

ORIGINAL RESEARCH

Assessment of neonatal and maternal outcome of premature rupture of membrane

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ABSTRACT

Background: Preterm premature rupture of membranes is a relatively common complication in pregnancy. The present study was conducted to assess maternal and neonatal outcome in patients with premature rupture of membrane. **Materials & Methods:** 80 cases of premature rupture of membrane of more than 37 weeks of gestation was included. Maternal and neonatal outcome was recorded. **Results:** Indication for LSCS was seen in failure to progress in 17, fetal distress in 8, malpresentation in 3 and failed induction in 2 cases. Rupture of membrane to delivery interval was <16 hours seen in 24, 16-20 hours in 46 and >20 hours in 10 cases. The difference was significant ($P < 0.05$). GA at delivery was 31.5 weeks, birth weight was 1724.2 grams, Apgar score at 1 minute was 6.7 and at 5 minute was 9.4. Maternal outcome was fever in 36, puerperal sepsis in 12, UTI in 7, chorioamnionitis in 18, adherent placenta in 5, wound infection in 2, PPH in 3 and maternal mortality was seen in 1 case. The difference was significant ($P < 0.05$). **Conclusion:** Maternal morbidity was associated with increased duration of PROM. Maternal outcome was fever, puerperal sepsis, UTI, chorioamnionitis, adherent placenta, wound infection, PPH and maternal mortality.

Key words: Premature rupture of membrane, adherent placenta, fetal distress

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INTRODUCTION

Preterm premature rupture of membranes (PPROM) defined, as the spontaneous rupture of membranes before 37 weeks of gestation, is a relatively common complication in pregnancy.¹ It occurs in about 5 to 7% of pregnancies and accounts for one-third of preterm births.² Chorioamnionic membrane rupture may have several underlying causes, although in many cases PROM and PPRM will not have recognized etiologies.³ The pathophysiology leading to PROM at term has been shown to be different from the pathophysiology leading to PPRM. At term, weakening of the membranes may result from physiologic changes combined with shearing forces induced by contractions.⁴ Generalized weakness of the membranes has been more difficult to identify with prematurely ruptured membranes. PPRM may result from a focal deficit rather than a generalized weakness of the membranes.⁵

Labor usually starts spontaneously within 24 hours following term PROM, but up to 4% of cases they will not experience spontaneous onset of labour

within seven days.⁶ With expectant management, approximately 60- 80% of women with rupture of membrane go into labour within 24 hours, and 95% within 72 hours.⁷ If the interval from leaking to delivery exceeds 18 hours, then there is an increase in incidence of neonatal infections and admissions.⁸ The present study was conducted to assess maternal and neonatal outcome in patients with premature rupture of membrane.

MATERIALS & METHODS

The present study comprised of 80 cases of premature rupture of membrane of more than 37 weeks of gestation. All gave their written consent to participate in the study.

Data such as name, age etc. was recorded. A detailed pelvic examination was done and discharge, leaking p/v and colour of liquor were recorded. 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.

Complete blood count and C-reactive protein level were noted. Then swab was taken from amniotic fluid for gram stain culture and sensitivity. Maternal and neonatal outcome was recorded. Results were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I: Patients characteristics

Parameters	Characteristics	Number	P value
Indication for LSCS (30)	Failure to progress	17	0.02
	Fetal distress	8	
	Malpresentation	3	
	Failed induction	2	
Rupture of membrane to delivery interval (hours)	<16	24	0.05
	16-20	46	
	>20	10	

Table I shows that indication for LSCS was seen in failure to progress in 17, fetal distress in 8, malpresentation in 3 and failed induction in 2 cases. Rupture of membrane to delivery interval was <16 hours seen in 24, 16-20 hours in 46 and >20 hours in 10 cases. The difference was significant ($P < 0.05$).

