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A Clinical Study of Prolonged Pregnancies With Regard To Maternal and Perinatal Outcome

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Abstract:
Aim: *To evaluate the maternal & perinatal outcome in prolonged pregnancies.*
Materials and Methods: *It is a prospective study done at Gandhi Hospital, Hyderabad, Telangana. India over a period of two years from Jan 2009-Jan 2011, 300 cases of prolonged pregnancies with 40-42 weeks of gestational age were taken and categorized into two groups.*
First group of 180 cases having spontaneous onset of labour and second group of 120 cases were induced after the expected date of delivery. All the cases had reliable pregnancy dating. The various demographic features, mode of delivery and perinatal outcome were compared.
Results: *Among 180 cases of spontaneous group, 110(61.11%) had normal vaginal delivery, 10(5.56%) had instrumental delivery, 60(33.33%) had cesarean section.*
Out of 120 cases, 74(61.67%) had normal vaginal delivery. 12(10%) had instrumental delivery, 34(28.33%) had cesarean section. Overall maternal outcome in the form of cesarean section rate (33.33%), severe perineal lacerations (8.88%) risk of PPH (7.77%) were more in spontaneous group than induced group. Also the fetal complications were higher in spontaneous group.
Conclusions: *Induction of labour is better than conservative management after 40 weeks of GA to decrease the maternal and perinatal morbidity and mortality.*
Keywords: *EDD, Gestational age, Spontaneous group, Induced group, Mode of delivery.*

I. Introduction

Prolonged pregnancy is one of the most common, yet challenging condition, currently facing obstetricians, because morbidity and mortality exceeds that of term pregnancies. The term prolonged pregnancy is used to refer to those pregnancies advancing beyond the EDD and "postterm" is used to designate the pregnancies that advance beyond 42 weeks. (Fernandi Arias)[1].

International Federation of Gynaecologists and Obstetricians (FIGO 1980) defined prolonged pregnancy as any pregnancy which exceeds 294 days from the first day of the last menstrual period. The prolongation of pregnancy beyond 40 weeks occurs more frequently, about 1 in every 10 pregnancies (Fernando Arias)[1]. The incidence varies with definition for prolonged pregnancy and their dating criteria used. Boyd et al (1988)[2], found an incidence of prolonged pregnancies of 7.5% when the diagnosis was based on menstrual history, 2.6% when based on early ultrasound examination and 1.1% when based on concurrent menstrual history and ultrasound examination. Perinatal mortality at 42 weeks of gestation is twice that at 40 weeks and increases fourfold at 43 weeks and 5-7 fold at 44 weeks[3]. The rationale to initiate the fetal surveillance at 40 weeks is provided by the study of Divon et al (2004), showing that the risk of fetal demise became significantly higher at any gestational age at or beyond 40 weeks and 3 days. There is several fold increased risk of perinatal morbidity and mortality, which include fetal hypoxia, meconiue aspiration, fetal trauma, shoulder dystocia, post maturity syndrome.

Post term pregnancies per se does not put the mother at risk. There is increased morbidity incidental to the hazards of induction, instrumental and operative deliveries. These include, an increase in labour dystocia (9-12% Vs 2-7% at term), an increase in severe perineal injuries (3^{rd} & 4^{th} degree) related to Macrosomia (3.33% Vs 2.6% at term), operative vaginal delivery and a doubling in the rate of CD (14% Vs 7% at term). Similar to neonatal outcomes, maternal morbidity also increases in term pregnancies even prior to 42 weeks of gestation[4].

The most important elements used in management are estimation of reliability of gestational age, pelvic examination, ultrasound, fetal surveillance. Gestational age can be reliably estimated by history, pelvic examination, biochemical tests, ultrasound, Amniocentesis and Radiological examination. If there is uncertainty about the dates, due dates can be estimated based on early ultrasound examination between 12-20 weeks or more from 2 or more ultrasound examinations 3-4 weeks apart between 12&28 weeks.

The biophysical tests used at the present time are Daily Fetal Movement Count, Non Stress Test, Contraction Stress Test, Biophysical Profile, Umbilical & Uterine, MCA Doppler USG, Vibro acoustic stimulation test.

Several minimally invasive interventions have been recommended to encourage the onset of labour at term and prevent post term pregnancy, including membrane stripping, unprotected coitus and acupuncture. The purpose of this study is to review current understanding of prolonged pregnancy and to provide diagnostic and management guidelines that have been validated by appropriately conducted outcome based research.

