

ASSESSMENT OF MATERNAL AND FETAL OUTCOME IN PREMATURE RUPTURE OF MEMBRANE

Shikha Jain¹, Shammi Kumar Jain², Pratibha Singh³, Sujata Tripathi⁴

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Corresponding Author:
Dr. Sujata Tripathi,
Email: sujata.v1990@gmail.com

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¹Assistant Professor, Department of Obstetrics & Gynaecology, SRVS medical college, Shivpuri, Madhya Pradesh, India

²Assistant Professor, Department of Pediatrics, SRVS medical college, Shivpuri, Madhya Pradesh, India.

³Senior Resident, Department of Obstetrics & Gynaecology, SS Medical college, Rewa, Madhya Pradesh, India.

⁴Consultant Obstetrics & Gynaecology, Baba Madhav shah trust hospital, Katni, Madhya Pradesh, India.

Abstract

Background: To assess maternal and fetal outcome in premature rupture of membrane. **Materials and Methods:** One hundred five cases of premature rupture of membrane of more than 37 weeks of gestation was selected. 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. **Result:** Rupture of membrane to delivery interval was <16 hours seen in 28, 16-20 hours in 52 and >20 hours in 14. Mode of delivery was vaginal in 30, caesarean in 30 and forceps application in 23 cases. Indication for LSCS was malpresentation in 5, failed induction in 3, failure to progress in 15 and fetal distress in 7 patients. The difference was significant ($P < 0.05$). Maternal outcome was puerperal sepsis in 8, UTI in 6, chorioamnionitis in 10, fever in 21, adherent placenta in 2, wound infection in 3, PPH in 2 and maternal mortality was seen in 2 cases. The difference was significant ($P < 0.05$). Birth weight was LBW in 15, between 2.5- 2.99 kgs in 58 and >3 kgs in 32 cases. Neonatal morbidity was neonatal infection in 4, respiratory distress in 2, early onset sepsis in 22, neonatal jaundice in 6, hypoglycaemia in 1 and congenital abnormalities in 1 case. The difference was significant ($P < 0.05$). **Conclusion:** Maternal morbidity was associated with increased duration of PROM. An appropriate and accurate diagnosis of PROM is critical to optimize pregnancy outcome. It is suggested that the timely diagnosis and management of PROM will allow obstetric care providers to optimize perinatal outcome and minimize neonatal morbidity.

INTRODUCTION

Premature rupture of membrane is characterized by spontaneous rupture of chorioamnion before the onset of uterine contractions which leads to progressive cervical dilatation.^[1] It is associated with a high risk of maternal morbidity and mortality. It occurs in approximately 8% of all pregnancies.^[2] In developing countries, the incidence of premature rupture of membrane is about 18-20%. 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.^[3] With expectant management, approximately 60- 80% of women with rupture of membrane go into labour within 24 hours, and 95%

within 72 hours. If the interval from leaking to delivery exceeds 18 hours, then there is an increase in incidence of neonatal infections and admissions.^[4]

There are numerous risk factors for PROM, such as intrauterine infection at early gestational age, lower socioeconomic status of pregnant women, inadequate prenatal care and inadequate nutrition during pregnancy, sexually transmitted infections, vaginal bleeding, and smoking during pregnancy.^[5] Both mother and fetus are at greater risk of infection after PROM.^[6]

The fetal and neonatal morbidity and mortality risks are significantly affected by severity of oligohydramnios, duration of latency, and gestation at PROM.^[7] The primary complication for the mother is risk of infection.^[8,9] We performed this

study to assess maternal and fetal outcome in premature rupture of membrane.

MATERIALS AND METHODS

After considering the utility of the study and obtaining approval from ethical review committee, we selected one hundred five cases of premature rupture of membrane of more than 37 weeks of gestation. Patients' consent was obtained before starting the study.

Data such as name, age, etc. was recorded. A thorough pelvic examination was done under aseptic precaution. As per speculum examination, discharge, leaking p/v and colour of liquor were recorded. Complete blood count and C reactive protein were also recorded. 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. The results were compiled and subjected for statistical analysis using Mann Whitney U test. P value less than 0.05 was set significant.

RESULTS

Rupture of membrane to delivery interval was <16 hours seen in 28, 16-20 hours in 52 and >20 hours in 14. Mode of delivery was vaginal in 30, caesarean in 30 and forceps application in 23 cases. Indication for LSCS was malpresentation in 5, failed induction in 3, failure to progress in 15 and fetal distress in 7 patients. The difference was significant ($P < 0.05$) [Table 1].

Table 1: Patients characteristics

Parameters	Variables	Number	P value
Rupture of membrane to delivery interval (hours)	<16	30	0.05
	16-20	55	
	>20	20	
Mode of delivery	Vaginal	52	0.04
	Caesarean	30	
	Forceps application	23	
Indication for LSCS (30)	Malpresentation	5	0.01
	Failed induction	3	
	Failure to progress	15	
	Fetal distress	7	

Table 2: Assessment of maternal outcome

Outcome	Number	P value
Puerperal Sepsis	8	0.01
UTI	6	
Chorioamnionitis	10	
Fever	21	
Adherent Placenta	2	
Wound infection	3	
PPH	2	
Maternal Mortality	2	

Table 3: Assessment of neonatal outcome

Parameters	Variables	Number	P value
Birth weight (Kgs)	LBW	15	0.02
	2.5-2.99	58	
	>3	32	
Neonatal morbidity	Neonatal infection	4	0.01
	Respiratory distress	2	
	Early onset sepsis	22	
	Neonatal jaundice	6	
	Hypoglycemia	1	
	Congenital abnormalities	1	
	Neonatal mortality	0	

Maternal outcome was puerperal sepsis in 8, UTI in 6, chorioamnionitis in 10, fever in 21, adherent placenta in 2, wound infection in 3, PPH in 2 and maternal mortality was seen in 2 cases. The difference was significant ($P < 0.05$) [Table 2].

