

MATERNAL MORBIDITY AND PERINATAL OUTCOMES OF DELIVERY IN WOMEN WITH PROM

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ABSTRACT

BACKGROUND

PPROM is one of the important causes of preterm birth that can result in high perinatal morbidity and mortality along with maternal morbidity.

The aim of the study was to evaluate the maternal and perinatal outcomes in term PROM cases.

MATERIALS AND METHODS

This was a prospective study conducted from May 2016 to June 2017. 50 cases of spontaneous rupture of membranes who were admitted in Department of Obstetrics and Gynaecology in Laxmi Narasimha Hospital, Warangal, Telangana.

RESULTS

The incidence of PROM was 60% among lower socioeconomic group, which was higher than the incidence in higher socioeconomic group (10%). Booked and unbooked cases had an incidence of 75% and 20%, respectively. Obstetrics and gynaecology history versus PROM, which was 25% in history of term PROM, 20% in history of abortion and 5% in history of preterm PROM. The most common risk factor in PROM is anaemia, which constituted to 23% and the least common risk factor is cervical stitch, which constituted to 4%. The favourable Bishop score was present in 19 patients who underwent vaginal delivery and it was in 8 patients who underwent LSCS. Two cases of maternal morbidity were done within 12 hours, 5 cases of maternal morbidity were done between 12-24 hours and 20 cases of maternal morbidity were done more than 24 hours. In 10 cases, perinatal morbidity was observed in 1 case within 12 hours; in 23 cases, 5 cases were having perinatal morbidity and 1 case was having perinatal mortality; out of 17 cases, 10 cases were having perinatal morbidity and 2 cases were having perinatal mortality.

CONCLUSION

PROM is a common problem among pregnant women and is a high-risk obstetric condition. To reduce the maternal and perinatal morbidity and mortality, evaluation of PROM risks and timely diagnosis is necessary. Administration of antibiotics reduces maternal and neonatal morbidity. To enable delivery within 24 hours of PROM, active management is needed.

KEYWORDS

Premature Rupture of Membranes, Pregnancies, Neonatal Morbidity.

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BACKGROUND

Premature Rupture of Membranes (PROM) is referred as 37 weeks' gestation and present with Rupture of Membranes (ROM) prior to the onset of labour.¹ Spontaneous Preterm Rupture of Membranes (SPROM) is rupture of membrane after the onset of labour occurring prior to 37 weeks.² Prolonged ROM is any rupture of membrane that persists for more than 24 hours and prior to the onset of labour. Early PROM also appears to be linked to underlying pathologic processes, most likely due to inflammation and/or infection

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of the membranes. There are also numerous risk factors for PROM such as intrauterine infection at early gestational age, lower socioeconomic status of pregnant women, low body mass index, sexually transmitted infections, vaginal bleeding, inadequate prenatal care and inadequate nutrition during pregnancy, smoking, cerclage and amniocentesis. Both mother and foetus are at greater risk of infection after PPRM.²

The foetal and neonatal morbidity and mortality risks are more and affected by severity of oligohydramnios, duration of latency and gestation at PROM. The primary complication for the mother is risk of infection. Complications of PROM for the foetus and newborn consists of prematurity, foetal distress, cord compression, deformation and altered pulmonary development leading to pulmonary hypoplasia and pulmonary hypertension, Necrotising Enterocolitis (NEC) and neurologic disorder. Infectious morbidities in mother, foetus and newborn have been related to both PROM and prolonged rupture of membranes.

85% of neonatal morbidity and mortality is a result of prematurity. PPROM is associated with 30-40% of preterm deliveries and is the leading identifiable cause of preterm delivery. In some of the Indian studies, the incidence of PROM is reported as 7%-12% in all labours.^{3,4} Maternal risks include chorioamnionitis, endometritis, abruption placenta and postpartum febrile morbidity.^{5,6}

Thus, the physician caring for the pregnant woman whose pregnancy has been complicated with PPROM plays an important role in management and needs to be familiar with potential complications and possible interventions to minimise risks and maximise the probability of the desired outcome. This prospective study was conducted to evaluate the maternal and perinatal outcomes in term PROM cases.

