



A CLINICAL STUDY ON MATERNAL OUTCOME OF PRETERM PREMATURE RUPTURE OF MEMBRANES (28 -37 WEEKS) AT A TERTIARY CARE HOSPITAL

Dr. Rishika Zinzuvadia*

3rd Year Resident, Obstetrics And Gynaecology Department, Government Medical College, Majura Gate Surat *Corresponding Author

Dr. Falguni Patel

Associate Professor, Obstetrics And Gynaecology Department, Government Medical College, Majura Gate Surat

Dr. Nilam Prajapati

Associate Professor, Obstetrics And Gynaecology Department, Government Medical College, Majura Gate Surat

ABSTRACT

Preterm premature rupture of membranes is a commonly encountered obstetric complication. It is an important cause of maternal morbidity . PPROM occurs in 3-4% of all pregnancies and accounts for approximately 30-40% of preterm births. **Aims And Objectives:** To analyze the maternal outcome in patients with preterm premature rupture of membranes. **Materials And Methods:** An observational study was conducted collecting data of 150 consecutive consenting subjects admitted in tertiary health care center New civil Hospital , Surat , South Gujarat over period of May 2023 to April 2024 .The total of 150 patients with PPROM were included in the study after applying inclusion and exclusion criteria. **Results:** Majority of patients belonged to age group of 18-25 years (52.67%). Majority of the patients were from normal BMI (73.33%), illiterate (65.33%), housewife (60%), primigravida (53.33%). Late PPROM (34-37 weeks) was seen in 84% cases and early PPROM (28-34 weeks) in 16% cases. In our study 18% subjects had past history of fever, 67.33% had moderate anemia, 17% had positive high vaginal swab for bacterial vaginosis, 64.67% had poor bishop's score, 58.67% of our subjects requires induction of labour, 49.33% subjects had leaking to delivery interval was >24 hours . In this study, 38% cases underwent LSCS. Most common indication of LSCS was fetal distress (38.98%). Puerperal pyrexia was the most common maternal complication (23%), 62% of our subjects had lactational failure . **Conclusions:** PPROM is a significant contributor of poor obstetric outcome. Many of the contributing factors of PPROM if detected sufficiently antenatally as well as intranatally and appropriately treated may not only decrease the onset of PPROM, but also have the potential to reduce maternal morbidity and mortality. Also all cases of PPROM should manage on tertiary health care center where skilled obstetrician is present.

KEYWORDS : Preterm Premature Rupture of Membrane , Lower segment Caesareans Section.

INTRODUCTION

Preterm premature rupture of membranes (PPROM) is a significant cause of preterm birth and is associated with maternal, fetal, and neonatal morbidity and mortality. It involves examining its prevalence, risk factors, and associated outcomes in various populations.

PPROM occurs in 3-4% of all pregnancies and accounts for approximately 30-40% of preterm births. In developing countries, higher rates are observed, potentially due to lower access to healthcare, infections, and malnutrition.¹

PPROM typically occurs before 37 weeks of gestation, with an increased incidence at earlier gestational ages. The earlier the rupture, the more significant the risks of complications like preterm birth. The condition is most common between 24-34 weeks of gestation. PPROM is more common in younger mothers (teenage pregnancies) and women over 35 years old. Some studies have shown higher rates of PPROM among Black and Hispanic women compared to Caucasian women.² Socioeconomic factors, healthcare access, and prevalence of infections may contribute to these disparities.

PPROM associated with significant maternal morbidity and perinatal morbidity.³ These includes Chorioamnionitis, Endometritis, Sepsis, Placental Abruption, Postpartum hemorrhage (PPH), Prolonged Hospitalization, Preterm Labor and Delivery, Increased Caesarean Delivery, Psychological Stress, Lactational Failure. Various perinatal Morbidity like prematurity, respiratory distress syndrome, intra ventricular hemorrhage, Sepsis, bronchopulmonary hypoplasia, necrotizing enterocolitis depending on gestational age.

PPROM evaluation and management are important for improving maternal neonatal outcomes. A careful consideration of various factors and individualization of cases is necessary for appropriate management. Proper

diagnostic facilities, proper monitoring facilities and a standard protocol in the management can improve the maternal and fetal outcome. So the present study is conceptualized to analyze the maternal and fetal outcome in cases with preterm premature rupture of membranes.

Materials and Methodology

Study Setting: Department of Obstetrics and Gynecology, GMCS, GUJARAT

Duration of Study: MAY 2023 to APRIL 2024

1. Inclusion Criteria :

All Consenting women between 28- 37 weeks pregnancy with Preterm PROM without labour pain.

