

A Retrospective Study to Evaluate Maternal and Fetal Outcome in Cases of Premature Rupture of Membrane

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Conflict of interest: Nil

Abstract

Aim: The aim of the present study was to assess the study the maternal and fetal outcome in cases of premature rupture of membrane.

Methods: A hospital based retrospective study was conducted with 200 patients with diagnosis of premature rupture of membrane at or more than 37 weeks of gestation, at department of obstetrics and Gynaecology, Netaji Subhas Medical College and Hospital, Bihta, Bihar, India for one year, to study maternal and fetal outcome in premature rupture of membrane (PROM).

Results: 65% of patients delivered in between 16-20 hrs. While 24% and 11% of patients delivered after 20 hrs and <16 hrs respectively. Most common indication was failure to progress in 8 patients (33.33%). Fetal distress was there in 3 patients (12.50%), Malpresentation and failed induction in 2 patients (8.33%) respectively, Maternal request for 1 patient (4.17%). The most common maternal morbidity was Puerperal pyrexia (12%) followed by Chorion amniotic (8%), puerperal sepsis (3%) Urinary tract infection (1%), adherent placenta (1%), wound infection, and PPH (2%). LBW infant were of 9%, 66% were between 2.5-2.99 Kg, and 25% were of more than 3 Kg. 138 (69%) neonates were healthy while the rate of neonatal morbidity was 31% in our study. The most common neonatal morbidity was Early onset sepsis (15%) followed by Neonatal Jaundice (5%), neonatal infection (4%), and Hypoglycemia (3%), respiratory distress in 2%, late onset sepsis 1%, congenital abnormality seen in 1% of patients.

Conclusion: The study concluded that maternal morbidity and neonatal morbidity was associated with increased duration of PROM to delivery interval in our study. Prediction of these morbidities is an important step in the management of infection associated with PROM. Hence an appropriate and accurate diagnosis of PROM is essential for favorable outcome in pregnancy. ANC cases should be educated regarding regular and timely antenatal checkup. The obstetrician and neonatologist should work as a team to ensure optimal care for mother and neonate.

Keywords: Fetal outcomes, maternal outcomes, Premature rupture of membrane

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Introduction

Rupture of fetal membranes occurs during active phase of normal labor. Early rupture of membranes may jeopardize the pregnancy contributing to significant maternal and perinatal morbidity. However, the risk is associated with multiple factors like duration of pregnancy and time of rupture of membranes. [1] Most of the studies indicate the incidence of premature rupture of membranes is around 5-10%. [2] Management of cases of PROM still remains as one of the most difficult and controversial problems in obstetrics. Premature

rupture of membranes is defined as rupture of fetal membranes before the onset of labor.

Preterm premature rupture of membranes is defined when rupture of membranes occurs before 37 weeks of gestation. Some of the studies conducted earlier describes that PPRM near term with expeditious delivery of on infected and on asphyxiated infants is associated with a low risk of severe fetal and maternal morbidity. [3] In some of the Indian studies, the incidence of PROM is reported as 7-12% in all labours. [4,5] Cases of PROM are prone to

cord compression/ cord prolapse and are associated with high risk of ascending infection. Lengthier the time interval between rupture of membranes and onset of labor more the risk of ascending infection and acquiring chorioamnionitis. [6] PROM is associated with increased risk of chorioamnionitis, unfavorable cervix and dysfunctional labor, increased cesarean rates, postpartum hemorrhage and endometritis in the mother.

Most of the studies mentioned possible neonatal outcomes in cases of PROM may include respiratory distress syndrome, hypothermia, hypoglycemia, intraventricular hemorrhage, broncho pulmonary dysplasia etc. PROM is associated with 20% of neonatal deaths. Hence PROM is an obstetric condition which is poorly defined with an obscure etiology and associated with significant maternal morbidity and mortality. [7] Expectant management involves waiting for labor to occur and then making management decisions. If labor does not progress spontaneously after a specific period, intravenous oxytocin and different preparations of prostaglandins have been used for inducing labor but the effectiveness of all these agents vary. [8] Diagnosis and proper management are very important to limit various fetal and maternal complications generally due to infection. [7]

The aim of the present study was to assess the study the maternal and fetal outcome in cases of premature rupture of membrane.

Materials and Methods

A hospital based retrospective study was conducted with 200 patients with diagnosis of premature rupture of membrane at or more than 37 weeks of gestation, at department of obstetrics and Gynaecology, Netaji Subhas Medical College and Hospital, Bihta, Bihar, India for one year, to study maternal and fetal outcome in premature rupture of membrane (PROM).

Inclusion Criteria

1. Cases admitted with PROM at >37 weeks of gestation.
2. Cervical dilatation of < 3cm
3. Lack of uterine contraction for at least 1 hour of PROM
4. Singleton pregnancy
5. Vertex presentation
6. Reactive NST
7. Clear liquor

Exclusion Criteria

1. Cases admitted with Preterm premature rupture of membranes < 37 weeks of gestation
2. Cervical dilatation >3cm
3. Uterine contraction within 1 hour of PROM
4. Multiple pregnancy
5. Malpresentation
6. Non-reactive NST
7. Meconium stained liquor
8. History of previous LSCS
9. Any other medical complications/consent withdrawn

Procedure of Study

Detailed history was obtained Obstetrical examination was done

A detailed pelvic examination was done under aseptic precaution. As per speculum examination, discharge, leaking p/v and color of liquor were recorded. Routine investigations including complete blood count and C- reactive protein were noted. Then swab was taken from amniotic fluid for gram stain culture and sensitivity. A detailed "per vaginal examination" was done to determine the consistency, effacement, dilatation of cervix, position of cervix, presence or absence of membrane, the station of the vertex with its position, the presence of caput, molding and pelvic assessment were noted. Maternal and fetal outcome was observed.

