

40 Weeks of Gestation is as High-Risk Gestation as 41 Weeks in Low-Risk Pregnancies

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Author's Contribution

^{1,2} Conception of study

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Abstract

Introduction: Postdate pregnancy is associated with a higher frequency of obstetrical complications and perinatal morbidity. The incidence of meconium-stained amniotic fluid is 30% at 40 weeks which is very high. This study aimed to find out the need for fetal surveillance and delivery in our population, keeping in view that 40 weeks of gestation is as high risk as 41 weeks gestation in low-risk pregnancies.

Material and Methods: The study was conducted at Obstetrics & Gynecology Department, Unit-II, Holy Family Hospital, and Rawalpindi from 16 February to 15 August 2019 after ethical clearance. Postdate pregnant women from 40 to 41 weeks who meet study criteria were enrolled in the study. We divided participants into two groups. Group A (40 to 40+6 weeks of gestation) while group B had Group B (41 to 41+6 weeks of gestation).

Results: A total of 236 postdate mothers presented of which 148(62%) were in group A while 88 (38%) were in group B. Mean gestational age in our study was 40.88 ± 0.71 weeks. overall vaginal delivery, cesarean delivery, and meconium stained liquor were found in 75.84%, 24.16%, and 35.17% patients respectively. 82 (34.7%) participants presented with meconium-stained liquor meconium-stained liquor with women in group B has a higher frequency of meconium-stained liquor, 45 (30.41%) in group A and 37 (42.04%) in group B, P-value 0.069. rate of vaginal delivery was 71.62% in group A and 82.95% in group B which was statistically significant. P-value 0.049

Conclusion: High percentage of meconium-stained liquor was observed in the study population. Frequency of vaginal delivery increases if postdate women waited till 41 weeks. 30% of women at gestation age 40 to 40+6 have meconium-stained liquor which shows almost 1/3 of pregnant ladies are exposed to the compromised fetal status which is a considerable risk. This increases further as the gestation age advances. Appropriate interventions should be taken at 40 weeks in low-risk pregnancies to avoid perinatal risk.

Keywords: Post-term delivery, cesarean section, meconium-stained liquor, prolonged pregnancy, term pregnancy.

Introduction

The term in obstetrics refers to a period of five weeks in pregnancy that is 37 to 42 weeks.^{1,2} The gestational age of 37 weeks is considered safe for the fetus to undergo the stress of labor as well as to tolerate the ex-utero environment. A pregnancy that has extended beyond 42 weeks of gestation from the first day of the last menstrual period makes 'post-term' pregnancy, also called prolonged pregnancy with a reported incidence of 5 to 10%.^{3,4} Prolonged pregnancy is associated with maternal and fetal risks. Fetal risks include meconium-stained liquor leading to meconium aspiration syndrome, oligohydramnios, fetal distress, macrosomia, and still-birth.⁵ Maternal risks associated with prolonged pregnancy include anxiety, operative delivery, dysfunctional labor, perineal trauma due to macrosomia.⁶

Meconium stained amniotic fluid (MSAF) was associated with operative delivery, cesarean section, respiratory morbidity, and increased risk for short-term neonatal morbidity.⁷

Postdated pregnancy is gestation longer than 40 weeks. Gestational age between 39 and 40 weeks of gestation is considered to be associated with the lowest risk of adverse perinatal outcomes.⁶ The period of gestation between 41 to 42 weeks is called "late-term." Though this week constitutes the last week of the term yet it is postulated to be putting the fetus at risk of increased perinatal morbidity and mortality. Hence induction of labor is recommended at 41 weeks of gestation, in women who do not go into the spontaneous onset of labor by then. Women who do not consent for induction of labor are counselled for increased fetal surveillance to timely predict fetuses at risk of compromise and hence intervention advised accordingly.⁸

Gestational age recommended by The American College of Obstetricians and Gynecologists (ACOG) for planned repeat cesarean delivery is 39 weeks without the need for steroids for lung maturity considering it a safe gestation to transition to ex-utero life.^{9,10}

The postulated benefit of waiting till 41-week gestation is an increased likelihood of achieving vaginal delivery not only through the spontaneous onset of labor but also improving the chances of successful induction of labor because of improved bishop score.¹¹

A systemic review published in 2018 narrated an increased risk of stillbirth as pregnancy advances especially after 39 weeks of gestation.¹² The

prospective risk of stillbirth increased with gestational age from 0.11 per 1,000 pregnancies at 37 weeks to 3.18 per 1,000 at 42 weeks.¹³

Recommendation about fetal surveillance after 40 weeks is lacking so we planned this study to quantify fetal risks in low-risk pregnancies if any so that strict fetal surveillance could be planned accordingly. Also, the mode of delivery of these patients is noted to see if the postulated benefit of improved chances of vaginal delivery weighs against potential fetal risks.

