

## MATERNAL AND PERINATAL OUTCOME IN POSTDATED PREGNANCY: A STUDY OF 100 CASES IN BANGLADESH ARMED FORCES

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### Abstract

**Introduction:** Any pregnancy which has passed beyond the Expected Date of Delivery (EDD) is called postdated pregnancy or prolonged pregnancy. But when pregnancy has prolonged beyond 42 weeks are called postmaturity or post term pregnancy. Incidence of prolonged pregnancy is 3-14 % of all gestations.

**Aim:** The aim of the study is to determine the foetal and maternal outcome and complications in patients presenting with postdated pregnancy in Combined Military Hospital of Bangladesh Armed Forces.

**Materials & Methods:** A cross-sectional study was conducted for one year at the Department of Gynecology and Obstetrics in Combined Military Hospital, Dhaka. During this period total 100 cases were studied. Cases were selected randomly. Here postdatism was applied to any pregnancy which exceeded the EDD and it also included postmaturity which is pregnancy extending beyond 42 completed weeks. A preformed proforma was used to collect data which were analyzed later on.

**Results:** Amongst 1853 cases of labour patients, 273 cases were postdated pregnancy and 169 cases postmaturity. The incidence of postdated pregnancy in this series was 15% and postmaturity was 9.14%. 93% patients had regular antenatal checkup. 82% patients were presented not in labour situation. 60% cases were NVD and 40% cases LUCS was done. No craniotomy or forceps was required. There was no maternal death. But there were two Intra Uterine Deaths (IUD) and one neonatal death due to umbilical sepsis.

**Conclusion:** Any pregnancy that goes beyond 41 weeks of confirmed gestational age foetal well-being must be assessed. Proper management is a pre-requisite to reduce the rate of perinatal mortality and morbidity in this group of patient.

**Key-words:** Postdated Pregnancy, Perinatal Outcome, Maternal Outcome, Prolonged Pregnancy.

### Introduction

Any pregnancy which has passed beyond EDD is called postdated pregnancy or prolonged pregnancy. But when pregnancy has prolonged beyond 42 weeks are called postmaturity or post term pregnancy<sup>1</sup>. Incidence of prolonged pregnancy is 3-14 % of all gestations<sup>2</sup>. It is still obscure why some women go into premature labour while others have prolonged pregnancy. Certain factors are related to postdated pregnancy, these are hereditary factor, high standard of living, sedentary habits, anencephaly, elderly primigravidae, elderly multigravidae etc. Previous history of postterm pregnancy has 50% risk of recurrence<sup>3</sup>. When any pregnancy advances beyond the EDC (Expected Date of Confinement) perinatal mortality and foetal morbidity also increases. Based on national birthday Trust Data from Britain in 1958, the perinatal mortality rate increases after 42 weeks gestation, doubles at 43 weeks and quadruples at 44 weeks gestation<sup>2,4,5</sup>. These postterm infants have higher rate of mortality up to two years of age<sup>2</sup>. So interference of pregnancy is done beyond 41 weeks provided the maturity of foetus is ascertained by

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history, clinical examination and ancillary aids. Common mode of interference is induction of labour because some pregnancies failed to go into spontaneous labour due to failure of responsiveness to oxytocin or deficiency of placental sulphatase enzyme or diminished secretion of oxytocin as in anencephalic babies.

Postmaturity syndrome (Foetal dysmaturity) associated with 5%-10% of prolonged pregnancy. These fetuses have decreased amount of subcutaneous fat and wrinkled skin (because they have lost the vernix caseosa), long hair and long finger nails. Prolonged pregnancy complications ideally should be discovered before labour because these fetuses are fragile, tolerate labour poorly and frequently are acidotic at birth. These groups of babies have higher rate of perinatal mortality<sup>1</sup>. About 1/3 rd death occur antepartum, 1/2 intrapartum and about 1/6 th neonatal<sup>4</sup>. Any pregnancy that goes beyond 41 weeks of confirmed gestational age foetal well-being must be assessed. Proper management is a prerequisite to reduce the rate of perinatal mortality and morbidity in this group of patient<sup>2</sup>.

