



RESEARCH ARTICLE

STUDY OF MATERNAL AND FETAL OUTCOME IN PREMATURE RUPTURE  
OF MEMBRANES AT TERM

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ABSTRACT

**Background:** Premature rupture of membrane is defined as rupture or breakage of amniotic sac more than one hour before the onset of labour.

**Aim :** The study aimed to evaluate the epidemiological factors associated with PROM, the incidence of PROM and the maternal and fetal outcome in PROM.

**Material & methods :** This retrospective study was undertaken over the period of 18 months from May 2015 to October 2016 in the Department of Obstetrics & Gynaecology at Grant Government Medical College and JJ Hospital ,Mumbai.

**Result :** Out of 475 cases maximum cases 77,68% were between 20-30 age group. 23.80% had infection and no cause of PROM was found in 53.50%. Induction of labour was done in 77.80% cases and 8.60% cases delivered spontaneously. 69.05% delivered vaginally, while 29.30% cases required cesarean section. 67.80 % cases were delivered within 13-18 hours of PROM. Febrile morbidity and wound infection occurred in 6.9 & 4.8% of cases respectively. Neonatal morbidity was found in 20.4%. Most common complication was asphyxia in 8.20% followed by sepsis and convulsion in 6.3 & 2.50 % cases respectively. LRTI found in 1.1% , whereas 0.8 % fetuses presented with umbilical cord sepsis. Neonatal death occurred in 1.10%

**Conclusion:** Thus a team approach, early recognition of PROM and its appropriate management helps in reducing the complications caused by PROM to great extent.

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INTRODUCTION

Premature rupture of membrane is defined as rupture of amniotic sac more than one hour before the onset of labour.

Term PROM complicate near about 8% of pregnancies. Among these 50% of affected women will begin labour spontaneously within 12 hours, 70% within 24 hours, 85% within 48hour, 95 % within 72 hours. (ACOG practice Bulletin No. 80 Obstet Gynecol 2007;109(4),1011, Hannah ME et al 2)

In most cases membrane rupture can be confirmed by demonstrating amniotic fluid leakage from cervical os with visualization of pooling in the posterior vaginal fornix. (Mercer BM et al). However, the diagnosis of PROM is difficult if there is slow leak or any bleeding or when the classic gush of fluid does not occur. (Bornstein J et al)

In approximately 20-25% cases, rupture of membrane is not grossly apparent. (Chen FCK et al, Gaucherand P et al). Early and accurate diagnosis of PROM would allow for gestational

age-specific interventions to optimize perinatal outcome and minimize serious complications (Park JS et al)

PROM causes great problems such as increase in rate of induction of labour, unfavourable cervix at the onset of induction, induction failure, fetal distress, fetal and maternal infections, caesarean and its complications. (Garite et al, Cunningham FG et al)

The planned management usually by induction reduces the risk of some infectious maternal morbidity and the number of infants going to NICU. (Dare MR et al).

On the basis of this evidence clinicians may offer timely induction with oxytocin for term PROM and may consider that prelabour antibiotics are not needed. Other utilizes policy of expectant management. (Hannah ME et al.)

So present study has undertaken to learn about the maternal and fetal outcome, the way it present and complications that occur in these patient,.

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**Objectives**

1. To study epidemiological factors associated with PROM.
2. To study the incidence of PROM.
3. To study the maternal and fetal outcome in PROM.

**MATERIAL AND METHODS**

This retrospective study was undertaken over the period of 18 months from May 2015 to October 2016 in the Department of Obstetrics & Gynaecology at Grant Government Medical College and JJ Hospital, Mumbai.

**Inclusion Criteria**

1. All patients with diagnosis of PROM with full term pregnancy, irrespective of gravidity.
2. Only singleton pregnancies were included.

**Exclusion criteria**

1. Patients with gestational age less than 37 weeks.
2. Patient with intrauterine death of fetus.
3. Patients with antepartum haemorrhage.

**Sample size**

Patients fulfilling the all above inclusion criteria were included and total of 475 cases were studied.

**RESULTS**

During study period 4689 patients got delivered at our institute. Out of these 475 were diagnosed as term PROM giving incidence of 10.10%

**Table 1** Age wise distribution

Age (years)	Number	Percentage
15-19	19	4.00
20-30	369	77.68
>30	87	18.31

Out of 475 cases maximum cases 77.68% were between 20-30 age group.

**Table 2** Obstetric History

Obstetric history	Number	Percentage
Primigravida	263	55.40
2 <sup>nd</sup> gravid	142	29.9
3 <sup>rd</sup> gravid	53	11.20
4 <sup>th</sup> & above	17	3.6

Out of 475 cases maximum cases 77.68% were between 20-30 age group.