Materials and Methods

This study was conducted in the Obstetrics & Gynecology Department, Unit-II, Holy Family Hospital, Rawalpindi from 16 February to 15 August 2019 which is tertiary care hospital affiliated with Rawalpindi medical university. Ethical approval from the review board was sought before conducting the study. Post-date pregnant women presenting in the department were accessed for eligibility. Gestation age was calculated from LMP and corresponding with early obstetric scan. Only patients in whom gestational age could be confirmed were included in the study. Patients with unsure of dates or lacking early obstetric scan were excluded from the study. We included 40 to 41+6 weeks in the study. Patients gestational age greater than this were excluded from the study. Additional criteria were confirmed to have singleton pregnancy on ultrasonography excluding high-risk pregnancies with hypertension, diabetes, Intrauterine Growth Restriction, or previous scar presenting in the spontaneous Labor. We used consecutive sampling to enroll study participants. Informed consent was taken after explaining the nature of the study. 236 pregnant ladies were enrolled which were further divided into two groups.

Group A: Included 148 patients at 40 to 40+6 weeks of gestation.

Group B: Included 88 patients at 41 to 41+6 weeks of gestation in each group mode of delivery and the colour of the liquor was noted by doing a vaginal examination or by seeing the pad of the patient.

All this information was recorded on a predesigned proforma. Frequency and percentage were presented for qualitative variables such as mode of delivery and meconium-stained liquor. The difference between the two groups was calculated using the Chi-square test, P-value ≤ 0.05 was taken as significant.

Results

A total of 236 women were enrolled in the study. The mean gestational age in our study was 40.88 ± 0.71 . The majority of the participants 148 (62.71%) were in between 40 to 40+6 weeks while 88(37.29%) participants were in group 41 to 41+6 weeks. The mean age of participants in group A was 26.63 ± 4.89 while for group B it was 26.21 ± 5.12 . Mean parity was 2.16 ± 1.10 in group A and 2.01 ± 1.02 in group B.

All the patients were followed till delivery vaginal and feto-maternal outcome i.e. vaginal delivery, caesarean section, and meconium stained liquor was found in 75.84%, and 34.74% patients respectively.

In our study 179 (75.84%) had a vaginal delivery and the rate of vaginal delivery was significantly more in group B than in group A participants. In group A 106 (71.62%) Participants had vaginal delivery while 73 (82.95%) in group B had a vaginal delivery. P-value was 0.0491.

Meconium stained liquor was seen in 34.7% of the study population. In group A, 30.41% of participants had meconium-stained liquor which showed that almost 1/3 pregnant ladies at 40 to 40 plus 6 weeks were at risk for fetal distress related to meconium-stained liquor. For group B Additional 12% of pregnant women, 37 (42.04%) had meconium-stained liquor. Group differences were not significant as the chi-square p-value was 0.069.

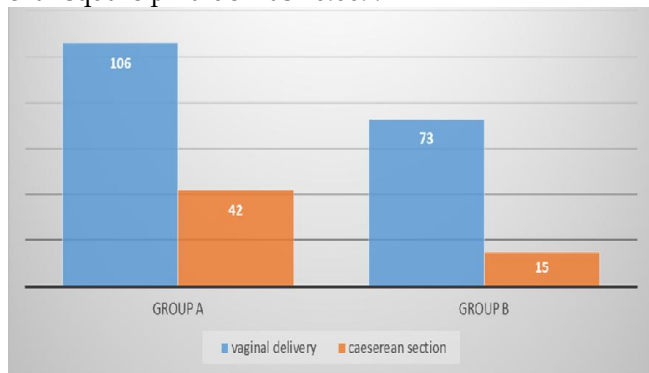


Figure 1: Mode of delivery comparison between two groups

Group A 40 to 40+6 weeks and group B 41 to 41+6 weeks. The P-value for chi-square static 3.8691, P-value 0.0491 which is significant for a 95% confidence level.