Results

Table 1: Distribution of patients according to rupture of membrane to delivery interval

Rupture of Membrane (Hrs)	No.	%
<16	22	11
16-20	130	65
>20	48	24
Total	200	100

65% of patients delivered in between 16-20 hrs. While 24% and 11% of patients delivered after 20 hrs and <16 hrs respectively.

Table 2: Distribution of patients according to indication of LSCS

Indication for LSCS (N=48)	No.	%
Failure to progress	16	33.33
Fetal distress	16	12.50
Mal-presentation	4	8.33

Failed induction	4	8.33
Maternal request	2	4.17

Most common indication was failure to progress in 8 patients (33.33%). Fetal distress was there in 3 patients (12.50%), Malpresentation and failed induction in 2 patients (8.33%) respectively, Maternal request for 1 patient (4.17%).

Table 3: Distribution of patient according to maternal morbidity

Maternal morbidity	N	%
Presence of Fever	24	12
Clinical Chorion amniotic	16	8
UTI	2	1
Puerperal Sepsis	6	3
Adherent Placenta	2	1
Wound Infection	2	1
PPH	4	2
Maternal Mortality	0	0

The most common maternal morbidity was Puerperal pyrexia (12%) followed by Chorion amniotic (8%), puerperal sepsis (3%) Urinary tract infection (1%), adherent placenta (1%), wound infection, and PPH (2%).

Table 4: Distribution of neonates according to birth weight

Birth weight	N	%
LBW	18	9
2.5-2.99	132	66
≥3.0	50	25
Total	200	100

LBW infant were of 9%, 66% were between 2.5-2.99 Kg, and 25% were of more than 3 Kg.

Table 5: Distribution of patients according to neonatal morbidity

Neonatal Outcome (N=62)	No.	%
Neonatal Infection	8	4
Early Onset Sepsis	30	15
Neonatal Jaundice	10	5
Respiratory Distress	4	2
Hypoglycemia	6	3
Late Onset Sepsis	2	1
Congenital Abnormalities	2	1
Neonatal Mortality	0	0

138 (69%) neonates were healthy while the rate of neonatal morbidity was 31% in our study. The most common neonatal morbidity was Early onset sepsis (15%) followed by Neonatal Jaundice (5%), neonatal infection (4%), and Hypoglycemia (3%), respiratory distress in 2%, late onset sepsis 1%, congenital abnormality seen in 1% of patients.

Discussion

Premature rupture of membrane is associated with a high risk of maternal morbidity and mortality. It is characterized by spontaneous rupture of Chori amnion before the onset of uterine contractions which leads to progressive cervical dilatation. It occurs in approximately 8% of all pregnancies. In developing countries, the incidence of premature rupture of membrane is about 18-20%. [9,10]

Maternal morbidities are found in terms of chorioamnionitis which leads to endometritis, puerperal pyrexia, wound infection and placental abruption. Further, consequences may increase due to obstetric interventions in terms of instrumental deliveries and caesarean sections. It may be a result of fetal distress, dry labor or incoordinate uterine actions. [11]

65% of patients delivered in between 16-20 hrs. While 24% and 11% of patients delivered after 20 hrs and <16 hrs respectively. The LSCS rate in our study group was 24%. In comparison to Chhangte et al [11] and Shrestha et al. [12] the rate of vaginal delivery was more in our study group Most common indication was failure to progress in 8 patients (33.33%). Fetal distress was there in 3 patients (12.50%), Malpresentation and failed induction in 2

patients (8.33%) respectively, Maternal request for 1 patient (4.17%). The most common maternal morbidity was Puerperal pyrexia (12%) followed by Chorio amniotic (8%), puerperal sepsis (3%) Urinary tract infection (1%), adherent placenta (1%), wound infection, and PPH (2%). Study done by Suryapalem S et al [12] also showed the same results, failure to progress was the most common indication for LSCS 45.45% followed by fetal distress 32.73% and least common was intrapartum sepsis 1.82%. Chhangte et al [11] observed that the most common indication for LSCS in PROM was malpresentation (33.3%) followed by failed induction without fetal distress (30.5%).

LBW infant were of 9%, 66% were between 2.5-2.99 Kg, and 25% were of more than 3 Kg. 138 (69%) neonates were healthy while the rate of neonatal morbidity was 31% in our study. The most common neonatal morbidity was Early onset sepsis (15%) followed by Neonatal Jaundice (5%), neonatal infection (4%), and Hypoglycemia (3%), respiratory distress in 2%, late onset sepsis 1%, congenital abnormality seen in 1% of patients. There was no perinatal mortality in our study. There was no perinatal mortality seen in our study since we had only included the women with >37 weeks gestation and excluded the women with obstetric complications which could have given rise to compromised fetus. This coincides with the findings of study done by Suryapalem et al [13], Jaiswal et al [14], Shrestha et al [12], Jaiswal et al [14] found perinatal morbidity in 30% cases, early onset infection in 23% cases, birth asphyxia in 6.19% cases, hyperbilirubinemia in 2.86% cases, late onset sepsis in 0.95% cases, congenital malformations in 0.48% cases, congenital pneumonia in 0.48% cases, and perinatal mortality in 1.43% cases.

Conclusion

The study concluded that maternal morbidity and neonatal morbidity was associated with increased duration of PROM to delivery interval in our study. Prediction of these morbidities is an important step in the management of infection associated with PROM. Hence an appropriate and accurate diagnosis of PROM is essential for favorable outcome in pregnancy. ANC cases should be educated regarding regular and timely antenatal checkup. The obstetrician and neonatologist should work as a team to ensure optimal care for mother and neonate.

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