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ORIGINAL RESEARCH

Fetomaternal outcome in pregnancy beyond expected date of delivery

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ABSTRACT

Background: Pregnancy duration, extends to or beyond 40 weeks or 280 days from the first day of the last menstrual cycle is regarded as postdate gestation. This condition poses potential risks to both mother and the fetus including at increased chances of stillbirth, macrosomia, meconium aspiration syndrome and labour complications.

Aims and Objectives: To study maternal outcome, rate of vaginal and caesarean section, perinatal outcome in pregnancy beyond 40 weeks of gestation.

Materials and Methodology: This prospective study was conducted at a tertiary care Municipal hospital in East Ahmedabad in obstetrics and gynaecology department from November 1, 2022 to April 30, 2024. There were an average of 2526 deliveries, 150 cases of postdatism (5.93%) were included in the study.

Results: In present study majority of the cases (68.66%) belonged to the gestational age 40weeks to 40weeks + 6days. Total 32% cases had amniotic fluid index <5 cm. The caesarean section rate in present study was 46% with most common indication for caesarean section was meconium-stained liquor (24.63%), second most common indication for caesarean section was cephalopelvic disproportion (20.28%). Out of 150 babies, 33(22.00%) cases need NICU admission after delivery. The most common cause of neonatal complication was meconium aspiration syndrome (13.33%) followed by respiratory distress syndrome (4.66%). 3(2%) cases had intrauterine foetal death.

Conclusion: Maternal risks associated with postdated pregnancy include prolonged labor, increased likelihood of instrumental delivery or cesarean section, and higher rates of postpartum hemorrhage. Fetal risks include a higher likelihood of meconium aspiration syndrome, macrosomia, and dysmaturity syndrome and NICU admission. Vigilant monitoring and timely intervention are crucial to reduce potential risks for the mother and the fetus.

Key words: Postdate pregnancy, pregnancy beyond 40 week gestation, complications in postdate pregnancy, pregnancy beyond expected date of delivery, meconium stained liquor

INTRODUCTION

As per WHO, post term pregnancy is defined as a pregnancy that persists beyond 294 days or 42 weeks of gestation [1]. Postdate pregnancy is when gestation extends beyond 40 weeks or 280 days. While most pregnancies reach full term between 37 and 40 weeks, approximately 5-10% of pregnancies continue beyond expected due date.[2]This condition poses potential risks to both mother and the fetus including at increased chances of stillbirth, macrosomia, meconium aspiration syndrome and labour complications. Advancements in obstetric case, including ultrasound dating, fetal monitoring and labour induction strategies, have significantly improved the managment of Postdate pregnancies. However, clinical decisions regarding expectant managment versus induction labour remain a subject of debate.This publication explores the causes, risk factors, complications, and managment strategies associated with postdate pregnancy providing evidence-based insigts to optimize maternal and fetal outcome.

AIMS AND OBJECTIVES

- To study maternal outcome in pregnancy beyond 40 weeks of gestation.

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- To study the rate of vaginal and caesarean section among spontaneous and induced labour beyond 40 weeks of gestation.
- To study perinatal outcome in pregnancy beyond 40 weeks of gestation.

MATERIAL AND METHODS

This prospective study was conducted at a tertiary care municipal hospital in east Ahemdabad in the obstetrics and gynaecology department over a 18-month period, from November 1,2022 to April 30,2024. There were an average of 2526 deliveries. After applying specific inclusion and exclusion criteria, 150 cases of postdatism (5.93%) were included in the study.

STUDY DESIGN

Prospective observational study.

INCLUSION CRITERIA

- Pregnancy who crossed 40 weeks of gestation.
- Vertex presentation.
- Singleton pregnancy.
- With last three regular menstrual cycles, not used contraceptive pills for last 3 months, not conceived during lactational amenorrhea.
- Patients who are sure of last menstrual period.
- At least one first trimester scan.

EXCLUSION CRITERIA

- Patients with unknown last menstrual period, irregular menstrual cycles.
- Previous caesarean section.
- Multifetal pregnancies.
- Malpresentation.
- Antepartum haemorrhage.
- Pregnancy with medical diseases like Pre-eclampsia, gestational diabetes mellitus, heart disease.
- Fetal congenital anomaly.
- Patients with history of oral contraceptive pill use.
- Any history of allergic reaction.

