



A Study Of Maternal And Fetal Outcome In Premature Rupture Of Membranes (PROM) At Term

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Type of Publication: Original Research Paper

Conflicts of Interest: Nil

Abstract

Background: Premature rupture of membranes (PROM) is defined as the spontaneous rupture of amniotic membranes from the onset of labor till second stage of labour. If the membranes rupture after 37 weeks of gestation it is called term PROM. If it occurs after 28 weeks but before 37 weeks of gestation is termed as the preterm premature rupture of membrane (PPROM). PROM is obstetric condition associated with high risk of maternal and neonatal morbidity and mortality. It complicates 10-15% of all pregnancies, complications are more with increased period of leaking/ associated comorbidities

The present study was done with 1140 cases of PROM who got admitted in labour room in our institute and demographic factors along with clinical factors are studied in relation to PROM.

Methods: It is prospective observational type of study. All cases of PROM at term gestation coming to labour room were admitted and studied. Total 1140 cases were admitted in duration of September 2018 to September 2020.

Results: Recognition and prompt management of PROM is necessary. Education of pregnant woman about diet, nutrition, personal hygiene should be provided and she should be warned about danger signs i.e. when she needs to report to health care system. Complications related to PROM can be reduced by providing proper ANC care. Pregnancy with PROM should be delivered at an institution under supervision. Each case should be individualised for management. Delivery should be attended by neonatologist to reduce perinatal morbidity & mortality. Early recognition and prompt treatment of sexually transmitted & genital tract diseases are important. In the present study the rate of caesarean section was 40.78%. Maternal morbidity was seen in 7.54% in which febrile illness being commonest as 2.36%. Neonatal morbidity was seen in 9.73% cases. Majority of neonatal morbidity was due to Respiratory distress at birth(41.06%). In this study the rate of maternal & fetal complications were greater as compared to normal cases.

Keywords: PV leaking, Premature rupture of membranes, PPRM

Introduction

Premature rupture of the membranes is defined as the spontaneous rupture of the fetal membranes before the onset of labour. Ideal time of rupture of membranes is 2nd stage of labour.

Prolonged PROM: It is the term used when >24 hours have passed before labour ensues. High rupture of the membranes: It is due to the rupture of the amniochorion at a site distant from the internal os. PROM is one of the most common complications of pregnancy occurring in about 10% of all births.

Aims & Objectives:

1. To study maternal & fetal outcome in all cases of Pre labour rupture of membrane (PROM) with full term singleton pregnancy who are getting admitted in labour room
2. To find out prevalence parity, age group, routine ANC care in cases of PROM
3. Clinical course of prom, time interval between rupture of membranes(PROM) upto delivery, mode of delivery, maternal condition

To study perinatal outcome in terms of need of NICU admission, Birth weight, APGAR score

Inclusion Criteria :

All cases of term PROM admitting in Labour room (gestational age \geq 37 weeks)

Exclusion Criteria :

1. Iatrogenically induced cases. (ARM)
2. IUD
3. Less than 37 weeks
4. Intact Membranes
5. P/V bleeding / APH cases
6. Associated maternal diseases

Methods

It is prospective observational study in which 1040 cases of premature rupture of membranes (PROM) were studied.

Results:

The present study was performed in 1140 women with term PROM getting admitted to labour room and who were not having any other associated morbidity Maximum women from this study were in age group of 21-25 years. Highest age was 34 years while lowest was 18 years. Mean age was 23.93 years with standard deviation of 3.27.

P value for above table is 0.01 which statistically significant Total 98.4% women in this study group were registered cases in any hospitals (government/private) Total 50.43 % cases were referred from other health care facilities and majority were from PHC or subcentres.

Our institute being tertiary care centre, referred cases were significant In present study 47.36 % of women were primigravida while 52.63 % were multigravida Incidence of PROM according to obstetric score was

almost similar in both Majority of the women were from rural areas as much as 52.98% and from urban places it was 47.01 percent.

