

Research Article



Evaluation of Feto-maternal Outcome with Prelabour Rupture of Membranes in Term Pregnancy

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ABSTRACT

Premature rupture of membrane (PROM) is defined as the disruption of fetal membranes before the beginning of labor, resulting in spontaneous leakage of amniotic fluid. The present study is undertaken to study the labor outcome, maternal morbidity and perinatal morbidity and mortality in term PROM. This is a Prospective Observational and Descriptive type Study conducted at Government Medical college, Kota for a period of eighteen month from January 2019 to June 2020. 200 cases of Spontaneous rupture of membrane with term gestation and confirmed by per speculum examination were selected. PROM was common in primigravida (62.50%), majority of belonged to age group of 20-29 years (89.0%). Need of induction required in 88% of cases, induction by cerviprime-gel done in 84.5% cases, Cesarean sections were more among primigravida. Failed induction was the common indication (44.11%). Maternal morbidity was significant (20.0%). Febrile morbidity was the major morbidity noticed with 14.50% followed by PPH 1.5%. No maternal mortality in the study. Perinatal morbidity was seen in 21% of cases. Birth asphyxia was the commonest cause for perinatal morbidity (14.0%). No Perinatal mortality was seen in this study. Escherichia coli (16.50%) was common organism found in culture of amniotic fluid. Majority of babies had APGAR score 6 & 7 at 1 minute of birth and APGAR score 9 and 10 at 5 min. of birth. PROM is associated with many complications which can be reduced, by educating the women to have regular antenatal care, and early recognition of genital tract infection, and treat appropriately and to report at the earliest.

Keywords: Term PROM, Caesarean section, Maternal morbidity, Perinatal morbidity.

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INTRODUCTION

Prelabour rupture of membrane is one of the most challenging and controversial obstetric dilemmas which occurs even in low-risk pregnancies. Premature rupture of membrane (PROM)¹ is defined as the disruption of fetal membranes before the beginning of labour, resulting in spontaneous leakage of amniotic fluid. Before 37 weeks of gestation completion, if rupture occurs, it is called as preterm prelabour rupture of membranes (PPROM). If the rupture occurs after 37 weeks of gestation completion, then it is called term premature rupture of membranes (PROM)^{2,3}. The incidence of PPRM is about 3% of term PROM and 5%–10% of all pregnancies.⁴ The physiological processes responsible for above is apoptosis and collagen breakdown by enzymes. At term, weakening of the membranes may result from physiologic changes combined with shearing forces induced by contractions. PPRM may result from a focal

deficit rather than a generalized weakness of the membranes.⁵ PROM can lead to the following fetal and maternal complications.^{6,7} Abnormal fetal heart rate on CTG, umbilical cord compression and prolapse, Fetal or neonatal infection and cerebral palsy is being long term sequelae. Maternal complication frequently seen in PROM are Acute Chorioamnionitis, Subclinical Chorioamnionitis, Premature placental separation and postpartum endometritis, placental abruption, dysfunctional labour, postpartum haemorrhage, increase rate of cesarean section.

AMERICAN COLLEGE OF OBSTETRICIAN AND GYNECOLOGIST guidelines in women with PROM at term, labour should be induced immediately, generally with oxytocin infusion, to reduce the risk of chorioamnionitis. Labour should be induced immediately, regardless of gestational age, in patients with intrauterine infection, placental abruption, or evidence of fetal compromise. In term PROM (37 weeks or more) Group B Streptococcus prophylaxis is recommended⁸. A careful consideration of various factors and individualization of cases is necessary for appropriate management, The maternal and fetal outcome in PROM is very important to decrease maternal and neonatal mortality and for better management and prevention of complications. Thus, the purpose of this study is to determine maternal and fetal outcomes in PROM among term pregnant women.



MATERIALS AND METHODS

This was a prospective and descriptive type of study, conducted from January 2019 to June 2020, included 200 pregnant women with ≥ 37 weeks of gestation with PROM, These patients were admitted in the department of Obstetrics and Gynaecology Government Medical College, Kota. Patient were thoroughly interrogated and systematically examined and optimally investigated and all findings were recorded on designed proforma. The patients included in the study were single live pregnancy in vertex presentation, Gestational age of ≥ 37 wks confirmed by dates, clinical examination and ultrasound. Cervical dilatation < 3 cms and PROM confirmed by Direct visualization on per speculum examination. Women with Previous cesarean section, Mal-presentation and Multiple gestation were excluded.