II. Aims And Objectives

- To evaluate the maternal and perinatal outcome in prolonged pregnancies.
- To study the results and the protocols adopted for the management of prolonged pregnancy at Gandhi Hospital, Hyderabad.

III. Materials And Methods

The total 300 cases were divided into two groups. First group of 180 cases having spontaneous onset of labour and the second group constitutes cases induced after the expected date of delivery.

Inclusion Criteria: Pregnant women aged between 20-33 years having singleton uncomplicated pregnancies beyond the expected date of delivery i.e., (40-42 weeks of gestation) according to LMP and ultrasound dating were taken.

Exclusion Criteria: All the pregnant women with poor dates and having medical or obstetrical complications were excluded.

A detailed history was taken from all patients followed by general, systemic and obstetrical examination was done. All the patients in the study group were subjected to baseline investigations and ultrasound was performed to determine the gestation age. EF weight, AFI, placental localization and maturity. Congenital anomalies if any were excluded and BPP was done.

In women admitted with spontaneous onset of labour, NST and liq was done. In the induced group, patients were induced after excluding fetal compromise by MBPP. In the present study, labour was induced when the Bishop's score was <6. (Modified Bishop's score – Calder score 1974) by two methods, 12 cases with oxytocin and ARM and 108 cases with PG & Oxytocin on Bishop score.

In both the groups labour progress was monitored and continuous CTG monitoring done . Mode of delivery was noted and if cesarean section was done, the indications for the same, baby details with APGAR score noted and examined for any congenital anomalies. Placental weight checked and examined for any calcifications and infarcts.

IV. Results

In the present study, out of 15,600 cases admitted at Gandhi Hospital, Hyderabad, 720 cases had prolonged pregnancy giving the incidence of 4.62% in our hospital.

- Out of 300 cases, 180 cases (60%) went into spontaneous labour and 120 cases (40%) were induced after 40 weeks of gestation.
- More number of prolonged pregnancies were seen in age group between 21-25 years (53.33%) in both the groups
- In both the groups, the rate of unbooked cases were higher when compared to booked cases. When the Bishops's score was <5 more number of cases were induced with prostaglandis.

Out of 120 cases, 108 cases (90%) of the cases were induced with PG's and 12 cases (10%) cases were induced with Oxytocin and ARM. i.e., when the Bishop's score was < 5, more number of cases were induced with PG's. Mode of delivery in any method of induction depends on cervical Bishop's score. In ARM+Oxytocin group as the Bishop's score was favourable 12 (100%) of cases delivered vaginally. In the PG+Oxytocin group operative delivery was higher i.e., 82.34% when the Bishop's score was <5.

Table: 1 Mode of Delivery in Spontaneous and Induced Groups

Mode of Delivery	Spontaneous Group		Induction Group	
	No.	%	No.	%
Normal Vaginal Delivery	110	61.11	74	61.67
Instrumental Delivery	10	5.56	12	10
Caesarean Section	60	33.33	34	28.33

In the present study out of 180 cases in spontaneous group 60 (33.33%) patients had cesarean section out of 60, fetal distress was in the indication in 26(43.33%), severe oligo in 14 (23.33%) mild CPD in 8 (13.33%) cases, failure to progress in 12(20%) of cases. Main indication being thick MSL with fetal distress and in the induced group, the main indication was failed induction in 14 patients (41.17%).

Table: 2 Maternal Outcome in both Spontaneous and Induced Groups

Maternal Outcome	Spontaneous Group		Induction Group	
	No.	%	No.	%
Caesarean deliveries	60	33.33	34	28.33
Operative Vaginal Deliveries	10	5.56	12	10
Severe Perineal Lacerations	16	8.88	10	8.83
Chorioamonionitis	6	3.33	4	3.33
Post Partum Haemorrhage	14	7.77	8	6.66
Endomyometritis	-	-	-	-
Transfusions	10	5.55	6	5

The above table showing the overall maternal complications were more in the spontaneous group when compared to induced group.

Table: 3 Perinatal Outcome in both Spontaneous and induced groups

Outcome	Spontaneous Group		Induced Group	
	No.	%	No.	%
Apgar Score				
(1 min - <=7)	16	8.88	16	13.33
(1 min - >7)	164	91.11	104	86.67
(5 min - <=7)	6	3.33	8	6.66
(5 min - >7)	174	96.66	112	93.33
Fetal Weight (<=3.5 kgs)	170	94.44	116	96.67
Fetal Weight (>3.5 kgs)	10	5.55	4	3.33
NICU Admissions	10	5.55	8	6.66
Meconium Aspiration Syndrome	2	1.11	1	0.83
Post Maturity Syndrome	8	4.44	2	1.67
Congenital Anomalies	-	-	-	-
Birth Injuries	-	-	-	-
Perinatal deaths	4	2.22	4	3.33

The above table showing the fetal complications were more in the spontaneous group when compared to induced group. The average weight of the placenta and placental infarcts was increased with increase in gestational age in both the groups.

