

Clinical study of fetomaternal outcome of postdated pregnancy in a tertiary care center

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ABSTRACT

Background: Postdated pregnancy is one of the commonest obstetric condition. The pregnancy beyond 40 weeks of gestation is called as post dated pregnancy. Post dated pregnancy increases risk to mother and fetus. In mother there is increased risk of induced labour, instrumental delivery and LSCS and associated morbidities. The risks to the fetus also increases in postdated pregnancy mainly due to increasing fetal weight, decline in placental function, oligohydramnios which increase chances of cord compression, and meconium aspiration.

Methods: This cross sectional observational study of feto-maternal outcome in post dated pregnancy (Women beyond 40 weeks of gestation) was carried out in the department of obstetrics and gynaecology in tertiary care centre from October 2019 to September 2021, willing to participate and fulfilling the inclusion and exclusion criteria in the study period.

Results: Out of total 300 patients,118 patients (60.82%) went into spontaneous labour and delivered vaginally, whereas 102(34%) patients required caesarean section. Induction of labour was done in 76(39.17%) patients.**Conclusions:** The present study, we conclude that, the post dated pregnancy can be considered as a high risk factor as there is more fetal morbidity.

Keywords: Induction, LSCS, Perinatal mortality, Post dated pregnancy

INTRODUCTION:

As per WHO, post term pregnancy is defined as a pregnancy that persists beyond 294 days or 42 weeks of gestation.¹ The reported frequency of Post-dated pregnancy is 7%.² A Post-dated pregnancy is the one which extends to or beyond 40 weeks or 280 days from the first day of LMP.

The most frequent cause of prolonged pregnancy is the inaccurate dating. The risk factors are primigravida, maternal genetic factors, prior history of postdatism, obesity and male gender of the foetus. Criteria for diagnosing postdatism are correlation of menstrual history, clinical findings and USG.

Term pregnancy is defined as a pregnancy with gestational age from 3 weeks before till 2 weeks after the estimated date of delivery. Expected date of delivery is calculated from the first day of the last menstrual period to the end of 40 weeks or 280 days. Inadequate counselling regarding expected date of delivery may create undue anxiety and distress for the patient.

The period after 41 weeks of gestation is valuable for patient and obstetrician. The frequency of adverse neonatal outcome is lowest among uncomplicated pregnancies delivered between 39 and 40 weeks of gestation.

Complications to both mother and foetus are seen in post-dated 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, foetal post maturity syndrome, foetal hypoxia, asphyxia, intracranial damage, hypoglycaemia and stillbirths in baby.

Maternal risks include an increase in labour dystocia, an increase in severe perineal injury related to macrosomia, an increase in the rate of caesarean delivery and postpartum haemorrhage, puerperal infections, Maternal trauma, cephalopelvic disproportion increases with increase in the gestational age beyond 40 weeks. Prolonged pregnancy has always been regarded as a high-risk condition because perinatal morbidity and mortality is Known to rise.³

In case of prolonged pregnancy foetus is more at risk of hypoxia during labour than foetus at term. All these risks factors compel the obstetrician to induce labour once 41 weeks are completed.⁴The rate of post-dated pregnancy has become a marker of quality of perinatal units, considering deliveries occurring after 294 days have adverse outcomes.

In the present study maternal and foetal outcome was studied with respect to post-dated pregnancy

METHODS:

This cross sectional observational study of feto-maternal outcome in post-dated pregnancy (Women beyond 40 weeks of gestation) was carried out in the Department of Obstetrics and Gynecology in a tertiary care center from October 2019 to September 2021, willing to participate and fulfilling the inclusion and exclusion criteria in the study period. Approval of the Institutional Ethics Committee was taken prior to commencement of the study. The population for this study included all women admitted in labour room of Tertiary health care Centre with diagnosis of prolonged pregnancy. In present study we have enrolled 300 cases, who satisfied inclusion and exclusion criteria during two years .

Inclusion Criteria:

- Post-dated women with regular menstrual cycles and first day of last menstrual period known or with dating scan done preferably between 8-9 wks
- Singleton pregnancy with vertex presentation.
- Uncomplicated Antenatal cases beyond 40 weeks of gestation willing to participate in study

Exclusion Criteria:

- High risk pregnancies like diabetes, antepartum haemorrhage (APH), premature rupture of membranes (PROM), and Gestational hypertension (GH), heart disease, chronic hypertensive disease, chronic renal disease.
- Previous caesarean sections.
- Congenital anomalies.
- Irregular menstrual cycles and unknown LMP and not having 1st trimester ultrasonography
- Multiple gestation
- Non vertex presentation

- Not willing to participate in the study

The data was collected using a case record form after taking informed consent of the participants during the study period.