PROM was more common in upper-lower socioeconomic group (52.8%). As significant patient being from rural area it has impact on nutritional status of patient. 1.57% patient were from lower socio-economic status

According to present study incidence of PROM at term was 24.61% at 37 completed weeks , 26.84% at 38 completed weeks and 25.96% & 22.54% at 39 and 40 weeks or more respectively. Total 887 patients were having Bishop score of <6 i.e. 77.8 % While for rest of them it was >6 . PGE1 gel induction was done for cervical ripening and induction of labour

Induction of labour was done in 603 cases. Most of Cases with PROM-admission interval of 6-12 hours had spontaneous onset of labour 1.4% women from this study group had history of fever before admission to labour room while 98.24 % women were having history of PV leaking i.e. discharge of clear amniotic fluid per vaginum Most of the cases got admitted within 6 hours of onset of pv leaking (PROM) PERCENTAGE BEING 49.73, >48 hours interval was observed in 0.78% cases

Majority of women(49.73%) had PROM- admission interval of 0-6 hours and second common was between 6-12hours i.e. 46.22% Least common group was with PROM-delivery interval of >48 hours i.e. 0.78% P value for the above table is 0.02 and it is significant as duration of PROM can directly affect maternal and perinatal outcome Highest number of cases were delivered within 6-12 hours of starting of PROM both in primi and multi PERCENTAGE BEING 48.42% Highest PROM-delivery interval was 56 hours Prolonged PROM-delivery interval was associated with higher maternal and fetal morbidity in terms of fever, feral distress.

P value for the above table is $P=0.03$ which is statistically significant, as pronged PROM leads to increased maternal and perinatal morbidity.

In the present study 0.7% women with history of PROM were admitted to ICU in postnatal period for different indications. None of these patient had mortality.

Indications for ICU admission-4 (for puerperal Sepsis) 4 patients had ICU admission for postpartum haemorrhage, out of them 3 were vaginal delivered while 1 patient had undergone caesarean section.

Induction of labour was done for 603 patients i.e. 52.89% after assessing the cervix for Bishop score while rest 47.11% cases were not induced as they were already in active labour or taken for emergency caesarean section.

Induction of labour was done in 603 cases. Most of Cases with PROM-admission interval of 6-12 hours had spontaneous onset of labour Total 675 cases i.e. 59.21% women delivered vaginally while 40.78% women underwent emergency caesarean section. Rate of caesarean section was more in primigravida and most common indication in them was fetal distress followed by nonprogression of labour.

Rate of caesarean section was more in primigravida & most common indication in them was fetal distress (41.50%) followed by non-progression of labour(16.92%).

In multigravida mostcommon indication was scar-dehiscence (23.22%) Other indications for lscs were previous 2 caesarean pregnancy, low lying placenta Some of the cases needed operative interference due to prolonged PROM interval and unfavourable cervix.

Total 2.36% of patients with PROM required blood transfusion for different indications. Indications for blood transfusion were anemia , postpartum haemorrhage, puerperal sepsis.

Total 86 women i.e. 7.54% were complicated by various illness , most common among them was febrile morbidity (31.39%)

Out of them 18.6% (17) cases had wound gape,15 were lscs wound gape & 2 were episiotomy wound gape. Patients with sepsis had changes of chorioamnionitis on histopathology report of placenta Total 8 patients required ICU admission & intensive monitoring Out of 1140 delivery 28 babies had APGAR score of ≤ 6 at birth , their percentage being 2.45%

Those babies were shifted to NICU accordingly As all were term PROM cases, incidence of low birth weight (< 2 kg) was very low in this study. Most commonly birth weight of babies were between 2.5-3

kg percentage being 39.73% Total 22.89 % neonate were shifted to neonatal intensive care unit for various indications most common being respiratory distress Perinatal morbidity was seen in 22.89% of all cases,Respiratory distress was commonest cause of perinatal morbidity followed by hyperbilirubinemia. Other causes being low APGAR score at birth.

Total 263 babies were shifted to NICU for various reasons, out of which 17 succumbed due to meconium aspiration syndrome counting as 6.46 % percent and 3.42 % were due to sepsis. Overall mortality rate among all cases is 2.89% while it is 12.54 of all nicu admissions.

