In our study, out of 100 cases, 64 cases were full-term vaginal delivery; whereas 34 cases were of LSCS and 2 cases were of instrumental delivery. It was observed that out of 64 vaginal delivery 57 patients delivered between 40.1 weeks and 41 weeks of gestational age, out of 57 cases 35 (61.4%) progressed and delivered spontaneously, and 22 cases (38.6%) delivered after induction of labor. Out of 64 vaginal deliveries 7 cases were between 41 weeks 1 day and 42 weeks out of which 2 cases (28.57%) progressed and delivered spontaneously and 5 (71.43%) case were delivered after induction of labor. In our study, overall cesarean rate was 34%, in Singhal et al.[10] rate of LSCS was 16.7% and in the study by Mahapatro.[7] It was found to be 28.9% out of 34 pregnancies the rate of LSCS beyond 41 weeks was found to be 5 (14.7%) which was (21.1%) by Kaplan et al study.[11] The rate of instrumental delivery in our study was 2%, whereas in Mahapatro study, it was found to be 5.72%. In Singhal et al study and Davinder et al study, the rate of instrumental delivery was 8.6% and 10.35%, respectively.[7,8,10-12]

***Distribution according to the indication of caesarean section***

In our study, it is observed that Meconium stained liquor with fetal distress is the most common indication for LSCS 8 (23.5%) like Mahapatro's study, in which fetal distress was found to be the most common indication for LSCS (65.5%).[7]

***Distribution according to fetal and maternal complications***

In our study, fetal distress was the most common fetal complications, i.e., 9%, meconium aspiration syndrome found in 7% cases and IUGR in only 1% cases, which is similar to Nmbargi et al study. There was significantly increased the risk of obstetric complications such as oligohydramnios, perineal tear, atonic PPH, and shoulder dystocia.

***Distribution according to Bishop's score***

Poor Bishop's score is associated with failure of induction and lesser chance of vaginal delivery. In patient with Bishop's score <4 maximum (86%) underwent cesarean section, in view of fetal distress. The timely onset of labor is an important determinant of perinatal outcome. Confirmation of diagnosis of postdatism is very important. It should be done by first trimester USG, along with LMP. In management of postdatism a careful advice and proper monitoring can reduce maternal anxiety and untoward complications. Perinatal morbidity and mortality is centered on adequacy of finding better methods for recognizing high-risk fetus, the ideal time for testing, monitoring method, optimum time and mode for delivery. The availability of biophysical profile and electronic fetal monitoring can affect the maternal and fetal outcome. After 41 weeks of gestation if the dates are confirmed, cephalopelvic disproportion (CPD) is suspected or hypotonic or hypertonic dysfunctional labour is evident women should be offered elective delivery. Rate of Instrumental delivery is reduced because it can cause cephalic hematoma and skull fracture. The adverse outcome can be reduced by making accurate gestational age and diagnosis of postterm gestation as well as recognization and management of risk factors.

***Limitations***

Some patients came with all checkup outside with no or late trimester USG; sometimes even in labour. All these increase the caesarean delivery rate in this study.

## CONCLUSION

With regular antenatal check-up, incidence of postdate pregnancy can be decreased and it is important because of definite risk to fetus as pregnancy continuing beyond 40 weeks of gestation is associated with increased perinatal

morbidity & mortality especially those who do not come for regular antenatal check-up. Considering the maternal and neonatal morbidity associated with prolonged pregnancy, pregnancy should not be allowed to go postterm. These women should be offered induction of labor before 42 weeks of gestation to avoid adverse neonatal consequences. Confirmation of diagnosis of exact term of pregnancy is very important as many patients don't have regular menstrual history and LMP. Diagnosis is confirmed by first trimester ultrasound which is most important non-invasive method and readily available.

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