### Materials and Methods

This cross-sectional study was conducted in the Department of Obstetrics and Gynecology in Combined Military Hospital, Dhaka for a year. Cases were selected randomly. Here postdatism was applied to any pregnancy which exceeded the EDD and it also included postmaturity which is pregnancy extending beyond 42 completed weeks. A preformed proforma was used to collect data regarding age, parity, antenatal checkup, gestational age at the time of reporting. Patients having regular menstrual cycle were sure about their LMP and those were having adequate liquor and cephalic presentation was included in this study. Patient having irregular cycle, having medical disorder (Heart Disease, Diabetes Mellitus, Renal Disease etc) and obstetric complications (Multiple Pregnancy, Congenital Anomalies, Abnormal Presentation, Pre Eclamtic Toxaemia (PET), Eclampsia) were excluded. In this study, determination of gestational age were done by LMP, fundal height measurement, Ultra Sono Graphy (USG) report, clinical assessment

before delivery and baby examination after birth. Patients who came in labour, close monitoring of maternal and foetal condition were done by using partograph and Cardio Toco Graphy (CTG). Patients who were not in labour but completed 41 weeks of pregnancy were managed by sweeping or by induction either with intra-cervical Foley's catheter or by oxytocin drip or both. But patients who did not cross 41 weeks of gestation were waited for spontaneous onset of labour up to 41 completed weeks.

### Results

Among 1853 pregnancy cases, 273 were postdated and 169 were postmaturity cases. The incidence of postdated pregnancy in this study was 15% and postmaturity was 9.14%. Postdated pregnancy was more common in young age group than in elderly patients.

Table-I showed, 60% cases of postdated pregnancy were between 20-29 years of age. Only 10% was at or above 30 years of age.

**Table-I:** Age Incidence (n=100).

Age Groups	No of Cases	Percentage
Below 29 years	30	30%
20-29 years	60	60%
30 years onwards	10	10%

Postdated pregnancy is more common in multigravida (Table-II).

**Table-II:** Parity of the Patients (n=100).

Gravida	No of Cases	Percentage
Primigravida	47	47%
Multigravida	53	53%

Table-III showed 91% patient presented at 40.1–42 weeks, 8% patients at 42.1–43 weeks and only 1% patients presented at 43.1 weeks onwards in CMH Dhaka.

**Table-III:** Duration of Pregnancy (n=100).

Duration of Pregnancy	No of Cases	Percentage
40.1-42 Weeks	91	91%
42.1-43 Weeks	8	8%
43.1- Onwards	1	1%

Most of the (93%) patients had regular antenatal checkup (Table-IV).

**Table-IV:** Antenatal Checkup (ANC) (n=100).

ANC	No of Cases	Percentage
Regular Checkup	93	93%
Irregular Checkup	4	4%
No Checkup	3	3%

Biparietall Diameter (BPD) and femoral length together can give an idea about maturity, not postmaturity in late pregnancy. But along with other clinical parameter it helps in diagnosis of postmaturity (Table-V).

**Table-V:** BPD and Femoral Length in USG Report (n=100).

BPD	Femoral Length	No of Cases	Percentage
96-98 mm	67-76 mm	8	8%
92-95 mm	67-76 mm	76	76%
90-95 mm	66-72 mm	13	13%
89-90 mm	68 mm	3	3%

Table-VI showed 78% patients had adequate liquor volume. Clinical assessment about amniotic fluid and USG reports coincided in this study.

**Table-VI:** Amniotic Fluid Volume in USG Reports (n=100).

Amount of Liquor amnii	No of Patient	Percentage
Adequate	78	78%
Inadequate	18	18%
Scanty	4	4%

In this study group, 60% patient delivered vaginally. No craniotomy or forceps was done (Table-VII).

**Table-VII:** Mode of Delivery (n=100).

S/No	Type of Delivery	No of Cases	Percentage
1.	Vaginal Delivery		
	Induced	30	30%
	Spontaneous	21	21%
2.	Forceps	-	-
3.	Ventose	09	9%
4.	Craniotomy	-	-
5.	Caesarean Section	40	40%

In this series of 100 cases, perinatal mortality was 3%, among these two were Intra Uterine Foetal Death (IUFD) and one neonatal death was due to umbilical sepsis (Table-VIII).