Discussion:

The present study is prospective observational study of 1140 cases of term PROM admitted in labour room of our institute over the period of 24 months i.e. october2018 –october2020

In all women in this study group PROM was confirmed by per speculum & clinical examination

Majority of the women were from age group 21-25 years(45.26%)

Most of the patient had spontaneous onset of labour after 6-12 hours of onset of PROM.

As the Bishop's score increased, assisted deliveries and cesarean sections decreased and number of normal deliveries increased in both primigravidae and multigravidae.

Both maternal and fetal morbidity increased with duration of PROM

The incidence of PROM was more common in multigravida(52.63%) than in primigravida (47.36%)

Majority of the women were form upper-middle(52.8%) & upper-lower socioeconomic group(45.61%)

Majority of them were admitted within 6 hours of onset of PV leaking(PROM) (49.73-%)

22.2% women had bishop score of > 6 at the time of admission, while 77.8 % had < 6 i.e. unfavourable

The rate of vaginal delivery was higher in multigravida than in primigravida

Rate of caesarean section was more in primigravida

Fetal distress was most common indication for caesarean section (41.5%)

Maternal morbidity was significantly higher (7.54%) overall. Febrile morbidity was the major morbidity noticed amongst them. (31.39%).

Puerperal sepsis with changes of Chorioamnionitis was present in 0.7 % of overall cases

No maternal mortality was seen in the study.

Perinatal morbidity was seen in 9.73% of cases. Respiratory distress at birth was the commonest cause for perinatal morbidity.

Perinatal mortality was seen in 2.89 % of all cases and 12.54% of all NICU admissions

Respiratory distress syndrome being the commonest cause, followed by sepsis.

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TABLES AND FIGURES

Table 1 Age-wise distribution

| | Number | percentage |
|-------|--------|------------|
| 18-20 | 214 | 18.77 |
| 21-25 | 516 | 45.26 |
| 26-29 | 391 | 34.32 |
| >/=30 | 19 | 1.67 |
| Total | 1140 | |

Table 2 Distribution of registered / non-registered cases

| | number | percentage |
|------------|--------|------------|
| Registered | 1122 | 98.42% |

| | | |
|----------------|----|-------|
| Non-registered | 18 | 1.57% |
|----------------|----|-------|

Table 3 Distribution according to referred patients

| | number | percentage |
|--------------|--------|------------|
| Referred | 575 | 50.43 |
| Not referred | 565 | 49.56 |
| TOTAL | 1140 | 100% |

Table no4 Distribution according to Obstetric score

| | number | percentage |
|--------------|--------|------------|
| Primigravida | 540 | 47.36 |
| Multigravida | 600 | 52.63 |

Table no5 Distribution according to area of residency

| | number | percentage |
|-------|--------|------------|
| Rural | 604 | 52.98% |
| urban | 536 | 47.01% |

Table no 6 Distribution according to socio-economic status

| | Number | percentage |
|--------------|--------|------------|
| Upper Middle | 520 | 45.61% |

| | | |
|-------------|-----|--------|
| Upper Lower | 602 | 52.80% |
| Lower | 18 | 1.57% |

Table no 7 Distribution according to gestational age

| Gestational age | number | percentage |
|-----------------|--------|------------|
| 37-37/6 | 281 | 24.61 |
| 38-38/6 | 306 | 26.84 |
| 39-39/6 | 296 | 25.96 |
| >/=40 | 257 | 22.54 |

Table no 8 distribution according to Bishop score

| Bishop score | numbers | percentage |
|-------------------|---------|------------|
| <6 (unfavourable) | 887 | 77.8 |
| >6 (favourable) | 253 | 22.2 |

Table no 9 distribution according to h/o fever

| H/o FEVER | Number | Percentage |
|-----------|--------|------------|
| Yes | 16 | 1.4 |
| No | 1124 | 98.59 |