2. Exclusion Criteria :

- Pregnant women <28 week of pregnancy > 37 week of pregnancy.
- Pre term labour with intact membrane.
- IUFD
- Non consenting women.

3. Measuring Tools: Age, parity, socioeconomic status, education, antenatal check- ups, latency period, past history, risk factors.

4. Outcome Variables

- Period of gestation
- Mode of delivery
- -Vaginal
- Spontaneous
- Instrumental
- -Caesarean section
- Maternal complications
- Chorioamnionitis, Abruption, Wound infection, Puerperal pyrexia

5. Brief Methodology :

All women with PPROM delivering in tertiary health care center of South Gujarat were enrolled in this study . All mothers and babies were followed till discharged from hospital .

All data related to maternal and fetal outcome were collected from case records of mother in structured proforma . This data was analyzed by appropriate statistical test .

6. Ethical Approval :

Ethical approval was granted by Human Resource Research Committee, confidentiality was maintained.

RESULTS:

The maternal and fetal outcome of PPROM was analysed in relation to age, parity, socioeconomic status, antenatal care, gestational age, parity, past obstetric history, associated risk factors, mode of delivery. Table 1 shows various demographic variables and its relation in patients with PPROM. Majority of the patients with PPROM were in the age group 18-24 years (52.67%). Majority number of cases were from urban area (54%), Maximum number of cases were seen in primigravida (53.33%).

Maximum number of cases (84%) occurred in patients with late PPROM (gestational age between 34 to less than 37 weeks) and 16% cases had early PPROM (gestational age between 28 to less than 34 weeks). Around 18% of subjects had past history of fever .64.67% subjects had poor bishop's score ,67.33% of subjects had moderate anemia ,17% of our subjects are positive for bacterial vaginosis . Around 49.33% of patients had delivery within 24 hours of membrane rupture.62% of our subjects delivered by vaginally, 38% subjects delivered by LSCS. Most common indication of LSCS is fetal distress is 38.98%. In our study, 11.5% of patients had maternal morbidity. Lactational failure was most common maternal complication 62% , Puerperal pyrexia was 2nd most common maternal complication (23%) followed by chorioamnionitis (8%)and PPH (7%) and 40% of our subjects needs second line antibiotics to prevent these morbidities .

Table 1: Demographic Characteristic

Demographic Characteristics	Number	Percentage
Age(years)		
18-24	79	52.67
25-30	69	46
>30	02	1.33
Area wise distribution		
Urban	80	54
Rural	70	46
Parity		
Primigravida	80	53.33
Multigravida	70	46.67
Gestational age (weeks)		
28 to < 34	26	16
34 to < 37	124	84
Significant Past History		
Fever	27	18
Past preterm delivery	8	11.42
Preterm prom in previous delivery	1	1.42
Leaking to delivery interval		
6 hours	5	3.33
6-12 hours	21	14
12-24 hours	50	33.33
>24 hours	74	49.33
Mode of delivery		
Vaginal delivery	91	62
LSCS	59	38
Maternal complications		

Puerperal pyrexia	3	23
Chorioamnionitis	1	8
Lactational Failure	8	62
PPH	1	7
Maternal Comorbidities		
High vaginal swab		
Positive -BACTERIAL VAGINOSIS	26	17%
Negative	124	83%
Anemia		
Mild (HB-10-10.9 gm %)	47	31.33%
Moderate (HB-7-9.9 gm %)	101	67.33%
Severe (HB-<7 gm%)	02	1.33%
Antibiotics to mother		
1 st line antibiotics	89	59.33%
2 nd line antibiotics	60	40%
3 rd line antibiotics	01	0.67%

Majority of the patients had vaginal delivery (62%). 38 % of cases underwent lower segment caesarean section. Most common indication for LSCS was fetal distress (38.98%), followed NPOL (27.11%), Persistent fetal tachycardia (13.5%), PPROM with previous LSCS(11.8%) , PROM with unfavorable cervix (8.4%).