**Table-VIII:** Perinatal Mortality.

Items	Spontaneous	Caesarean	Ventose	Total
Intrauterine Death	2	0	0	2
Neonatal Death	0	0	1	1
Total	2	0	1	3

Amongst the delivered babies, 86% babies had APGAR score 7-10 which was due to active interference in time during labour (Table-IX).

**Table-IX:** APGAR Score of Foetus 5 Minutes after Delivery (N=98).

Types of Labour	APGAR Score 7-10	APGAR Score 4-7	Apgar score ≤ 4
Spontaneous Labour	4	5	-
Induced Labour	44	4	1
LUCS	38	2	0

There was no maternal death in the series. Morbidity in the form of PPH and UTI occurred in 5% only. There was no puerperal sepsis or wound infection (Table-X).

**Table-X:** Maternal Morbidity.

Type of Morbidity	No of Cases	Percentage
Post-Partum Haemorrhage	4	4%
Urinary Tract Infection	1	1%
Puerperal Sepsis	Nil	0%
Wound Infection	Nil	0%

Table-XI shows foetal morbidity in the form of physiological jaundice which is 23%.

**Table-XI:** Neonatal Morbidity.

Type of Morbidity	Number of Cases	Percentage
Physiological Jaundice	23	23%
Umbilical Sepsis	2	2%
Respiratory Tract Infections	4	4%
Septicaemia	1	1%

## Discussion

Post-term or postdated pregnancy is a high risk obstetrics situation. The perinatal mortality and morbidity are increased in several folds when pregnancy advanced beyond term i.e. 40 weeks. During this study period a total of 1853 patients were admitted in CMH, Dhaka in antenatal and labour ward. Among these 169 patients exceeded EDD by 14 days (that is postmaturity) which constitute 9.14% and postdated pregnancy were 273(15%). Previous studies showed incidences were 3-14% and 11% respectively<sup>1,2</sup>. Prolongation of pregnancy beyond 40 weeks occurs much more frequently than postmaturity<sup>1</sup>. It was noted 10-15% beyond 41-42 weeks<sup>6,7</sup>. So the incidence is within the standard limit.

Incidence of postdated pregnancy in teen age group was 30%, which in higher age group (30 years and above) was 10%. Postdated pregnancy was more prevalent in 20-29 years of age group. In our country, 80% of the women by the age of 18 years become mother of at least one child. So, that may be the the cause of higher incidence in lower age group and in multigravida. In this study group, prevalence of postdated pregnancy is more in multigravida. This study had shown prevalence 53% in multigravida and 47% in primi. One study in the Bangabandhu Sheikh Mujib Medical University Hospital (BSMMUH) enumerates opposite epidemiology<sup>4</sup>. But study on same subject at Sylhet MAG Osmani Medical College Hospital has coincided with this study<sup>5</sup>. So, it needs further evaluation.

In this study, 91% patient presented at 40.1-42 weeks, 8% at 42- 43 weeks, 1% at 43 weeks of pregnancy. This difference might be due to lack of education, ignorance and unawareness about the complication of post maturity which could be overcome by proper antenatal care and health education. Exact aetiology of prolonged pregnancy is not known. One established cause is congenital anomaly e.g. anencephaly foetus. These babies failed to secrete oxytocin from pituitary and cortisol from adrenal gland which are thought to be essential for initiation of labour<sup>8</sup>. But no such baby was found in this study group. Diagnosis was made on the basis of history and clinical examination. There were facilities for USG. Though diagnosis of maturity was possible by USG but post maturity could not be diagnosed unless early dating USG was supplied.

To see the foetal maturity early USG can be relied on. Ninety six percent of patient had regular antenatal checkup and supplied with early USG. Liquor volume was assessed clinically and by USG. Seventy eight percent patients have adequate liquor both clinically and ultrasonography. Twenty two percent patients had decreased liquor volume. This postterm foetuses appear to be associated with impaired foetal cardiac function with reduced amniotic fluid leads to chronic hypoxia and presence of meconium in liquor<sup>1,9</sup>.