MATERIALS AND METHODS

This was a prospective study conducted from May 2016 to June 2017, 50 cases of spontaneous rupture of membranes who were admitted in Department of Obstetrics and Gynaecology in Laxmi Narasimha Hospital, Warangal, Telangana.

Inclusion criteria was women who were pregnant with gestational age of 36 to 43 weeks with rupture of membranes spontaneously before onset of labour pains with single foetus, which was live with presentation at term.

Exclusion criteria was premature rupture of membranes before 36 weeks, patients who had congenital anomalies of foetus, intrauterine death, multiple pregnancies, post-caesarean pregnancies and associated medical complications in pregnancy.

A detailed history of all the patients were taken. General examination was done taking both maternal and foetal investigations. The examination of sterile speculum was conducted and the amniotic fluid was collected on a slide and was examined under microscope. Amniotic fluid and urine culture was done in those cases who were suspected. All the patients who were in study group were given prophylactic IV antibiotics. The maternal blood pressure, pulse and temperature was maintained. Those patients who had malpresentations, severe oligohydramnios and those patients with foetal distress were selected for emergency caesarean section. When the bishop score labour was favourable, PGE1 was administered vaginally and PGE2 gel was induced in those patients who had bishop score labour unfavourable.

RESULTS

50 patients were selected in this study. The incidence of PROM was 60% among lower socioeconomic group, which was higher than the incidence in higher socioeconomic group (10%). Booked and unbooked cases had an incidence of 75% and 20%, respectively.

Variable	Percentage
History of term PROM	25%
History of abortion	20%
History of preterm PROM	5%

Table 1. Obstetrics and Gynaecology History Versus PROM

Table 1 shows obstetrics and gynaecology history versus PROM, which was 25% in history of term PROM, 20% in history of abortion and 5% in history of preterm PROM.

Risk Factors	Percentage
Anaemia	23%
Urinary tract infections	14%
Lower genital tract infections	11%
Cervical stich	4%
Malpresentations	6%
Hydramnios	6%
No risk factors	36%

Table 2. PROM Versus Risk Factors

Table 2 shows that the most common risk factor in PROM is anaemia, which constituted to 23% and the least common risk factor is cervical stich, which constituted to 4%.

Bishop Score	Vaginal Delivery	LSCS	Total Number of Cases
Favourable	19	8	27
Unfavourable	11	12	23
Total	30	20	50

Table 3. Bishop Score and Delivery Mode in PROM

Table 3 shows that the favourable Bishop score was present in 19 patients who underwent vaginal delivery and it was in 8 patients who underwent LSCS.

Duration of PROM	Number of Cases	Percentage
<12 hours	2	4%
12-24 hours	5	10%
More than 24 hours	20	40%

Table 4. Duration of PROM Versus Maternal Morbidity

Table 4 shows that 2 cases of maternal morbidity were done within 12 hours, 5 cases of maternal morbidity were done between 12-24 hours and 20 cases of maternal morbidity were done more than 24 hours.

Duration of PROM	Number of Cases	Perinatal Morbidity	Perinatal Mortality
<12 hours	10	1	0
12-24 hours	23	5	1
More than 24 hours	17	10	2

Table 5. Duration of PROM Versus Perinatal Morbidity and Mortality

Table 5 shows that in 10 cases, perinatal morbidity was observed in 1 case within 12 hours; in 23 cases, 5 cases were having perinatal morbidity; and 1 case was having perinatal mortality, out of 17 cases, 10 cases were having perinatal morbidity and 2 cases were having perinatal mortality.

DISCUSSION

The normal development, structural integrity and function of the foetal membranes are essential for the normal progress and outcome of pregnancy. One of the most important functions of the membranes is to remain intact till the labour

starts in order to maintain the protective intrauterine fluid environment. Indeed, in most pregnancies labour begins at term in the presence of intact foetal membranes. PROM is one of the common complications of pregnancy that has a major impact on the foetal and maternal outcome.