RESULTS AND ANALYSIS

The results were presented in terms of tables. The descriptive statistics frequency and percentage were calculated.

Table 1: Distribution of cases according to age group

Age Group	Number of cases (N=150)	Percentage	Chhetri PB *et al.* study (2023) [3]
<20yrs	12	8.00%	7.24%
20-35yrs	134	89.33%	89.47%
>35yrd	04	2.66%	3.29%

This study shows maximum cases 134(89.33%) belonged to age group 20- 35years followed by 12 cases (8.00%) in age group of <20years and 04(2.66%) cases with age >35years. This corresponds to age of maximum fertility. This was consistent with the. Chhetri PB *et al.* [3] study.

Table 2: Distribution of cases according to gestational age

Gestational age	Number of cases (N=150)	Percentage	Kandalgaonkar VP *et al.* (2019) [4]
40w-40w6d	103	68.66%	69.8%
41w-41w6d	42	28.00%	27.1%
>42w	05	3.33%	3.1%

In the present study, majority 103 (68.66%) cases belonged to gestational age of 40weeks to 40weeks + 6days, 42 cases (28.00%) were between 41weeks to 41 weeks + 6 days and only 05 cases (3.33%) were ≥42 weeks. This results are consistent with Kandalgaonkar VP *et al.* study [4].

Table 3: Relation between amniotic fluid index (AFI) and gestational age

Gestational age	AFI<5cm	AFI>5cm
40w-40w6d	27(26.21%)	76(73.78%)
41w-41w6d	18(42.85%)	24(57.14%)
>42w	03(60.00%)	02(40.00%)

In present study, out of 150 cases 48(32.00%) cases had AFI<5cm. Of these, it was observed in 27(26.21%) cases between 40weeks to 40weeks 6days while in 18(42.85%) cases between 41weeks to 41weeks 6days and 3(60.00%) cases in ≥42 weeks.

Table 4: Distribution of cases according to meconium-stained liquor

Liquor	Number of cases (N=150)	Percentage	Kulshreshtha*et al.* (2021) study [5]
Clear	104	69.33%	85.08%
Meconium-stained liquor (MSL)	46	30.66%	14.92%

In this study, it is observed that 104 (69.33%) had clear amniotic fluid while 46 (30.66%) women had meconium stained liquor Kulshreshtha*et al.* study (2021) [5].

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MATERNAL OUTCOME

Table 5a: Relation of mode of delivery with gestational age

Period of gestation	Total Number of cases	Vaginal delivery (%)	LSCS (%)
40w-40w6d	103	62(60.19%)	41(39.8%)
41w-41w6d	42	16(38.09%)	26(61.8%)
≥42w	5	3(60.00%)	2(40.00%)
Total	150	81(54%)	69(46%)

Table 5b: Mode of delivery in Suvidhas*et al*. study (2023) [6]

Period of gestation	Total Number of cases	Vaginal delivery (%)	LSCS (%)
40w-40w6d	48	20(41.6%)	28(58.4%)
41w-41w6d	18	10(55.5%)	8(44.5%)
≥42w	6	2(33.33%)	4(66.66%)
Total	72	32(44.44%)	40(55.55%)

In the present study, total number of vaginal deliveries were 81(54%) out of which 62(60.19%) cases were of gestational age 40 weeks to 40 weeks 6 days, 16(38.09%) cases were of gestational age 41 weeks to 41 weeks 6 days and 3(60.00%) vaginal delivery occurred beyond 42 weeks. The total number of caesarean sections were 69(46%), out of which 41(39.8%) cases were of gestational age 40weeks to 40weeks 6days, 26(61.8%) were of gestational age 41weeks to 41 weeks 6days and 2(40.00%) cases were beyond 42 weeks. Study done by Suvidha s *et al*. (2023) in which, there was increased rate of caesarean section from 58.3% in 40w-40w6d to 66.6% in ≥42 weeks [6].