Table II: Assessment of neonatal outcome

Parameters	Mean	SD
GA at delivery (week)	31.5	4.5
Birth weight (g)	1724.2	835.2
Apgar score 1 min	6.7	4.2
Apgar score 5 min	9.4	3.6

Table II shows that GA at delivery was 31.5 weeks, birth weight was 1724.2 grams, Apgar score at 1 minute was 6.7 and at 5 minute was 9.4.

Table III: Assessment of maternal outcome

Outcome	Number	P value
Fever	36	0.01
Puerperal Sepsis	12	
UTI	7	
Chorioamnionitis	18	
Adherent Placenta	5	
Wound infection	2	
PPH	3	
Maternal mortality	2	

Table III, graph II shows that maternal outcome was fever in 36, puerperal sepsis in 12, UTI in 7, chorioamnionitis in 18, adherent placenta in 5, wound infection in 2, PPH in 3 and maternal mortality was seen in 1 case. The difference was significant ($P < 0.05$).

DISCUSSION

Premature rupture of membrane is associated with a high risk of maternal morbidity and mortality.^{9,10} It is

characterized by spontaneous rupture of chorioamnion before the onset of uterine contractions which leads to progressive cervical dilatation. It occurs in approximately 8% of all pregnancies.¹¹ In developing countries, the incidence of premature rupture of membrane is about 18-20%.^{12,13} 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.^{14,15} The present study was conducted to assess maternal and neonatal outcome in patients with premature rupture of membrane.

We found that indication for LSCS was seen in failure to progress in 17, fetal distress in 8, malpresentation in 3 and failed induction in 2 cases. Rupture of membrane to delivery interval was <16 hours seen in 24, 16-20 hours in 46 and >20 hours in 10 cases. Kasliwal et al¹⁶ conducted an observational and prospective study in 100 patients with diagnosis of PROM at or more than 37 weeks of gestation to study maternal and fetal outcome. The rate of maternal morbidity was 28%, commonest cause was febrile illness (12%). Perinatal morbidity was seen in 31% of cases. Clinical early onset neonatal infection was the commonest cause. Perinatal mortality was not seen.

We observed that GA at delivery was 31.5 weeks, birth weight was 1724.2 grams, Apgar score at 1 minute was 6.7 and at 5 minute was 9.4. Assefa et al¹⁷ identified risk factors of premature rupture of membranes among pregnant women. 240 samples from pregnant mothers was collected. A total of 160 controls and 80 cases were enrolled in the study. Multivariable logistic regression showed that history of abortion, history of PROM, history of caesarean section and abnormal vaginal discharge in the index pregnancy were positively associated with premature rupture of membranes.

We found that maternal outcome was fever in 36, puerperal sepsis in 12, UTI in 7, chorioamnionitis in 18, adherent placenta in 5, wound infection in 2, PPH in 3 and maternal mortality was seen in 1 case. Herzlich et al¹⁸ examined the outcomes of preterm infants born to women with preterm premature rupture of membranes (PPROM) at periviable gestational age. Ninety-four preterm infants who were born after a prolonged premature rupture of membranes of at least 7 days were included in the study. Median gestational week at onset of membrane rupture was 27.1 ± 4.2 weeks and median latency period in days was 16 ± 21.8 . The cohort was stratified by gestational week (GW) at onset of PPRM (group 1: 17-23, group 2: 24-27, and group 3: 28-33). We found that the survival rate to discharge within neonates born after prolonged rupture of membrane at gestational week less than 24 weeks is 79.2% and 88.9% in group 2. These neonates did not show an increased rate of major morbidities compared to neonates born following membrane rupture at gestational week 24 to 27. We described a

high survival rate to discharge without major morbidities following prolonged preterm membrane rupture of at least 7 days of latency before viability.

CONCLUSION

Authors found that maternal morbidity was associated with increased duration of PROM. Maternal outcome was fever, puerperal sepsis, UTI, chorioamnionitis, adherent placenta, wound infection, PPH and maternal mortality.

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