



## PROSPECTIVE STUDY OF PRETERM PREMATURE RUPTURE OF MEMBRANE (PPROM)

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**ABSTRACT** **Background:** Preterm premature rupture of membrane is one of the most frequent and most controversial problem faced by obstetrician and complicate 10% of all pregnancy with significant perinatal mortality and morbidity. **Method:** To study 150 cases of PPRM with gestational age between 28-30week in our institute from august 2018 to October 2020. **Results:** The incidence of PPRM is 2.59%. Most common cause of PPRM is idiopathic. Out of 150 patient 82% delivered vaginally and 18% undergone for caesarean. Incidence of cesaerean higher after induction of labor done by oxytocin or prostaglandins. Common perinatal morbidity are Respiratory distress syndrome, Interventricular haemorrhage and Hyaline membrane disease which inversely proportional to gestational age. **Conclusion:** once the PPRM is diagnosed it should be promptly managed with antibiotics, steroids and early delivery to reduce perinatal morbidity and mortality with maternal morbidity.

**KEYWORDS :** PPRM , neonatal mortality and morbidity

### INTRODUCTION

Preterm premature rupture of membrane define as "Spontaneous rupture of membrane anytime from 28<sup>th</sup> week to 37<sup>th</sup> week of pregnancy but before onset of labor".<sup>1</sup> premature rupture of membrane one of most frequent and most controversial problem faced by obstetricians. PROM complicate 10% of all pregnancies<sup>1</sup> and preterm PROM account for about 25% of all PROM and 30% of preterm delivery.<sup>2</sup> The overall incidence of PPRM is 3% in all pregnancies.<sup>3</sup> PPRM is single most identifiable cause of preterm delivery and major contributor of perinatal morbidity and mortality. There are numerous risk factor for PPRM such as maternal socioeconomic class,, infection at early gestational age and associated co-morbid condition. The fetal and neonatal morbidity and mortality risks are significantly affected by severity of oligohydromnios, duration of latency and gestational age at PPRM.

### AIMS AND OBJECTIVES

To study incidence of PPRM in our institute.  
To know etiology and contributing factor responsible for PPRM.  
To study early neonatal mortality and morbidity.  
To study maternal mortality and morbidity.

### MATERIAL AND METHOD

The present study is prospective study of 150 cases of spontaneous PPRM with gestational age 28wk onwards to 37week in our institute from august 2018 to October 2020 in our hospital.

Statistical tool used to analyze the data was Microsoft word and data expressed in a form of percentage.

Total number of delivery during the period were 12844 out of which 332 patient had PPRM.

### Inclusion Criteria

Gestational age 28week onwards up to 37week.  
singleton/multifetal gestation  
Cases of polyhydromnios.  
Malpresentation.

### Exclusion Criteria

In labor patient.  
Non reassuring foetal status.  
Intrauterine death.  
Congenital anomalies.

### OBSERVATION AND DISCUSSION

Incidence of PPRM in our institute during study period was 2.59% which is well compatible with described by others.

**Table 1 Incidence Of PPRM**

AUTHORS	INCIDENCE
Present study	2.59%
Te okele etal	3.3%
F.Nilli	6.9%
Arnido	3.1%
Hernandez	3.5%

**Table 2 Etiological Factors Of PPRM**

NO.	Etiological factor	No .of cases (%)
1	Idiopathic	94 (62.67%)
2	Bacterial infection	17(11.3%)
3	Anemia	15(10%)
4	Malpresentation	10(6.67%)
5	Prev. H/o PPRM/PROM	8(5.33%)
6	Twins	3(2%)
7	Polyhydromnios	3(2%)
Total		150(100%)

In present study, 62.67% cases has idiopathic. Fayaz (1978) had shown 88% were idiopathic.<sup>4</sup>

The next common factor was bacterial vaginosis and anemia. okele had shown 13.9% causes were associated with bacterial infection.<sup>5</sup>

Nutritional deficiency predispose to women to abnormal collagen structure and that also has been associated with increase risk of PPRM.

**Table 3 Modes Of Termination Of Pregnancy**

Modes Of Termination	Vaginal Delivery	LSCS
Spontaneous (111)(74%)	94(84.6%)	17(15.32%)
Induced(39)(26%)	32(82.05%)	7(17.95%)

There is slight increase in LSCS rate in induction of labor , In our institute general LSCS rate 30.12% in present study less incidence of LSCS because vaginal delivery in very low birth weight baby easily and patient's relative were not easily willing for LSCS in preterm babies.