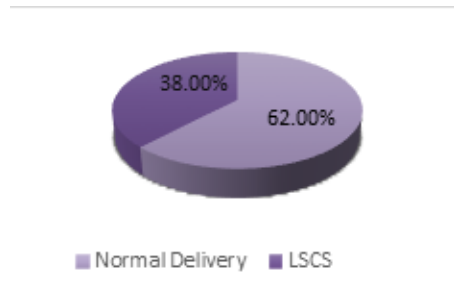


Figure:1 Mode Of Delivery

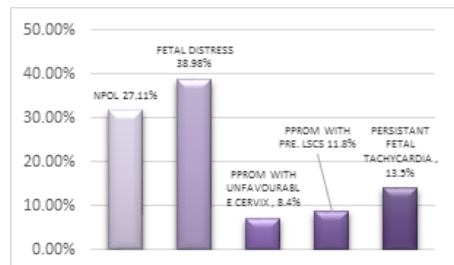


Figure :2 Indication Of Lscs

Majority of our subjects with early PPROM will deliver spontaneously , while in 34- 37 week of gestation majority of subjects deliver by induction.

Table 2: Association Between Gestational Age And Onset Of Labour

Gestational Age	Induction	Percentage	Spontaneous labor	Percentage
28-34 week	12	46.15	14	53.84
34-37 week	76	61.29	48	38.71

Majority of our subjects with early PPROM will deliver spontaneously , while in 34- 37 week of gestation majority of subjects deliver by induction.

Table 3: Association Between Duration Of Prom And Maternal Morbidity

DURATION OF PROM	MATERNAL MORBIDITY (N=13)	Percentage
<6 HR	1	7.69%
6-12 HR	1	7.69%
> 12 HR	4	30.76%

>24 HR	7	53.84%
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According to TABLE 3 as the duration of PPROM increases there is increase in maternal morbidity .

DISCUSSION :

The study is a observational study conducted among 150 patients with PPROM admitted to Department of Obstetrics and Gynaecology, NCHS. Majority of the patients with PPROM were in the age group 18-24 years (52.67%).Majority number of cases were from urban area (54%), Maximum number of cases were seen in primigravida (53.33%), Which was comparable to other study like Manisha sahu et al.

Maximum number of cases (84%) occurred in patients with late PPROM (gestational age between 34 to less than 37 weeks) and 16% cases had early PPROM (gestational age between 28 to less than 34 weeks), which implies that the risk of PPROM increases with increasing gestational age, comparable to other study like Lovegreen S et Al .

Around 18% of subjects had past history of fever , 67.33% of subjects had moderate anemia ,17% of our subjects are positive for bacterial vaginosis, so careful antenatal monitoring , early detection and treatment of anemia , antibiotic coverage and progesterone support in PPROM patient present with anemia , screening for bacterial vaginosis to prevent PPROM.

64.67% subjects had poor bishop's score ,so majority of subjects needs induction of labour .

Around 49.33% of patients had delivery within 24 hours of membrane rupture, which leads to increase in maternal morbidity like chorioamnionitis , puerperal pyrexia, wound infection .

62% of our subjects delivered by vaginally, 38% subjects delivered by LSCS, study comparable to another 2 study like Hina Ganatra et Al , and Khade et Al .Most common indication of LSCS is fetal distress is 38.98%, which is comparable to other study like Khade et al.

In our study, 11.5% of patients had maternal morbidity. Lactational failure was most common maternal complication 62% , Puerperal pyrexia was 2nd most common maternal complication (23%), comparable to other study like Nargis et al followed by chorioamnionitis (8%)and PPH (7%), 40% of our subjects need second line antibiotics to prevent these complications.

Table 2 suggests the association between gestational age of delivery , most of patients in late gestational age (34-37 week) , deliver by vaginally.

Table 3 suggests the duration of pprom with maternal morbidity , more the duration of pprom more is maternal morbidity . Most common maternal complication 62% , Puerperal pyrexia was 2nd most common maternal complication (23%) followed by chorioamnionitis (8%)and PPH (7%).

CONCLUSION

Preterm premature rupture of membranes (PPROM) is a commonly encountered obstetric complication. The condition poses jeopardy to both fetus and mother as prematurity and its sequelae endanger the fetus, while risk of infection with an amnionitis is a threat to both fetus and mother.

So during antenatal period we should focus on So, careful antenatal monitoring, early detection and treatment of anemia, antibiotics coverage and progesterone support in patient having fever, screening for bacterial vaginosis shall be

done to prevent PPROM.

On analyzing intra-natal variables, we observed 64.67% subjects had poor Bishop score, 58.67% subjects require induction of labour, 38% subjects required caesarean section. Considering high maternal morbidity and caesarean section rate these subjects shall delivered in a center having skilled Obstetrician and facility for caesarean section.

Screening and treatment of risk factors may contribute to prevention of PPROM A team effort by the obstetrician and neonatologist can ensure a healthy and fruitful life for mother and baby.

Proper health education, improved health hygiene, adequate antenatal checkups can reduce maternal morbidity.

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