Table 6: Mode of delivery in Spontaneous and induction group

Groups	Number of cases (%) (n=150)	Vaginal delivery (%)	LSCS (%)	Patel N *et al*. (2017) study [7]
Spontaneous	86(57.33%)	35(40.69%)	51(59.30%)	58%
Induced	64(42.66%)	46(71.87%)	18(28.12%)	42%

In present study, out of 150 patients 64 women were induced for labour progression. Among them, 71.87% women were delivered vaginally while 28.12% women were needed cesarean section. In spontaneous group, 35(40.69%) cases had spontaneous vaginal delivery and 51(59.30%) cases had caesarean section In a study by Patel N *et al*. (2017) 48, 58% cases were in spontaneous group while 42% were included in induced group [7]

Table 7: Indication of LSCS

LSCS	Number of cases	Percentage
MSL	17	24.63%
CPD	14	20.28%
FD	11	15.94%
Oligo	09	13.05%
Induction failure	09	13.05%
Non-reactive NST	07	10.14%
Arrest in 2nd stage labour	02	2.89%

Among patients who were delivered by cesarean section, most common indication for cesarean section were meconium stained liquor 17 (24.63%) followed by cephalopelvic disproportion 14 (20.28%), fetal distress 11(15.94%), severe oligohydramnios and induction failure 9 (13.05%) each, nonreactive NST 7 (10.14%), arrest in 2nd stage of labour (2.89%).

Table 8: Maternal complications

Maternal complications	No. of cases (n=150)	Percentage	Chhetri PB *et al.* (2022) study [8]
Oligohydramnios	24	16.00%	16.4%
Atonic PPH	07	4.66%	1.9%
Cervical/perineal tear	06	4.00%	2.6%
Wound infection	05	3.33%	1.9%
Length of hospital stay ≥7d	15	10.00%	4%

In the present study, maternal complications were observed in 57 cases, accounting for 38% of the total. The prevalent complication was oligohydramnios, with 24 cases (16%). The second most common cause was a hospital stay of ≥7 days, with 15 cases (10%), followed by atonic PPH in 7 cases (4.66%), wound infection in 5 cases (2.3%), cervical/perineal tear in 3 cases (3.33%). No cases of maternal mortality were reported in present study. Chhetri PB *et al*. (2022) [8] reported similar findings in their study.

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NEONATAL OUTCOME

Table 9: Neonatal complications

Complication	40w-40w6d	41w-41w6d	>42w	Sharma *et al*. Study (2022) [9]
MAS	11(10.6%)	07(16.66%)	02(40%)	2.7%
RDS	04(3.8%)	02(4.76%)	1(20%)	3.6%
Asphyxia	01(0.9%)	-	-	1.8%
PMS	02(1.9%)	01(2.38%)	01(20%)	-
Hyperbilirubinemia	03(2.9%)	3(7.14%)	-	1.8%
LBW	02(1.9%)	1(2.38%)	-	1.8%
IUFD	02(1.9%)	-	1(20%)	1.8%

In present study, the most common cause of perinatal complications was meconium aspiration syndrome which was seen in 13.33% cases, where patients with gestational age ≥42 weeks had MAS In 40.00% cases, while 16.66% cases had MAS in 41 weeks to 41 weeks + 6 days group and 10.6% cases in 40 weeks to 40 weeks + 6 days group. RDS was seen in 7 (4.66%) cases, where patients with ≥42 weeks gestational age had RDS in 20% cases. Other neonatal complications were hyperbilirubinemia in 06(4.00%), PMS in 04(2.66%) cases, IUFD in 03(2.00%) and LBW in 03(2.00%) cases. There were 01(0.66%) cases of asphyxia in present study. As the gestational age increases, the proportion of neonatal complications also rises. Sharma HK *et al*. (2022) study observed most common cause of perinatal complication as RDS (3.6%) followed by MAS (2.7%), asphyxia (1.8%), LBW (1.8%), hyperbilirubinemia (1.8%) and IUFD (1.8%) [9].