**Table 3** Risk factors for PROM

Risk factor	Number	Percentage
Infection	113	23.80
Per vaginal examination	32	6.70
Recent coitus	23	4.80
Polyhydramnios	14	2.90
Breech presentation	13	2.70
Travel	09	1.90
Occipito posterior position	06	1.30
Trauma	06	1.30
Transverse lie	04	0.80
Obelique lie	01	0.20
Idiopathic	254	53.50

Out of 475 cases 23.80% had infection and no cause of PROM was found in 53.50%.

**Table 4** Mode of labour onset

Mode of labour onset	Number	Percentage
Induction	370	77.80
LSCS on admission	64	13.50
Spontaneous onset	41	8.60

Induction of labour was done in 77.80% cases and 8.60% cases delivered spontaneously.

**Table 5** Mode of delivery

Mode of delivery	Number	Percentage
Vaginal	328	69.05
Cesarean	139	29.30
Instrumental	08	1.70

Maximum cases 69.05% delivered vaginally ,while 29.30% cases required cesarean section.

**Table 6** Amniotic fluid leak to delivery interval

Amniotic fluid leak to delivery interval(hours)	Number	Percentage
1-6	08	1.70
7-12	69	14.50
13-18	322	67.80
19-24	57	12.00
25-30	11	2.30
>30	08	1.70

Out of 475 cases, 67.80 % cases were delivered within 13-18 hours of PROM.

**Table 7** Maternal complications

Maternal complications	Number	Percentage
Febrile morbidity	33	6.9
Wound complication	23	4.8
Urinary tract infection	11	2.3
Post partum haemorrhage	07	1.5
Chorioamnionitis	02	0.4
Manual removal of placenta	01	0.2

Febrile morbidity and wound infection occurred in 6.9 & 4.8% of cases respectively.

**Table 8** Fetal complications

Fetal complication	Number	Percentage
Asphyxia	39	8.2
Sepsis	30	6.30
Convulsions	12	2.50
LRTI	05	1.10
Umbilical cord sepsis	04	0.80
Congenital anomalies	02	0.40
Neonatal death	05	1.10

Out of 475 cases neonatal morbidity was found in 20.4%. Most common complication was asphyxia in 8.20% followed by sepsis and convulsion in 6.3&2.50 % cases respectively. LRTI found in 1.1% , whereas 0.8 % fetuses presented with umbilical cord sepsis. Neonatal death occurred in 1.10%

**DISCUSSION**

Premature rupture of membrane is a common complication of pregnancy which leads to increased maternal complication, operative procedures ,neonatal morbidity and mortality.

Incidence in our study was 10.10% which is comparable with study reported by Gunn *et al* and Bradley *et al* which was 10.70% and 10% respectively.

Most common age group in our study was 20-29 years with 77.60% which was comparable with study done by Anjana Devi *et al* 76.90% and M Gandhi *et al* 77.60%.

In present study 55.40% patients were primigravida and 44.60% were multigravida which was quite similar to studies of UmedThakor *et al* 53.20% , 46.80% and Swati Pandey *et al* 62.0%,38.0%.

Lower genital tract infection associated with coital activity was the major risk factor for PROM which was 28.60%. While Jayaram *et al* also found the same risk risk factor with incidence of 56%.

In our study 77.80% patients were induced with PGE2 (47.30%) and with oxytocin (30.50%). Maximum patients i e 67.80% were delivered within 13-18 hours of PROM. While the study conducted by M Gandhi where 92.50% patients delivered within 20 hours of PROM.

In our study 70.70% patients were delivered vaginally and 29.30% required caesarean section which was similar to other studies conducted by L.Eslamian *et al*, Adetunji O *et al* and Swati Pandey *et al*.

In this study, there was no maternal complication in the patients who delivered within 12 hours of PROM. 4.70% patients had complications who delivered within 13 -18 hours, while 77.20% patients had complications who delivered within 19-24 hours. It indicates that as leak to delivery interval increases, rate of maternal complication increases. Febrile morbidity (6.90%), wound complications (4.80%) and urinary tract infection (2.30%) were common maternal complications encountered in our study.

Neonatal asphyxia (8.20%), neonatal sepsis (6.30%) and convulsions (2.50%) were the common neonatal complications in our study. Similar findings were observed in the studies conducted by Anjana Devi *et al*, M Gandhi *et al*.

Neonatal mortality rate was 10.50 per 1000 live birth found in our study.

## CONCLUSION

Premature rupture of membranes is often encountered in obstetric practice, which is cause for significant maternal and fetal complications. Patients who were treated aggressively had fewer chances of chorioamnionitis, neonatal infections and less hospital stay. Maternal and neonatal morbidity is directly related to PROM delivery interval. As PROM delivery interval increases maternal and neonatal morbidity also increases. Early recognition of genital tract infection should be done and treated appropriately.

Thus a team approach, early recognition of PROM and its appropriate management helps in reducing the complications caused by PROM to great extent.

Proposed plan of aggressive management irrespective of term of gestation is the final answer to decrease maternal and neonatal morbidity and mortality.

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