Detailed clinical history like menstrual History, obstetrics History, past History personal History, marital history, family history was noted. Exact gestational age was calculated using Naegele's formula in women with regular menstrual cycles. Patient's 1st trimester ultrasonography (dating scan done between 8-9 weeks of gestation) report was used for calculation of gestational age.

The patient's general condition, temperature, pulse, blood pressure, pallor, icterus, height and weight were noted. Systematic examination was done. Per abdominal examination was carried out to know the presentation and position of the foetus, the amount of liquor amnii and foetal heart rate.

Sterile per speculum examination was conducted to visualize the cervix and the vagina, any discharge per vaginum any leaking or bleeding per vaginum. Sterile per vaginal examination was done to assess cervical dilatation cervical effacement, station consistency and position of cervix and Modified Bishop's score was calculated. Adequacy of pelvis was assessed. On admission Non stress test (NST) was done to assure foetal well-being. Partograph was plotted to assess progress of labour.

Modified Bishop's score ≥ 6 was regarded as favourable and score of < 6 was regarded as unfavourable. Decision for instrumental delivery or caesarean section was taken according to the Obstetric indication. Record was kept about the mode of delivery and if any postpartum maternal complications that occurred and they were labelled under maternal morbidity. Decision of emergency C-section was taken depending on obstetrical indications.

After delivery the baby was attended by the paediatrician, baby weight, sex of baby, APGAR Score, any gross congenital anomaly, whether there was any necessity for NICU admission was recorded. Indication for NICU admission was noted. Neonatal complications and outcome any neonatal deaths, that occurred, were recorded.

In post-natal period mother was examined and kept under observation till their hospital stay. Maternal morbidities like Post-partumhaemorrhage, perineal tear, wound gape, Wound discharge, fever or urinary tract infection in post operative period were noted and managed accordingly.

- **RESULTS:**

Table 1: Distribution of participants according to their demographic data

Demographic data	Number of participants	Percentage (%)
Age		
20-25yrs	237	79%
26-30yrs	57	19%
31-35yrs	4	1.33%
>35 yrs.	2	0.66%
Total	300	100%
Booking status		
Booked	243	81%
Unbooked	57	19%
Total	300	100%

Total	Gravidity		
	Primigravida	174	58%
	Multigravida	126	42%
	Total	300	100%
	Previous history of Postdatism		
	Present	33	25%
	Absent	93	75%
	Total	126	100%
	Gestational age		
	40weeks 1day-41 weeks	246	82%
	41 weeks 1 day-42 weeks	43	14.33%
	>42 weeks	11	3.66%

deliveries in the tertiary health care centre in the period from October 2019 to September 2021 were 31546. Total numbers of post-dated pregnancies were 1577. Therefore, the frequency of post-dated pregnancy according to the present study is $1577/31546 \times 100 = 5\%$. 81% patients were booked under hospital facility and 19% patients were Unbooked in present study. 79% of the patients belonged to the age group 20-25 years, 19% between 26-30 years, 1.33% between 31-35 years, 0.66% more than 35 years.

58% patients were primigravida and 42% were multigravida in present study out of them previous history of postdatism was present in 25% patients 82% patients present with gestational age of 40-41 weeks, 14.33% with 41-42 weeks, 3.66% with > 42 weeks.

Table 2: Distribution of participants according to their clinical parameters (mother)

Clinical parameters	Number of participants	Percentage(%)
NST		
Reactive	261	87.58%
Nonreactive	37	12.41%
Bishop's score		
<4	48	16%
4-6	102	34%
>6	150	50%
Type of Induction		
Oxytocin infusion	23	30.26%
PGE2 Gel	21	27.63%
Intracervical foley's catheter+	17	22.36%
PGE2	7	9.21%
Mifepristone 200 mg	5	6.57%
ARM	3	3.94%
Sweeping & stretching		

Mode of Delivery		
Spontaneous vaginal delivery	194	64.66%
LSCS	102	34%
Instrumental delivery	4	1.33%
Indication of C-section		
Foetal distress	52	50.98%
CPD	10	9.80%
Severe Oligohydramnios	9	8.82%
Deep transverse arrest	4	3.92%
Prolonged labour	9	8.82%

Reactive NST seen in 87.58% patients. Induction of labour was done in 76 patients depending on modified bishop's score .30.26% of the patients required oxytocin infusion, 27.63% PGE2 gel,22.36% intracervical foley's catheterisation + PGE2 gel. 64.66% of the patients in present study delivered by vaginally, 34% byLSCS. As the gestational age increases percentage of LSCS increases as shown in above table. Most common indication for LSCS seen was meconium-stained liquor with foetal distress in 50.98% patients.