Table 10 Distribution according to h/o PV leaking

| h/o Leaking | Number | Percentage |
|-------------|--------|------------|
| Yes | 1120 | 98.24 |

| | | |
|-------|------|------|
| No | 20 | 1.76 |
| TOTAL | 1140 | |

Table11 Distribution according to PROM-ADMISSION interval

| Duration in hours | Number | percentage |
|-------------------|--------|------------|
| 0-6 | 567 | 49.73 |
| 6-12 | 527 | 46.22 |
| 12-24 | 16 | 1.40 |
| >24 | 21 | 1.84 |
| >48 | 9 | 0.78 |
| Total | 1140 | |

Table 12 Distribution according to PROM- Delivery interval

| Duration in hours | Number | Percentage |
|-------------------|--------|------------|
| 0-6 | 141 | 12.36 |
| 6-12 | 552 | 48.42 |
| 12-24 | 417 | 36.57 |
| >24 | 19 | 1.66 |
| >48 | 11 | 0.96 |
| | 1140 | |

Table 13 Distribution according h/o ICU admission

| | Number | percentage |
|-----|--------|------------|
| Yes | 8 | 0.7 |
| No | 1132 | 99.2 |

Table14 Distribution according to induction of labour

| | Number | Percentage |
|----------------|--------|------------|
| Induction done | 603 | 52.89 |

| | | |
|--------------------|-------------|-------|
| Induction not done | 537 | 47.11 |
| TOTAL | 1140 | |

Table 15 Distribution according to mode of delivery

| | Number | percentage |
|--------------|-------------|------------|
| Vaginal | 675 | 59.21 |
| LSCS | 465 | 40.78 |
| TOTAL | 1140 | |

Table16 Distribution according to indication of lscs

| | Number | Percentage |
|---------------------------|------------|------------|
| Fetal distress | 193 | 41.50 |
| Scar dehiscence | 108 | 23.22 |
| Non-progression of labour | 79 | 16.92 |
| malpresentation | 71 | 15.26 |
| Others | 14 | 3.02 |
| Total | 465 | |

Table 17 Distribution according to need of blood transfusion

| | number | percentage |
|-----|--------|------------|
| Yes | 27 | 2.36 |
| No | 1113 | 97.63 |

Table 18 Distribution according to maternal complications

| | NUMBER | PERCENTAGE |
|-----------------|----------------|-------------|
| FEVER | 27 | 31.39 |
| WOUND GAPE | 17 | 18.6 |
| PPH | 16 | 5.81 |
| UTI | 13 | 15.11 |
| LRTI | 5 | 1.49 |
| PUEPERAL SEPSIS | 8 | 9.3 |
| TOTAL | 86/1140 | 7.54 |

Table 19 Distribution according to APGAR score

| | Number | percentage |
|------|--------|------------|
| </=6 | 28 | 2.45 |
| 7-8 | 869 | 76.22 |
| 9-10 | 243 | 21.31 |
| | 1140 | |

Table 20 Distribution according to birth weight

| Weight (kg) | number | Percentage |
|-------------|--------|------------|
| <2.5 | 395 | 34.64 |
| 2.5-3 | 453 | 39.73 |
| 3-3.5 | 278 | 24.38 |
| >3.5 | 14 | 1.22 |

Table 21 Distribution according to NICU admission at birth

| | number | percentage |
|-----|--------|------------|
| yes | 263 | 22.89 |
| no | 877 | 77.11 |

Table 22 Distribution according to Neonatal complications

| | number | Percentage among nicu admission |
|--------------------|------------|---------------------------------|
| RDS | 108 | 41.06 |
| hyperbilirubinemia | 73 | 27.75 |
| Other | 39 | 14.82 |
| sepsis | 21 | 7.98 |
| LRTI | 15 | 5.70 |
| malformations | 7 | 2.66 |
| Total | 263 | |

Table 23 Distribution according to perinatal mortality amongst NICU admissions

| | number | Percentage among nicu admission |
|---------------------|-----------|---------------------------------|
| MAS | 17 | 6.46 |
| sepsis | 9 | 3.42 |
| malformations | 4 | 1.52 |
| Other (convulsions) | 3 | 1.14 |
| Total | 33 | |