DISCUSSION

In our study total 150 cases of post-dated pregnancy, most common age group for post-dated pregnancy is 20-35 years. In present study 89.33% cases were belong to 20-35 years age group. Majority of the cases (68.66%) belonged to the gestational age 40weeks to 40 weeks + 6 days. Total 32% cases had amniotic fluid index <5 cm. Oligohydramnios cases increases with increasing gestational age. In this study, it is observed that 104 (69.33%) had clear amniotic fluid while 46 (30.66%) women had meconium stained liquor. Postdate pregnancy increase the risk of meconium aspiration syndrome. Among patients with gestational age between 40w-40w6d 60.19% patients delivered vaginally. Among patients with Gestational age between 41w-41w6d, 38.09% patients delivered vaginally. 60% patients delivered vaginally who are ≥42 week gestational age. The caesarean section rate in present study was 46%.In present study, it is evident that induction of labour in post-dated pregnancy may decrease the rate of caesarean section. The most common indication for caesarean section was meconium-stained liquor (24.63%). Second most common indication for caesarean section was cephalopelvic disproportion (20.28%). The most common maternal complications was oligohydramnios (16%). Pregnancy that continued beyond expected date of delivery often lead to reduced amniotic fluid volume.The most common cause of neonatal complication was meconium aspiration syndrome (13.33%) followed by respiratory distress syndrome(4.66%). Neonatal complication rate increases with postdated pregnancy. 3(2%) cases had intrauterine foetal death. We have not observed any case of stillbirth or neonatal mortality in present study.

CONCLUSION

Post-dated pregnancy is associated with increased maternal and fetal risks including fetal distress, meconium stained liquor, macrosomia and stillbirth. Maternal risks associated with post-dated pregnancy include prolonged labor, increased likelihood of instrumental delivery or cesarean section, and higher rates of postpartum haemorrhage [10]. Additionally, psychological stress from an extended pregnancy duration can affect maternal well-being. Fetal risks include a higher likelihood of meconium aspiration syndrome, macrosomia, and post maturity syndrome and NICU admission [11]. The likelihood of complications, rises significantly after 41 weeks necessitating close monitoring and timely medical intervention. Current clinical guidelines suggest that labour induction after 41 weeks can reduces the risk of perinatal morbidity and mortality without significantly increase cesarean section rates. While some pregnancies may safely progress beyond this point with proper surveillance, individualized management remains essential, taking into account maternal health, fetal well-being and other risk factors. Advanced obstetric practice, including doppler studies and biophysical profile have improve the ability to assess fetal condition and guide decision making. Despite these advancements controversies remain regarding the optimal timing of intervention and balance between allowing spontaneous labour and reducing risks through medical Induction. Multi-disciplinary approach involving obstetricians, midwives and neonatologist remains vital in ensuring the best possible outcomes for post-dated pregnancies.

References

1. Balakrishnan S. Textbook of Obstetrics. Hydrabad, India: Paras Medical Publishers; 2013: 218.
2. Neff MJ. ACOG releases guidelines on management of post-term pregnancy. Am Fam Physician. 2004;70:2221-5
3. Chhetri PB, Shrestha BK, Shrestha S, Pathak P, Shrestha R, Acharya M. Maternal and foetal

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outcome in pregnancy beyond the expected date of delivery in a tertiary care hospital of Nepal. Journal of Chitwan Medical College. 2022;12(40):47-50.

4. Kandalgaonkar VP, Kose V. Fetomaternal outcome in postdated pregnancy. Int J ReprodContraceptObstet Gynecol. 2019; 8:1899-906.
5. Kulshreshtha, S., &Siwatch, S.* (2022). Prevalence of meconium stained liquor in postdated pregnancy in a tertiary care hospital in India. The New Indian Journal of OBGYN, February 18, 2022.
6. SaurabhSuvidha. A study to assess the maternal and perinatal outcome of postdated pregnancy at a tertiary care institution of Eastern India. Int J ReprodContraceptObstetGynecol 2023;12:3469-73
7. Patel N. Modi P. A Study of maternal and foetal outcome in post-date pregnancy. 2017;6(9):2015-8.
8. Chhetri PB, Shrestha BK, Shrestha S, Pathak P, Shrestha R, Acharya M. Maternal and foetal outcome in pregnancy beyond the expected date of delivery in a tertiary care hospital of Nepal. Journal of Chitwan Medical College. 2022;12(40):47-50.
9. Sharma HK, Bocah BK. Roy DK, Ghosh T. Assessment of maternal and perinatal outcome in postdated pregnancies in a tertiary care center. The New Indian Journal of OBGYN 2022, 9(1):99-105.
10. De Los Santos-Garate AM, Villa-Guillen M, Villanueva-García D, *et al*. Perinatal morbidity and mortality in late-term and post-term pregnancy. NEOSANO perinatal network's experience in Mexico. J Perinatol. 2011;31:789.
11. Caughey AB, Musci TJ. Complications of term pregnancies beyond 37 weeks of gestation. Obstet Gynecol. 2004; 103: 57-62.