Table 3: Distribution of participants according to their clinical parameters (new-born)

Clinical Parameters	Number of participants	Percentage(%)
APGAR Score at 1min& 5 min		
<4	5	1.66%
4-7	20	6.66%
>7	275	91.66%
Birth weight		
<2.5kg	48	16%
2.5-3kg	240	80%
3.5-4kg	11	3.66%
>4kg	1	0.33%
NICU Admission (25)		
40weeks 1 day-41 weeks	13	5.37%
41 weeks 1 day-42 weeks	8	19.04%
>42 weeks	4	40%

Indications of NICU Admission		
Perinatal asphyxia	8	32%
Meconium aspiration syndrome	7	28%
Hyperbilirubinemia	2	8%
Macrosomia	1	4%
Birth injuries	2	8%
IUGR	2	8%
Post-maturity syndrome	1	4%
Hypoglycemia	1	4%
Shoulder dystocia	1	4%

91.66% babies had APGAR score >7 at 1min and 5min after birth .80 % babies had birth weight between 2.5-3.5 kg 25 babies had NICU admission with 40% admissions seen in gestational age >42 weeks.

Table 4: Distribution of participants according to their morbidity indicators

Morbidity Indicators	Number of participants	Percentage(%)
Maternal morbidity		
Oligohydramnios	47	43.51%
Perineal tear	14	12.96%
Traumatic PPH	6	5.55%
Atonic PPH	11	10.18%
Wound discharge	5	4.62%
Perinatal Mortality		
Stillbirths	2	0.66%
Neonatal Deaths	4	1.33%

Total 4 neonatal deaths had seen in present study.43.51% patients had oligohydramnios,12.96% had perineal tear,10.18% had atonic PPH, 5.55% had traumatic PPH,4.62% had wound discharge.

Discussion:

In the present study 300 post-dated patients were enrolled based on inclusion and exclusion criteria.

According to this study maximum cases were in between 20-25 years that is 79%. These results are consistent with studies like **Bhriegu R et al**2017⁵ showing 79%,**Singh N et al**,2020⁶ study showing 72% cases between 20-25 YearsIn study by **Dobariya PV et al**, 2017⁷ & **Patel N et al**, 2017⁸ shows 69.05% &64% patients 20 to 30 years. This study shows 81% booked cases. Other studies like **Bhriegu R et al**, 2017⁵ shows 82% booked cases&Study by **Verma V et al**, 2017⁹ shows 60.25% Unbooked cases.

Our study states that maximum cases that is 62% are primigravida and 38% are multigravida. The study by **Verma V et al**, 2017⁹shows 55.12% primigravida &Study by

Kandalgaonkar VP et al, 2019¹⁰ shows 63.5% primigravida, study by **Singh N et al, 2020⁶** shows 68% primigravida & study by **Bhriegu R et al, 2017⁵** shows 62% primigravida.

According to present study only 75% of cases without previous history of postdatism in their previous pregnancy. The study by **Kandalgaonkar VP et al, 2019¹⁰** shows 74% cases without previous history of postdatism.

According to present study 82% cases belongs to the gestational age of 40-41 weeks. The study by **Kandalgaonkar VP et al, 2019¹⁰** shows 69.8% cases, study by **Bhriegu R et al, 2017⁵** shows 88% cases, study by **Patel N et al, 2019⁸** shows 76% cases with gestational age 40-41 weeks. The study by **Dobariya PV et al, 2017⁷** shows 52.38% between 41-42 weeks.

According to this study, 71.54% cases between 40-41 weeks of gestational age delivered vaginally while 27.23% cases required LSCS while 27.27% cases with > 42 weeks of gestational age delivered vaginally while 72.72% delivered by C-section. The study by **Bhriegu R et al, 2017⁵** shows that 89.06% cases between 40-41 weeks of gestational age delivered vaginally and 29% delivered caesarean section. The study by **Singh N et al, 2020⁶** shows that 84% cases between 40-41 weeks of gestational age delivered vaginally and 12% delivered caesarean section, 4% cases > 42 weeks of gestational age delivered vaginally while 1% cases delivered caesarean section.

