

## PERINATAL AND MATERNAL OUTCOME IN PREMATURE RUPTURE OF MEMBRANES

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### ABSTRACT

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#### BACKGROUND

The objectives of this study are 1) To find out the incidence of premature rupture of membranes, 2) To evaluate the aetiology of premature rupture of membranes, 3) To assess foetal and maternal outcome in premature rupture of membranes.

#### MATERIAL AND METHODS

This prospective case control study was conducted in Govt. RSRM Lying In Hospital, Chennai, over a period of 6 months and 100 cases of spontaneous rupture of membranes attending the Department of Obstetrics and Gynaecology were studied. Maternal and neonatal outcome were compared with controls.

#### RESULTS

Incidence of PROM was 9.06%. Most of them belonged to low socioeconomic class and in the age group 20-29 years, commonly seen primi gravida and in unbooked cases. Aetiological analysis revealed infection in 15% of cases, which is evident by positive amniotic fluid culture, h/o recent coitus in 20%, mal-presentation in 7%. Cause is unknown in most of the cases. The caesarean section rate is 24% when compared to 12% in control group. The PROM group had higher morbidities like postpartum haemorrhage, postpartum fever, wound infection, neonatal sepsis.

#### CONCLUSION

This study showed significantly increased morbidity for both mother and baby. PROM causes major increase in the incidence of prematurity, hence careful screening of high risk factors and treatment of infection promptly is needed to decrease the perinatal morbidity and mortality.

#### KEYWORDS

PROM, LSCS, Maternal Morbidity, Neonatal Morbidity.

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#### INTRODUCTION

Rupture of membranes before the onset of labour is defined as premature rupture of membranes. If it occurs before 37 weeks, it is called preterm PROM. If it occurs after 37 weeks, it is called as term PROM.<sup>[1]</sup> It complicates 5-10% of term pregnancies, about 30% of preterm deliveries.<sup>[2]</sup> 80% of PROM cases gets into labour spontaneously within 24 hours and the remaining within 72 hours.

In term PROM, if Bishop's score is favourable immediate stimulation policy is associated with good foetal and maternal outcome. If not, induction with prostaglandins is recommended.<sup>[3,4,5]</sup> Problems for the mother includes chorioamnionitis, postpartum fever, wound infection. Major problem for the baby includes infection, prematurity, non-reassuring foetal heart rate pattern due to cord compression.<sup>[6]</sup>

#### MATERIALS AND METHODS

For this prospective study, 100 cases of pregnant women with PROM is taken as study group and equal number of cases with no PROM and no complication are taken as controls.

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#### Inclusion Criteria

1. Singleton pregnancy between 28-42 weeks of gestation.
2. Primi and multi gravida.
3. Age group 18-40 years.
4. Leaking from cervix confirmed by speculum examination.
5. Cervix dilatation less than 3 cms.
6. No uterine contractions.

#### Exclusion Criteria

1. Multiple pregnancies.
2. Maternal complications interfering with active management of PROM like PIH, heart disease, previous LSCS.

Study group was further classified into term PROM and preterm PROM. All the patients were admitted in labour ward and started on 1 gm of Ampicillin every 6 hours and managed individually. Amniotic fluid culture and sensitivity was sent for all cases with PROM. Progress of labour was carefully monitored. Depending upon the maternal and foetal condition, labour was terminated by vaginal/instrumental/operative methods. For cases less than 34 weeks, corticosteroids were given. After delivery maternal and foetal outcome were studied. Foetal morbidity cases were admitted in NICU and subjected to investigations and followed till discharge. Mothers are also followed till discharge.

#### RESULTS

Incidence in Govt. RSRM Lying-in Hospital 9.06%.

Age in Years	Study	Control
<20	9	9
20-29	85	85
30-40	6	6
<b>TOTAL</b>	<b>100</b>	<b>100</b>

**Table 1: Age Incidence in PROM**

SE Class	Study	Control
Low (IV & V)	98	97
Middle (III)	2	3
<b>Total</b>	<b>100</b>	<b>100</b>

**Table 2: Socio-Economic Status in PROM**

An. Booking	Study	Control
Booked	38	60
Unbooked	62	40
<b>Total</b>	<b>100</b>	<b>100</b>

**Table 3: Antenatal Care & PROM**

P<0.001 - significant

Parity	Study	Control
G1	67	68
G2	17	18
G3	13	11
G4	3	3

**Table 4: Parity Incidence in PROM**

Gestation in WKS	Study	Control
<34	3	-
34-36	17	2
>37	80	98
<b>Total</b>	<b>100</b>	<b>100</b>

**Table 5: Incidence of PROM in Relation to Gestational Age**

Cause	No. of Positive Cases
Infection	15
H/O coitus	20
Mal-presentation	7
H/O cervical surgery	1
Not known	57
<b>Total</b>	<b>100</b>

**Table 6: Aetiological Analysis in PROM**

Organisms Grown	No. of Cases	%
E. Coli	6	40
Streptococci	2	13.33
Klebsiella	4	26.66
Proteus	2	13.33
Pseudomonas Aeruginosa	1	6.66
<b>Total</b>	<b>15</b>	<b>100</b>