Birth weight was LBW in 15, between 2.5- 2.99 kgs in 58 and >3 kgs in 32 cases. Neonatal morbidity was neonatal infection in 4, respiratory distress in 2,

early onset sepsis in 22, neonatal jaundice in 6, hypoglycaemia in 1 and congenital abnormalities in 1 case. The difference was significant ($P < 0.05$) [Table 3].

DISCUSSION

Premature rupture of membrane (PROM) is defined as rupture of fetal membrane before onset of labor at more than 37 completed weeks of gestation. Incidence of PROM ranges from 3.0-10.0% of all deliveries.^[11,12] Preterm PROM complicates approximately 3 percent of pregnancies and leads to one third of preterm births. Preterm delivery affects one in 10 births, 11% in USA and even greater births in developing countries and causes 40-75% neonatal deaths.^[13,14] We performed this study to assess maternal and fetal outcome in premature rupture of membrane.

Our results showed that rupture of membrane to delivery interval was <16 hours seen in 28, 16-20 hours in 52 and >20 hours in 14. Mode of delivery was vaginal in 30, caesarean in 30 and forceps application in 23 cases. Indication for LSCS was malpresentation in 5, failed induction in 3, failure to progress in 15 and fetal distress in 7 patients. Dars et al,^[15] found that out of 100 patients, primigravida were 17% and multigravida 83%. There was wide variation of age ranging from a minimum of 20 to >40 years. The mean age was 30+ 3.1 years. Mostly patients belonged to the poor class in 72% cases followed by middle class in 21% and upper class 7%. Out of 100 mothers 26% had PROM of <24 hrs duration and 74% had >24 hrs of duration. Maternal outcome in 16 cases of preterm premature rupture of membrane findings revealed septicemia in 12% cases and chorioamnionitis in 12% cases. Fetal outcome in 27 cases of preterm premature rupture of membrane revealed prematurity in 5% cases, fetal distress in 4% cases, cord compression in 5% cases, necrotizing enterocolitis in 2% cases, hypoxia in 9% cases and pulmonary hypoplasia in 2% cases.

Our results showed that maternal outcome was puerperal sepsis in 8, UTI in 6, chorioamnionitis in 10, fever in 21, adherent placenta in 2, wound infection in 3, PPH in 2 and maternal mortality was seen in 2 cases. Kasliwal et al,^[16] enrolled 100 patients with diagnosis of PROM at or more than 37 weeks of gestation to study maternal and fetal outcome. Average birth weight of babies in our study was 2.82 kgs. 8% of babies were low birth weight. The rate of maternal morbidity was 28%, commonest cause was febrile illness (12%) followed by clinical chorioamnionitis (8%), puerperal sepsis (3%), PPH (2%) and urinary tract infection (1%), adherent placenta (1%), wound infection (1%). Perinatal morbidity was seen in 31% of cases. Clinical early onset neonatal infection was the commonest cause. Clinical early onset infection was seen in 15% cases. This was the most common cause of perinatal morbidity. Foetal morbidity always increases with PROM to delivery interval. Our results showed that birth weight was LBW in 15, between 2.5- 2.99 kgs in 58 and >3 kgs in 32 cases. Neonatal morbidity was neonatal infection in 4, respiratory distress in 2, early onset sepsis in 22,

neonatal jaundice in 6, hypoglycaemia in 1 and congenital abnormalities in 1 case. Assefa et al,^[17] evaluated risk factors of premature rupture of membranes among pregnant women. 240 samples (160 controls and 80 cases) from pregnant mothers was collected. A total of 160 controls and 80 cases were enrolled. It was observed that history of abortion [AOR 3.06 (CI: 1.39, 6.71)], history of PROM [AOR 4.45 (CI: 1.87, 10.6)], history of caesarean section [AOR 3.15 (CI: 1.05, 9.46)] and abnormal vaginal discharge in the index pregnancy [AOR 3.31 (CI: 1.67, 6.56)] were positively associated with premature rupture of membranes.

Al-Qa K,^[18] compared the neonatal outcome of infants born to mothers with history of PROM who received or did not receive antibiotics before labor. 255 newborns were included in this study. All of them were admitted to neonatal intensive care with septic work up done and intravenous antibiotic started for at least 3-4 days. These neonates were divided into two groups depending on maternal history of antibiotic intake before labor. The total number of neonates included in the study was 225. The maternal age 25 + 10 years. 140 cases (62%) were premature with gestational age ranging between 28-36 weeks, and 85 (38%) were full term. Neonatal death occurred in 20 cases (14%) due to severe prematurity and its complications. Duration of PROM 18-72 hours in 167 cases (74%), 72 hours -1 week in 43 cases (19%) and >1 week in 10 cases (7%). History of antibiotic intake before labor was positive in 110 cases (49%), {60 (54.5%) of them had premature labor}, and negative in 115 cases (51%), {80 (69.6%) of them had premature labor}. The risk of neonatal infection in study was 4.4% in babies with maternal history of antibiotic intake compared with 11% in those whose mothers didn't.

CONCLUSION

Maternal morbidity was associated with increased duration of PROM. An appropriate and accurate diagnosis of PROM is critical to optimize pregnancy outcome. It is suggested that the timely diagnosis and management of preterm PROM will allow obstetric care providers to optimize perinatal outcome and minimize neonatal morbidity.

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