In present study oxytocin infusion used in 30.26% cases, PGE2 gel in 27.47% and intracervical Foley's catheterization+ PGE2 gel insertion in 21.97% cases for induction of Labour. The study by **Kandalgaonkar VP et al, 2019¹⁰** shows 33.33% cases for oxytocin infusion, & 57.78% cases for PGE2 gel for IOL. The study by **Verma V et al, 2017⁹** shows 20.85% cases with oxytocin infusion, 70.83% cases with PGE2 gel & 8.33% cases with intracervical Foley's catheterization+ PGE2 gel insertion for IOL.

According to our study most common indication for LSCS is foetal distress. The study by **Dobariya PV et al, 2017⁷** shows 40.74% cases, **Bhriegu R et al, 2017⁵** shows 23.53% cases, **Kandalgaonkar VP et al, 2019¹⁰** shows 37.5% cases underwent caesarean section for foetal distress.

According to this study 43.51% cases had oligohydramnios while the study by **Bhriegu R et al, 2017⁵** shows 17% cases with oligohydramnios. Perineal tear found in 12.96% cases in present study. The study by **Singh N et al, 2020⁶** 5% cases, 2.08% cases in the study by **Kandalgaonkar VP et al, 2019¹⁰**, 4% cases in the study by **Bhriegu R et al, 2017⁵** shows perineal tear. Postpartum haemorrhage (PPH) seen in 10.18% cases in present study, Study by **Singh N et al, 2020⁶** shows 6% cases, Study by **Kandalgaonkar VP et al, 2019¹⁰** shows 5.20% cases, Study by **Bhriegu R et al, 2017⁵** shows 3% cases

In our study 8.33% cases require admission to NICU. The study by **Bhriegu R et al, 2017⁵** and **Kandalgaonkar VP et al, 2019¹⁰** shows 17% and 12.5% cases with admission to NICU respectively.

32% babies present with meconium aspiration syndrome (MAS) in present study. The study by **Bhriegu R et al, 2017⁵** and **Singh N et al, 2020⁶** both show 7% cases. Study by **Verma V et al, 2017⁹** shows 6.41% cases and the study by **Kandalgaonkar PV et al, 2019¹⁰** shows 4.17% cases with MAS. Hyperbilirubinemia seen in 12% cases, Macrosomia seen in 4% cases, while the Study by **Singh N et al, 2020⁶** shows 2% cases hyperbilirubinemia & 4% with macrosomia. Present study shows 8% cases with IUGR. The study by **Verma V et al, 2017⁹** shows 8.97% cases and the study by **Bhriegu R et al, 2017⁵** shows 1% cases with IUGR. APGAR score >7 seen in 90.66% cases in present study. The study by **Kandalgaonkar PV et al, 2019¹⁰** shows 93.8% cases with APGAR score of >7.

Present study shows 16% cases with BW < 2.5 kg, 80% cases with BW 2.5-3.5kg. The study by **Kandalgaonkar VP et al, 2019**¹⁰ shows 13.5% cases with BW < 2.5 kgs, 80.2% cases with BW between 2.5-3.5kgs

Still births seen in 0.66% cases and neonatal deaths in 1.33% cases in present study. The study by **Kandalgaonkar VP et al, 2019**¹⁰ shows 66.66% stillbirth and 33.33% neonatal death cases. The study by **Verma V et al, 2017**⁹ shows 2.36% stillbirths and 15.38% neonatal deaths.

Conclusions:

From the present study, we conclude that the post-dated pregnancy is a high risk pregnancy as foetal outcome is compromised. Foetal distress is the most common indication of caesarean section in both spontaneous as well as induced labour in post-dated pregnancy. Management of post-dated pregnancy is a challenge to obstetrician and a careful advice and monitoring can alleviate maternal anxiety and untoward complications. We observed pregnancy beyond 41 weeks increases rate of caesarean section and NICU admission. There was significantly increased risk of obstetric complications such as oligohydramnios perineal tear, atonic PPH. The adverse outcome can be reduced by making accurate gestational age and diagnosis of post term gestation as well as recognition and management of risk factors. Vigilant maternal and foetal monitoring is necessary to reduce the complications. It seems reasonable to induce labour at 41 weeks of gestation as perinatal morbidity is significantly more in >41 weeks of gestation.

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