A detailed history was taken including age, booking status, socio-economic status, time of onset of leakage, amount of fluid lost, its colour, odour, association with pain or bleeding per vagina and perception of fetal movements. Fetal heart sound was auscultated and its rate, rhythm and tone were noted. A sterile speculum examination was done and the condition of vagina and cervix noted. Liquor draining from the cervical os was observed. All cases were administered with prophylactic IV antibiotics. Vital parameters like temperature, pulse, blood pressure was frequently monitored. Fetal distress cases were delivered by emergency caesarean section. Both mother and the baby were followed up till their stay in the hospital.

RESULTS

The present study was performed over 200 women with term PROM not in labor or in early labor at Govt. medical College Kota Rajasthan (India).

Table 1 shows that 61.0% cases in the study group were unbooked, 39% were booked. Majority of women were in the age group of 18-29 years. Majority of the cases were primigravida 62.50% and 37.50% were multigravida.

According to above table 2, most of the women had a Bishop's score of 3-4 in both primigravida and multigravida.

Table 1: Demographic and obstetric parameters

Booked/Unbooked	No.	%
Booked	78	39.00
Unbooked	122	61.00
G1	125	62.50
G2	52	26.00
G3	15	7.50
G4	5	2.50
G5	1	0.50
G6	2	1.00

Table 2: Bishop's Score at the time of Admission

Bishop Score	No.	%
2	31	15.50
3	72	36.00
4	47	23.50
5	23	11.50
6	27	13.50
Total	200	100.00

Table 3: Distribution of cases according to the mode of induction

Mode of Induction	No.	%
Cp gel	169	84.50
Oxytocin	7	3.50
Not required	24	12.00
Total	200	100.00

Above table 3 depicts that induction of labor was done in 88% of cases. For induction in majority of 169 (84.50%) cases dinoprostone gel was used followed by oxytocin in 7 (3.50%).

Table 4: Induction to Delivery Interval in hours

IDI (hrs.)	No.	%
0-6	9	4.50
6-12	113	56.50
12-24	53	26.50
>24	1	0.50
Delivered spontaneously	24	12.00
Total	200	100.00

Above table 4 depicts that highest number of women delivered within 6-12 hours in studied patients (with least duration of delivery interval of 5 hours). Highest duration of Delivery interval 26 hours. Mean duration of induction to delivery interval 11.642 hours.

Table 5: Distribution of cases according to the fetal outcome

Neonatal outcome	No.	%
Healthy	158	79.00
Birth asphyxia	28	14.00
Conjunctivitis	1	0.50
Febrile	4	2.00
LRTI	1	0.50
Septicemia	5	2.50
Septicemia LRTI	1	0.50
Umbilical Cord Sepsis	2	1.00
Total	200	100.00

Above table 5 shows that 158 neonates were healthy with APGAR >7/10 a birth, Perinatal morbidity was seen in 21% of cases. Birth asphyxia was the commonest cause for perinatal morbidity was noticed in 14.0% of cases.

Table 6: Distribution of cases according to the microbiological profile

Cervical Swab	No.	%
No growth	126	63.00
E.Coli	33	16.50
Klebsiella	19	9.50
GBS	9	4.50
Coag -ve staphylococcus	6	3.00
Staphylococcus	4	2.00
Streptococcus	2	1.00
Citrobacter	1	0.50
Total	200	100.00

Majority of women shows (table no.6) normal swab culture, 37% of women had positive cervical swab culture. Most common organism found on culture of amniotic fluid was *Escherichia coli* i.e. in 16.50 % patients and least common was *Citrobacter* was observed in 1 patients.

DISCUSSION

The present study was a prospective and Descriptive type study aimed to find out maternal and perinatal outcome in term premature rupture of membrane pregnancy to ascertain the various etiological factors, maternal complications, fetal outcome. The present study was performed over 200 women presenting with term PROM in early stage of labor in the dept. of obs. And gynae, Govt. medical Kota, Rajasthan and was compared to similar studies done elsewhere. The occurrence of PROM is more in un-booked cases were reported from rural areas compared to booked cases. Low serum levels of vitamins and minerals are associated with PROM. The risk of PROM in un-booked cases was statistically significant. In present study 61% of cases were unbooked and 39% of cases were booked (Table no.1) are equal or less to different studies by Jalli Padmaja⁹ and Amulya MN¹⁰. Variation in incidence may be due to different criteria of booking at different center and our hospital being tertiary Hospital, the percentage of unbooked cases were higher.