V. Discussion

The present study was conducted to assess the maternal and fetal risks of prolonged pregnancy. All the cases were analyzed and compared with various studies and close clinical observations were made. In a study by Boyal et al, 1988, the incidence of prolonged pregnancy was 7.5% when the diagnosis was based on menstrual dating and the incidence was 2.6%. When based on early ultrasound examination and 1.1% when the ultrasound and menstrual dating coincided. Hence, the incidence of prolonged pregnancy decreases as the accuracy of dating criteria used increases and it varies according to the definition used and the population studied.

According to Mc Clure Brown[5], 1963, the incidence of PP was 3-17%, according to Beischer et al[6], 1969, Sachs & Friedman[7], 1986, Usher et al[8], 1988, the incidence was about 3-14%.

Table: 4 Studies Comparing the Incidence of Prolonged Pregnancies

S.No.	Name of the Study	Incidence of Prolonged Pregnancy
1	Mc Clure Brown, 1963	3-7%
2	Beischer et al, 1969	3-14%
3	Sachs and Freidman, 1986	
4	Usher et al, 1988	
5	Boyd et al, 1988	7.5%
6	Bakketeig and Bergsjo, 1991	4-14%
7	Divon and Feldman – Leidner 2008	4-19%

In the present study, the incidence was 4.62% and more number of prolonged pregnancies were seen between 21-25 years of age group Zwerdling[9], 1967 reported an inverse relationship between maternal age and incidence of prolonged pregnancy. Similar findings have been reported by Beisher et al, 1969 and Eden et al[10], 1987; found similar maternal ages for both term and post term pregnancies. Hence, the parity and maternal age does not influence the incidence of prolonged pregnancy.

In the present study, induction of labour was done with ARM + Oxytocin when the Bishop's score was >5 and PG + Oxytocin was selected when the Bishop's score was <5. In ARM + Oxytocin group, as the Bishop's score was favourable, 100% of cases delivered vaginally.

In Prostaglandins + Oxytocin group, when the Bishop's score was <5, 25.81% had normal vaginal delivery, 33.33% had instrumental delivery and 35.29% had cesarean section. The overall cesarean section rate was 31.33% and it was comparatively lower among the induced group (28.33%) than spontaneous group (33.33%). Hannah et al, 1992 showed a statistically significant decrease in cesarean section rates in the induction group (21.2%) as compared with the spontaneous group (24.5%). In the present study, the main indication for cesarean section in SP. Group was fetal distress (43.33%) and it was failed induction in the induced group.

In the present study, the cesarean section rate was 33.33% in Sp. Group and 28.33% in induced group. The incidence of severe perineal lacerations was 6.66% in Sp. Group and 5.83% in induced group, the incidence of Chorioamnionitis was 2.22% in Sp. Group and 1.66% in the induced group. The incidence of PPH was 5.55% in the Sp. Group and 5% in induced group. The overall maternal complications were in spontaneous group than the induced group.

Crowley[11], 2000 suggests that induction after 41 completed weeks reduced the risks of perinatal deaths.

Post maturity syndrome complicates 20-43% of post dated pregnancies (Vorhess et al[12] 1975), Homburg et al[13] 1979, YehSy et al[14] 1982). In the present study, the incidence of PMS was 4.44% in Sp. Group and 1.67% in induced group. Post Maturity Syndrome increases with advance in gestational age beyond term.

Molteni Ra[15] et al at 1978 reported that the post dated PL has a higher mean placental weight. In the present study, the mean placental weight and the placental infarcts increase with increase in gestational age.

VI. Conclusions

The risk to the fetus and mother increases as pregnancy continues beyond term. Induction of labour is better than conservative management after 40 weeks gestational age to the decrease the incidence of maternal morbidity and perinatal morbidity and mortality.

Today the role of expectant management of prolonged pregnancy is justified only in a small group of women who are below 41 weeks of gestation, with an unripe cervix, normal AFI, average size babies and a normal CST and reactive NST.

Pregnancies going beyond 40 weeks gestation are better to be prevented than to be cured. The best way to prevent it is to provide good antenatal care and early ultrasound dating, so that the gestational age can be determined with certainty.

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