Incidence of premature rupture of membranes at term, evaluate the risk factors, risk of operative delivery, the effects and complications of premature rupture of membranes at term and its influence on maternal and perinatal outcome. It was a prospective study where patients with confirmed premature rupture of membranes at term were recruited and monitored for progress evaluated for maternal and perinatal outcome. The incidence of PROM was 60% among lower socioeconomic group, which was higher than the incidence in higher socioeconomic group (10%). Booked and unbooked cases had an incidence of 75% and 20%, respectively. This is comparable to the incidence of PROM in studies relation. PROM in present pregnancy was influenced by previous obstetric history in study. The rate of caesarean delivery was increased with a concomitant increase in incidence of maternal morbidity and perinatal morbidity and mortality with an increase in the duration of labour and delivery.

25% in history of term PROM, 20% in history of abortion and 5% in history of preterm PROM. The most common risk factor in PROM is anaemia, which constituted to 23%. Similar findings were reported by many studies in India and abroad.^{6,7}

The favourable Bishop score was present in 19 patients who underwent vaginal delivery and it was in 8 patients who underwent LSCS, which is similar to findings of Zaghloul et al.⁸ Most of the studies indicate higher Bishop score. There is an increase in the chances of normal delivery in both primi and multigravidas.

Two cases of maternal morbidity were done within 12 hours, 5 cases of maternal morbidity were done between 12-24 hours and 20 cases of maternal morbidity were done more than 24 hours. In 10 cases, which is similar to findings in the study of Al-Qa, et al.⁹ There is always an association of perinatal morbidity and mortality with PROM. In our study, the incidence of perinatal morbidity was observed in 1 case within 12 hours; in 23 cases, 5 cases were having perinatal morbidity and 1 case was having perinatal mortality; out of 17 cases, 10 cases were having perinatal morbidity and 2 cases were having perinatal mortality, which is similar to findings of Noor S et al and contrary to findings of Kifah Al et al who reported higher rates of morbidity and mortality in his study.¹⁰

Our study is in coincidence with Sita Ram Shrestha et al¹¹ study. Incidence of prelabour rupture of membrane was 6.06%. Prelabour rupture of membranes were antecedent coitus, hydramnios, smoking, cephalopelvic disproportion and previous abortion were major risk factors associated. 49 pregnant women with prelabour rupture of membrane received antibiotics and 24 babies (48.98%) developed neonatal infection in prelabour rupture of membrane group and only one developed infection in non-prelabour rupture. Four cases of neonatal infection was seen in neonates born

from mothers with prelabour rupture of membranes <24 hours and 20 cases of neonatal infection were seen in those neonates born from mother with prelabour rupture of membrane >24 hours ($p < 0.05$). G. Smith et al¹² conducted a study in which in 9 academic centres, 27 women (1 with a twin pregnancy) presented with PPROM during the 2-week period. There were 1168 deliveries giving a prevalence of PPROM of 2.3%. Overall, 53% of placentas submitted for histopathology after PPROM demonstrated evidence of chorioamnionitis, incidence of 2.8%. Clinical management in all centres was similar for all women. Saira Dars et al¹³ reported that out of 100 patients, primigravida were 17% and multigravida 83%. 26% had PROM of <24 hours duration and 74% had >24 hours of duration. Maternal outcome in 16 cases of preterm premature rupture of membrane findings revealed septicaemia in 12% cases and chorioamnionitis in 12% cases. Foetal outcome in 27 cases of preterm premature rupture of membrane revealed prematurity in 5% cases, foetal distress in 4% cases, cord compression in 5% cases, necrotising enterocolitis in 2% cases, hypoxia in 9% cases and pulmonary hypoplasia in 2% cases.

CONCLUSION

This study coincides with other studies and shows that the most important risk factors associated with PROM are low status and nutritional deficiency. Active management is needed to enable delivery within 24 hours of PROM and it offers better maternal and neonatal outcome. It is suggested that the timely diagnosis and management of preterm PROM will allow obstetric care providers to optimise perinatal outcome and minimise neonatal morbidity. A healthy neonate as well as a healthy satisfied mother are natural aims for the obstetrician.

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