

International Journal of Clinical Obstetrics and Gynaecology

ISSN (P): 2522-6614
ISSN (E): 2522-6622
© Gynaecology Journal
www.gynaecologyjournal.com
2021; 5(3): 394-396
Received: 10-03-2021
Accepted: 13-04-2021

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Assessment of outcome of premature rupture of membrane

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DOI: <https://doi.org/10.33545/gynae.2021.v5.i3f.1014>

Abstract

Background: Premature rupture of membrane is associated with a high risk of maternal morbidity and mortality. The present study was conducted to assess outcome of Premature rupture of membrane.

Materials and methods: 94 cases of premature rupture of membrane of more than 37 weeks of gestation were involved. As per speculum examination, discharge, leaking p/v and colour of liquor were recorded. Maternal outcome was observed.

Results: Rupture of membrane to delivery interval was <16 hours seen in 28, 16-20 hours in 52 and >20 hours in 14. The difference was significant ($P < 0.05$). Maternal outcome was chorioamnionitis in 11, fever in 24, puerperal sepsis in 10, UTI in 5, adherent placenta in 2, wound infection in 3, PPH in 4 and maternal mortality in 1. The difference was significant ($P < 0.05$).

Conclusion: Maternal morbidity was associated with increased duration of PROM.

Keywords: Chorioamnion, premature rupture of membrane, maternal morbidity

Introduction

Premature rupture of membrane is associated with a high risk of maternal morbidity and mortality. It is characterized by spontaneous rupture of chorioamnion before the onset of uterine contractions which leads to progressive cervical dilatation. It occurs in approximately 8% of all pregnancies [1]. In developing countries, the incidence of premature rupture of membrane is about 18-20%. Maternal morbidities are found in terms of chorioamnionitis which leads to endometritis, puerperal pyrexia, wound infection and placental abruption. Further, consequences may increase due to obstetric interventions in terms of instrumental deliveries and caesarean sections [2].

Chorioamnionic membrane rupture may have several underlying causes, although in many cases PROM and PPROM will not have recognized etiologies [3]. The pathophysiology leading to PROM at term has been shown to be different from the pathophysiology leading to PPROM. At term, weakening of the membranes may result from physiologic changes combined with shearing forces induced by contractions. Generalized weakness of the membranes has been more difficult to identify with prematurely ruptured membranes. PPROM may result from a focal deficit rather than a generalized weakness of the membranes [4].

Labor usually starts spontaneously within 24 hours following term PROM, but up to 4% of cases they will not experience spontaneous onset of labour within seven days. With expectant management, approximately 60- 80% of women with rupture of membrane go into labour within 24 hours, and 95% within 72 hours. If the interval from leaking to delivery exceeds 18 hours, then there is an increase in incidence of neonatal infections and admissions [5]. The present study was conducted to assess outcome of Premature rupture of membrane.

Materials and Methods

The present study comprised of 94 cases of premature rupture of membrane of more than 37 weeks of gestation. All enrolled subjects agreed to be the part of the study.

A detailed pelvic examination was done under aseptic precaution. As per speculum examination, discharge, leaking p/v and colour of liquor were recorded. Complete blood count and C-reactive protein level were noted. Then swab was taken from amniotic fluid for gram stain culture and sensitivity.

A detailed “per vaginal examination” was done to evaluate the consistency, effacement, dilatation of cervix, position of cervix, presence or absence of membrane, the station of the vertex with its position, the presence of caput, molding and pelvic assessment were noted. Maternal outcome was observed. Results

were subjected to statistical analysis. P value less than 0.05 was considered significant.

Results

Table 1: Patients characteristics

| Parameters | Characteristics | Number | P value |
|--|---------------------|--------|---------|
| Rupture of membrane to delivery interval (hours) | <16 | 28 | 0.05 |
| | 16-20 | 52 | |
| | >20 | 14 | |
| Indication for LSCS (25) | Failure to progress | 14 | 0.01 |
| | Fetal distress | 6 | |
| | Malpresentation | 4 | |
| | Failed induction | 1 | |

Table 1, Figure 1 shows that rupture of membrane to delivery interval was <16 hours seen in 28, 16-20 hours in 52 and >20 hours in 14. The difference was significant ($P < 0.05$).

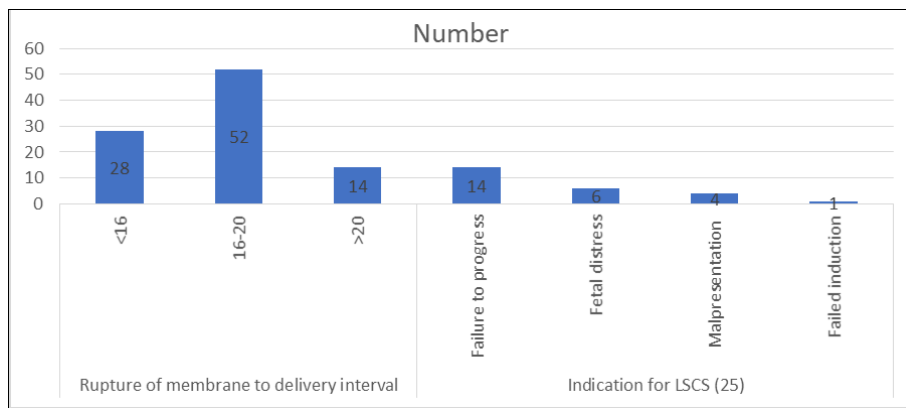


Fig 1: Patients characteristics

Table 2: Maternal outcome

| Outcome | Number | P value |
|--------------------|--------|---------|
| Chorioamnionitis | 11 | 0.01 |
| Fever | 24 | |
| Puerperal Sepsis | 10 | |
| UTI | 5 | |
| Adherent Placenta | 2 | |
| Wound infection | 3 | |
| PPH | 4 | |
| Maternal Mortality | 1 | |

Table 2, Figure 2 shows that maternal outcome was chorioamnionitis in 11, fever in 24, puerperal sepsis in 10, UTI in 5, adherent placenta in 2, wound infection in 3, PPH in 4 and

maternal mortality in 1. The difference was significant ($P < 0.05$).