By USG and clinically foetal macrosomia was present in three cases which contribute 3% of incidence of macrosomia in prolonged pregnancy. Previous studies have shown about 14% and 25.7% respectively<sup>8,9</sup>. In this study 39% patients started labour pain either in hospital or at home. Hospital policy in CMH Dhaka was routinely wait for spontaneous onset of labour up to 41 completed weeks beyond this period induction was done by sweeping followed by medical and surgical inductions. Elective Cesarean Section (C/S) was done in 3 patients (3%). Previous study on spontaneous group was 32.5%. Elective CIS was done in previous study group were 6%, 4% & 1.4% respectively<sup>10,11,12</sup>. This variation is due to selection criteria which excludes CPD, mal-presentation, pregnancy associated with complications and so on. Foley's catheter was used to induce labour in those cases which had less cervical scoring. Total 19 patients received induction by Foley's catheter but only one case failed. No infection occurred. More promising result was shown by SS Ratnam's series which showed 92% success rate<sup>2</sup>. In this hospital, over all cesarean rates is 29.75%. So, overall cesarean section rate was much higher in prolonged pregnancy (40%) which was due to foetal distress and failed induction. But in other studies rates were 17%, 20-25% and 18% respectively<sup>10,12,13</sup>.

The foetal well-being was monitored by assessing Foetal Heart Rate (FHR) and colour of the liquor during labour. CTG (Cardiotocography) was used (external) but there was no scope for foetal scalp blood P<sup>H</sup>. As there was high false (+)ve result in CTG. So, there might be some error in foetal monitoring clinically. To avoid foetal risk, C/S rate become higher in this study. Foetal outcome was monitored by using APGAR score just 5 minutes after delivery. Foetal outcome with APGAR score was 7 in 86%, 11% having moderate to severe asphyxia, one baby died in early neonatal period. So, total perinatal deaths in this study was 3, among these, 2 were IUD. This figure was very less in relation to other study 12%, 3.6% respectively<sup>9</sup>. In this study, the maternal morbidity is due to PPH and UTI which constitute 5% cases. There were no puerperal sepsis or wound infection. Previous study showed 17% & 38% respectively<sup>4,10</sup>.

This extremely low rate can be explained by free checkup facilities, free medicine and operation, timely vehicle and other administrative and medical back up supplied by Armed Forces. But this is not the situation in rest of the hospital<sup>4,5</sup>. There was no maternal mortality in this study group. Neonatal morbidity is 30% in relation to physiological jaundice, umbilical sepsis, and acute RTI. Other study<sup>4</sup> showed rate was 36%. This similarity was due to overall neonatal care consciousness of mother where are same in all communities including armed forces families. Perinatal mortality and morbidity was increased in postdated pregnancy which could be reduced by timely and judicious induction of labour<sup>14,15</sup>.

There were two IUGR in this series which were due to postmaturity, which were occurred at home as patients came late. Foetal jeopardy with continued intra uterine existence as well as the excellent results of induction of labour justifies the active approach<sup>16,17,18</sup>. Neonatal morbidity in the form of jaundice was 23% which was more in induction group. Postdated pregnancy increases perinatal mortality, perinatal morbidity and maternal morbidity but it does not increase the maternal mortality, operative delivery due to induction of labour and foetal macrosomia. Foetal macrosomia were three in number which represent 3% of cases<sup>19,20</sup>. No study was available to compare it.

Routine induction was given in all cases over 41+ weeks of pregnancy. There was no benefit of induction of labour in foetal macrosomia with unfavourable cervix. So, it again proved some peoples believe that foetal macrosomia and unfavourable cervix increases the cesarean section rate. Previous study series concluded and established that active intervention reduces the rate of cesarean section<sup>10,11</sup>. As the study was done in a referral hospital thus proper selection, adequate care, proper judgment could not always be done in all cases, some patients came with all checkup outside with no or late trimester USG; sometimes even in labour. All these increase the cesarean delivery rate in this series. Better outcome would be expected if proper active interference was done in appropriate case and in optimum time with outmost care.

## Conclusion

Postdated pregnancy is a high risk pregnancy having 50% risk of recurrence in next pregnancy. It increases the foetal complication in the form of foetal distress, meconium aspiration syndrome, birth trauma etc. It also increases rate of instrumental delivery and operative delivery.

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