Studies shows that the risk of PROM increases with age. In study group majority of patients belonged to the age group 20-29 years (89.00%), results of our study were similar to studies done by other author Piya Ray (1997)¹¹, Jalli Padmaja (2018)⁹ and Amulya MN (2019)¹⁰, because 20 to 29 year is most reproductive and most fertile period of women life. In present study Increased cases of PROM were observed in cases of primigravida than multigravida which were similar to many studies such by Swati Pandey¹², Umed Thakor³ and Surayapalem¹³. Multiparity is a risk

factor for PROM due to long standing infection, previous trauma to the cervix.

The progress of labor and outcome up to some extent depends on Bishop's score. As the Bishop's score increases, the percentage of normal delivery goes up in both primi-gravidas and multigravidas.(Table no.3).In Umed thakor's³ study Bishop's score at induction was 5.44 +/- 1.41. In study by Surayapalem S¹³. 63.8%of primigravida had a Bishop score 3-4. In present study majority of the women had a bishops score at induction 3.72 +/-1.25. In the present study (Table 4) Mean duration from PROM to delivery interval was 18.78 hour. The study results similar to study by Surayapalem S¹³. Study showed normal delivery is the commonest mode of delivery. In the present study 34 % had cesarean section, being comparable to the study done by Chhangte¹⁴ and Surayapalem S¹³.Rate of cesarean section was higher in the studies by Anjana Devi¹⁵ and Singhal¹⁶ and lower in the studies by Amulya M.N¹⁰. and Kamala J¹⁷ compared to the present study. In present study vaginal delivery is commonest due to active management of labor, timely induction and augmentation, strict monitoring of fetal heart rate and judicious use of oxytocics and instruments during delivery. It was observed that majority,86.50% babies had birth weight above 2.5 kg, only 13.50% of babies were below 2.5kg. Incidence of birth weight 3 kg or more was recorded in 12.50% of babies. Similar study was done by Chhangte¹⁴ which shows 71% cases above 2.5 Kg weight and birth weight 3 Kg or above recorded in 29 % births. In this study puerperal pyrexia was seen in 14.5% cases and PPH is seen in 1.5% of case, result were similar to study by Singhal¹⁶.In Kodkany¹⁸ study maternal morbidity was seen in 21% of cases.

The relationship of ROM to the consequential fetal hazard is a matter of concern. With rupture of membranes the clock of infection starts to tick. In study done by Sanyal¹⁹ et al., the perinatal morbidity was 32% and mortality was 5%. Kodkany¹⁸ et al found in their study perinatal morbidity was 39.8% among which birth asphyxia was responsible for 29.5%. In the present study perinatal morbidity was 21%. Similar results were shown to the study done by Surayapalem S¹³ et al however there was no perinatal mortality in our study.²⁰ The major cause of perinatal mortality was birth asphyxia followed by sepsis in newborn which is common in many of the studies universally. Fetal morbidity always increases with increase in the PROM to delivery interval. In the present study, 37.0 % of cervical swab culture revealed growth of the isolate which indicates preexisting infection/ colonization of the genital tract with the pathogens. Infection of the genital tract is a high-risk factor for development of PROM associated with an adverse outcome depending upon the nature and type of pathogen. In current study, *Escherichia coli* was the predominant isolate and associated with neonatal morbidity in both primi and multigravidas.

CONCLUSION

Despite exhaustive research, Premature rupture of membrane at term remain enigmatic condition associated with increased maternal and perinatal morbidity and mortality. It complicates 5-10% of all pregnancies. Complication increases with decreased gestational age and increase in the latent period. As maternal and neonatal morbidity increased with duration of PROM to delivery and infection of the female genital tract with pathogens. Early recognition of genital tract infection should be done and treated appropriately. Women should be educated about the possibility of PROM and the need to report at the earliest. Hence it is always advisable to develop new scoring strategies involving demographic variables with previous history to identify high risk cases to treat them prior to rupture of membrane. In order to reduce the rate of infection and complications, we recommended that induction to be done in term PROM as early as possible.

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