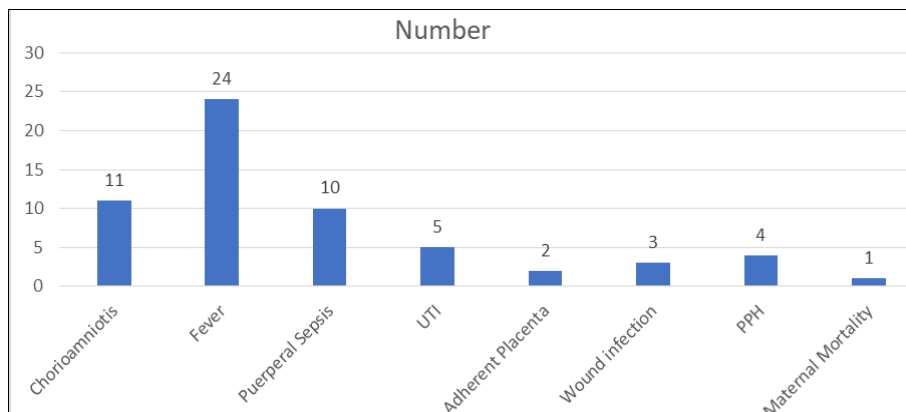


Fig 2: Maternal outcome

Discussion

In most cases of premature rupture of membrane it can be diagnosed on the basis of the patient's history and physical examination [6]. Sterile speculum examination provides an opportunity to inspect for cord prolapse and assess cervical dilatation and effacement, and also helps to obtain cultures as appropriate [7]. The diagnosis of membrane rupture is confirmed by the visualization of amniotic fluid passing from the cervical canal and pooling into the vagina. Management of PROM is not clear, main uncertainty is related to induction of labor or expectant management [8]. The key to the management of rupture of membrane is accurate assessment of gestational age, fetal position, presence or absence of chorioamnionitis, fetal heart rate monitoring. Group B streptococcal prophylaxis should be given based on prior culture results and intrapartum risk factors, if cultures have not been previously performed [9]. The major cause of perinatal morbidity and mortality associated with PPROM is prematurity. Morbidities related to prematurity include respiratory distress syndrome, necrotizing enterocolitis, interventricular hemorrhage, cerebral palsy, and sepsis. 7 Other complications include in utero umbilical cord compression, cord prolapse and fetal distress, fetal malpresentation, placental abruption, chorioamnionitis with subsequent endometritis, and risk of operative delivery from this multitude of factors [10]. The present study was conducted to assess outcome of premature rupture of membrane.

In present study, rupture of membrane to delivery interval was <16 hours seen in 28, 16-20 hours in 52 and >20 hours in 14. Kasliwal *et al.* [11] conducted an observational and prospective study in 100 patients with diagnosis of PROM at or more than 37 weeks of gestation to study maternal and fetal outcome. The rate of maternal morbidity was 28%, commonest cause was febrile illness (12%). Perinatal morbidity was seen in 31% of cases. Clinical early onset neonatal infection was the commonest cause. Perinatal mortality was not seen.

We found that maternal outcome was chorioamnionitis in 11, fever in 24, puerperal sepsis in 10, UTI in 5, adherent placenta in 2, wound infection in 3, PPH in 4 and maternal mortality in 1. Assefa *et al.* [12] identified risk factors of premature rupture of membranes among pregnant women. 240 samples (160 controls and 80 cases) from pregnant mothers was collected by interviewer administered Structured questionnaire and checklist. A total of 160 controls and 80 cases were enrolled in the study. Multivariable logistic regression showed that history of abortion [AOR 3.06 (CI: 1.39, 6.71)], history of PROM [AOR 4.45 (CI: 1.87, 10.6)], history of caesarean section [AOR 3.15(CI: 1.05, 9.46)] and abnormal vaginal discharge in the index pregnancy [AOR 3.31(CI: 1.67, 6.56)] were positively associated with premature rupture of membranes.

Labor usually starts spontaneously within 24 hours following term PROM, but up to 4% of cases they will not experience spontaneous onset of labour within seven days. With expectant management, approximately 60- 80% of women with rupture of membrane go into labour within 24 hours, and 95% within 72 hours. If the interval from leaking to delivery exceeds 18 hours, then there is an increase in incidence of neonatal infections and admissions. Induction of labour is the only strategy besides expectant management of PROM that reduces the infectious morbidity for both mother and infants [13]. Expectant management involves waiting for labor to occur and then making management decisions. If labour does not progress spontaneously after a specific period, intravenous oxytocin and different preparations of prostaglandins have been used for inducing labour but the effectiveness of all these agents vary.

Conclusion

Authors found that maternal morbidity was associated with increased duration of PROM.

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