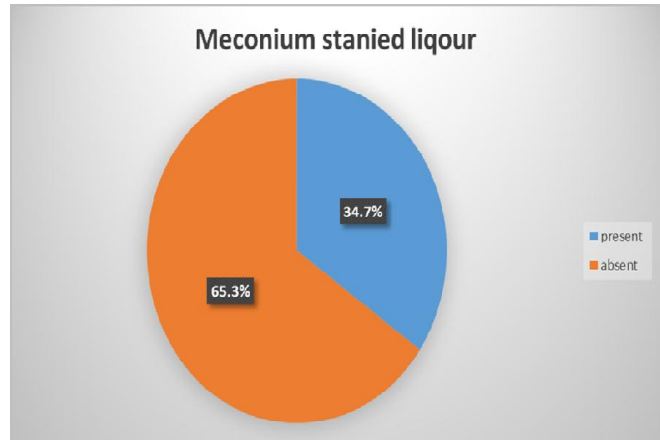


Figure 2: Frequency of meconium-stained liquor in all study participants regardless of group distribution

Table 1: Comparison of meconium-stained liquor between two groups

Gestation al age	Meconium stained liquor		
	Present	Absent	P-Value
40 to 40+6 weeks	45 (30.41%)	103 (69.59%)	0.069
41 to 41+6 weeks	37 (42.04%)	51 (57.95%)	

Discussion

In our study group 75.84%, women achieved vaginal delivery which is consistent with the results of some studies show that the rate of vaginal delivery is 78% in postdate pregnancies (40-42 weeks).⁸

In our study 71.62%, women with gestational ages between 40-41 weeks achieved vaginal delivery, and 82.95% of women with 41 to 42 weeks achieved vaginal delivery. Results are contrasting to a study in which 65% of the women achieved vaginal delivery at 40 to 41 weeks and 59% of women at 41 to 42 weeks.⁵ The results of my study are enforcing the notion of improved chances of vaginal delivery with increasing gestational age. The apparent benefit must be weighed cautiously against risks of perinatal morbidity and mortality reported in many studies in late-term pregnancies.

There is an increased risk of instrumental as well as cesarean delivery in postdate pregnancies owing to the risk of fetal distress, fetal macrosomia, and failure to progress in labor. In our study LSCS was seen in

24.16% of cases which is lower than 34% as reported by in study by Bhriegu R et al.⁵ The rate of LSCS in women at 40 to 41 week was 28.38% which decreased to 17.05% in women at 41 to 42 week.⁵ In his study reported a higher rate of primary cesarean section with an increasing week of gestation, there was an increase between 40 and 41 weeks (33% vs. 41%)

Another study reported 48% of cases undergoing LSCS after 40 weeks.¹⁴ The lower rate of LSCS with advancing gestational age in our study can be explained by patients preferring to present in advanced spontaneous labor rather than for IOL or early labor.

Meconium stained liquor was seen in 34.74% of cases a value much higher than the study conducted in Southeastern Brazil (11.9%)¹⁵ and Israel (10.9%).⁷ The difference may just be reflecting access to antenatal care to pregnant women in developed countries.

The results of my studies are comparable to one from Ethiopia which stated 24.6% cases with meconium in low-risk pregnancies¹⁶ and 50% cases from India.¹⁹

As regards gestation it was seen in 30.41% of women at 40 to 40 plus 6 weeks while in 42.04% of women at 41 to 41 plus 6 weeks. The difference between the two groups was not statistically significant. Meconium stained liquor puts the fetus at risk of distress and development of meconium aspiration syndrome and hence increased neonatal morbidity and mortality. We did not study these severe outcomes hence it is difficult to say whether this high percentage of meconium staining could be translated as high perinatal morbidity or mortality. Though the results did direct about the requirement of frequent fetal surveillance right from 40 weeks rather than 41 weeks. The Meconium stained liquor is reported in 39% of postdate pregnancies.¹⁷ The rate of meconium-stained liquor increases with increasing gestational age reported as 31% at 40 weeks and 42% at 41 weeks.¹⁸ The findings of my study suggest that surveillance for fetal well-being should begin sooner than current recommendations of 41 weeks of gestation and that the appropriate gestational age for induction of labor may need further investigation especially in low resource settings where patients are lost to follow up.

After collection and interpretation of data from our population, we concluded that the frequency of meconium-stained amniotic fluid at 40 weeks is as high as at 41 weeks, so we recommend induction of labor should be done at 40 weeks in our low-risk population. A high incidence of meconium-stained amniotic fluid also affects the mode of delivery and leads to an increased rate of caesarean section and

increased neonatal ICU care. In turn, increased caesarean section leads to increased maternal morbidity and mortality in the future. After getting consensus from our study for fetal and maternal safety we recommend we should also induce our low-risk patients at 40 weeks.

Limitations of the study included a small sample size restraining generalization of results. Grading the meconium staining would have been more clarifying as regards risk to the fetus. Future studies with large sample size and outcome variables of severe neonatal morbidity are recommended to draw a more unequivocal conclusion.

Conclusion

We observed that the high frequency of meconium-stained liquor in 40 to 40+6 weeks is an important parameter and should be accounted for early. The prospects for a vaginal delivery increase in 41 to 41+6 weeks but the frequency of meconium-stained liquor also increases. We conclude strict fetomaternal surveillance in post-date pregnancies should commence from 40 weeks.

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