**Table 7: Bacteriological Study of Amniotic Fluid in PROM**

PROM	Mode of Onset of Labour	
	Spontaneous	Induction
Term	26	54
Preterm	14	6

**Table 8: Mode of Onset of Labour and PROM**

PROM	Latent Period	
	<24 Hours	>24 Hours
Term	77	3
Pre-Term	13	7

**Table 9: Relation of Latent Period and PROM**

Mode of Delivery	Study		Control
	Term	Pre-Term	
Vaginal Delivery	58	15	86
LSCS	19	5	12
LMC	2	-	-
Assisted Breech Delivery	1	-	2
<b>Total</b>	<b>80</b>	<b>20</b>	<b>100</b>

**Table 10: Mode of Delivery and PROM**

Gestation	No. of Cases	LSCS	%
Pre-Term	20	5	25%
Term	80	19	23.75%

**Table 11: Caesarean Section in Term PROM and PPRM**

WT. of Baby in KG	Study	Control
<2 KG	6	-
2-2.5 KG	51	6
>2.5 KG	43	94
<b>Total</b>	<b>100</b>	<b>100</b>

**Table 12: Baby Birth Weight in PROM**

5' Appgar Score	Study	Control
2/10	1	-
6/10	1	-
7/10	10	5
8/10	71	66
9/10	17	29
<b>TOTAL</b>	<b>100</b>	<b>100</b>

**Table 13: 5' Appgar Score in PROM**

Morbidity	No. of Cases	
	Term	Pre-Term
PPH	3	-
Clinical Chorioamnionitis	-	-
Postpartum Fever	1	1
Wound Infection	7	-

**Table 14: Maternal Morbidity in PROM**

Morbidity	Preterm		Term	
	No. of Cases	%	No. of Cases	%
Sepsis	1	2.7	4	11.11
RDS	6	16.66	4	11.11
Birth Asphyxia	-	-	4	11.11
Prematurity/SGA	11	30.55	5	13.88
Meningitis	-	-	1	2.7
<b>Total</b>	<b>18</b>	<b>50%</b>	<b>18</b>	<b>50%</b>

**Table 15: Perinatal Morbidity in Term and Preterm PROM**

Maturity	No. of Cases	%
Term	1	1.25
Preterm	2	10

**Table 16: Perinatal Mortality in PROM**

Causes	Study	
	No. of Cases	%
Prematurity	2	66.66%
Birth Asphyxia/RDS	1	33.33%

**Table 17: Causes of PN Mortality in PROM**

## DISCUSSION

The incidence of PROM was 9.06% in this study, reported mainly in unbooked cases and women of low socioeconomic group. This is almost similar to the incidence of PROM in study conducted by Alberto Bacchi Madena et al (9-10%).<sup>[7]</sup> Arias (7-20%).<sup>[8]</sup> Distribution of cases with regard to parity was not significant in this study (Table IV). The cause is idiopathic in most of the cases. Recent coitus, infection, mal-presentation were some of the risk factors identified in this study. This study also showed shorter the gestation longer will be the latency period and vice versa (Table IX).

In this study normal delivery is the commonest mode of delivery and the result is 76%, which is similar to V. Kamala et al study.<sup>[9]</sup> LSCS rate in study group is 24%, which is similar to Sita Ram Shrestha et al study.<sup>[10]</sup> LSCS was mainly done for mal-presentation and foetal distress. LSCS rate in preterm PROM is 25%, which is higher than term PROM mainly due to cervical dystocia and foetal distress.

The most dreaded complication of PROM is chorioamnionitis.<sup>[11]</sup> But clinical evidence of infection is not seen in any of the cases due to intrapartum use of antibiotics. But 15% of patients in study group showed positivity in amniotic fluid culture (Table VI and VII). Only 2 patients had fever and 7 had wound infection. Among 3 cases of perinatal mortality, 2 babies died due to prematurity and its complications and one case due to birth asphyxia; 36 cases of perinatal morbidity was noted in study group, whereas only 4 cases had morbidities in control group. Even though PPROM is only 20% in this study, it contributes 50% to perinatal morbidity (Table XV).

## SUMMARY

- Management of PROM lies between immediate stimulation of labour and expectant line of management.
- Immediate stimulation policy appears to be reasonable approach in multiparae and nulliparae with a good cervical score in term PROM.
- Expectant line of management is beneficial for preterm PROM patients, but signs of infection warrant broad-spectrum antibiotics and prompt delivery.
- Abnormal labour and operative procedures have increased in PROM.
- This study showed careful antenatal monitoring for risk factors and aetiology detection and prompt treatment of infection and pelvic examination under aseptic

precautions and appropriate antibiotics are important in prevention of PROM.

## CONCLUSION

PROM is a high risk obstetric condition and it presents a great challenge to both obstetricians and paediatricians. Prompt diagnosis and effective management with careful selection of labour inducing agents are essential to deliver a healthy baby from a healthy mother.

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