**Table 4 Different Modes Of Termination Of Pregnancy In PPRM At Different Gestational Age**

GESTATIONAL AGE IN WEEK	VAGINAL (126)(84%)			LSCS (24)(16%)	
	Spontaneous (94) (62.67%)	Oxytocin (10)	Prostaglandin (22)	Failure of induction (7)	LSCS mandatory (17)
28-30 (13)	10 (76.9)	2 (15.3%)	1 (7.69%)	0 (0%)	0 (0%)
31-34(66)	47 (71.21%)	3 (4.54%)	6 (9.09%)	4 (6.06%)	6(9.09%)
35-37(71)	37 (52.11%)	5 (7.04%)	15 (21.21%)	3 (4.02%)	11 (15.49%)
Total	94 (62.66%)	10 (6.66%)	22 (14.66%)	7 (4.66%)	17 (11.33%)

Table 4 shows that 62.67% patient in our study goes into spontaneous labor and deliver vaginally.

Study indicates that percentage of cases going into spontaneous labor increases as increase into gestational age. Similar observed by Janice and Andrew(1984), David(2009)and Tarik(2005).<sup>6</sup>

In our study we wait up to 12 hours of spontaneous onset of labor after premature rupture of membrane. After that induction or augmentation of labor was done with prostaglandins or oxytocin.

In 39 cases induction and augmentation of labor done with oxytocin and prostaglandin ,out of this 39 cases 32 were delivered vaginally while in 7 cases LSCS was done .

While out of 150 cases of PPRM only 16% required operative intervention in which 11% cases was mandatory include fetal distress, malpresentation, previous caesarean section and twins .In 4% of failed vaginal trial LSCS was done.

**Table 5 Indications Of LSCS**

INDICATION	Cases
Induction failure	7(29%)
Foetal distress	6(25%)
Previous LSCS	4(16.6%)
Breech	3(12.5%)
Twins	2(8.3%)
Prolonged PROM	2(8.3%)
Total	24(100%)

In present study out of 150 cases of PPRM 24 cases were delivered by LSCS.

From the 15 cases in which trial of vaginal delivery was given LSCS was done in 6 cases of fetal distress, 7 cases of induction failure and 2 cases of prolong PROM.

In other 9 cases LSCS was done for 3 cases of breech , 4 cases of history of previous CS, And 2 cases of twins .In these cases LSCS was mandatory.

**Table 6 Co-relation Between Neonatal Complication And PPRM At Differnt Gestational Age**

GESTATIONAL AGE (IN WEEKS)	TOTAL NO.OF CASES	RDS		HMD		IVH		NEONATAL DEATH	
		No.	%	No.	%	No.	%	No.	%
28-30	13	4	30.7%	2	15.3%	1	7.69%	2	7.6%
30-34	66	4	6.0%	0	0%	0	0%	2	3.0%
35-37	71	1	1.4%	0	0%	0	0%	2	2.8%
Total	150	9	6.0%	2	1.33%	1	0.67%	6	4%

In present study it has been found that incidence of RSD, IVH, HMD were inversely proportional to the gestational age. Incidence of RDS was only 1.4% after 34 weeks.

Out of 6 cases of neonatal death 1 case due to IVH, 4 cases due to RDS and 1 case due to sepsis.

In present study most of death occurs in birth weight less than 1.5kg.

The duration of leak increased, incidence of RDS decrease which can be explained by that when there was leaking, foetus exposed to stress , release of glucocorticoids and decrease incidence of RDS.

In our study duration of leak increase, the incidence of neonatal sepsis and neonatal death increase.

In our study neonatal sepsis found in all cases of PPRM of more than 24hours.

Incidence of neonatal sepsis in present study 6%, David (2009)-4.1% and C.Nicaise-15%.

Present study shows that interval period of 24 hours is feasible for steroids administration, as in this interval neonatal infection are comparatively less. It will improve neonatal death.

**Table 15 Associations Between Maternal Postpartum complication And Interval Period**

INTERVAL PERIOD IN HRS.	Cases	Puerperal Pyrexia		Puerperal Sepsis	
		Cases	%	Cases	%
0-12	32	0	0%	0	0%
13-24	95	1	1.05%	0	0%
25-36	20	5	25%	1	5%
37-48	2	2	100%	0	0%
>12	1	0	0%	1	100%
Total	150	8	5.33%	2	1.33%

Present study shows that as interval period of rupture of membrane increased the rate of postpartum complication also increased , i.e. rate of postpartum fever is 0.78% within 24hrs of leak. Between 37-48hrs it is 100%.

Incidence of puerperal fever in present study-5.33%, A Bang(2004)-12%.

Duration of leak increased incidence of puerperal sepsis increased, i.e. rate of p.sepsis is 100% after 48hrs of leak.

**CONCLUSION**

Patient with predisposing factors like vaginal infections, anaemia, malnutrition, previous H/o PROM etc. are more prone to develop PPRM and therefore should have frequent ANC visit .Once PPRM is diagnosed it should be followed by prompt admission and management including administration of antibiotics and steroids and early delivery to decrease neonatal morbidity, mortality and maternal morbidity .Provision of good NICU services in the hospital setting which could be helpful in reducing the neonatal complications.

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