Section: Obstetrics & Gynaecology

Original Research Article

# A HOSPITAL BASED PROSPECTIVE STUDY TO ASSESS THE LABOUR OUTCOME IN TERM PRELABOUR RUPTURE OF MEMBRANES PATIENTS MANAGED BY IMMEDIATE INDUCTION OF LABOUR AT TERTIARY CARE CENTRE

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***Received*** *: 26/10/2025*
***Received in revised form*** *: 15/11/2025*
***Accepted*** *: 07/12/2025*

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**DOI:** 10.70034/ijmedph.2025.4.523

**Source of Support:** Nil,
**Conflict of Interest:** None declared

**Int J Med Pub Health**
2025; 15 (4); 2922-2924

ABSTRACT

**Background:** Pre-labour rupture of membranes (PROM) occurs when the foetal membranes rupture before the onset of labour contractions. Patients with PROM should be delivered, to avoid infection to both mother and foetus but early interference may increase the incidence of caesarean section. Early and accurate Management of PROM can prevent the risk of foetal and maternal complications. The present study is undertaken to assess the effects of early induction versus expectant management for women with PROM at term on foetal and maternal well-being.

**Materials and Methods:** This is a hospital based prospective study done on 50 Patients with history of prelabour rupture of membranes before onset of labour pains were admitted to labour room in department at PDU Medical College, Churu, Rajasthan, India during one year period. In obstetric examination, uterine height, presentation position, lie of foetus and amount of liquor were noted. All parameters of maternal and foetal well-being were recorded.

**Results:** Our study showed that the mean (SD) age of the participants was 28.9 years. Of the participants,60% were primi gravida and 40 % were multi gravida mothers. Among the total participants 32% and 42% underwent vaginal delivery among early induction which was successful and early induction + misoprostol secondary induction respectively. Yet none of the factors are significant.

**Conclusion:** We concluded that immediate induction of labour in term of PROM leads to reduced maternal infections, reduced neonatal infections and greater maternal satisfaction without an increase in caesarean section.

**Keywords:** PROM, PPROM, Induced Labour, Pregnancy.

## INTRODUCTION

Preterm birth (PTB) is an important cause of perinatal morbidity andmortality.[1] Preterm labour is defined as the onset of labour in patients before 37 weeks of gestation. The lower limit of gestation is accepted to be 20 weeks in developed countries, but it is 28 weeks in developing countries.

Preterm labour complicates 5-10% of pregnancies and is a leading cause of neonatal morbidity and mortality worldwide.[2] It is a major public health problem in terms of loss of life, long-term disability (cerebral palsy, blindness, deafness, chronic lung disease) and health care costs both in the developing and the developed world.

It has been widely recognised that its early prediction, prevention and/or effective management will improve neonatal outcome and will have a profound impact on society and long-term public healthcare costs.

Premature rupture of membrane is common occurrence with an incidence of 5-10% is a significant event as it causes maternal complications, increased operative procedures, neonatal morbidity and mortality. The management of a case of

premature rupture of membranes (PROM) has remained as one of the most difficult and controversial problems in obstetrics over the past several decades.[3]

The management of premature rupture of membranes has gone through various cycles of obstetric activity from benign neglect to immediate intervention. Paralleling these cycles of activity there have been varying degrees of concern about infection. Meanwhile incidence has remained unabated and is still responsible for large number of neonatal mortalities. The preventive treatment awaits further elucidation of etiology, not yet fully understood.

Premature rupture of membranes at term is defined as rupture of membranes from more than 37 weeks to 40 weeks before onset of labour. The time from the rupture of membranes to the onset of contraction is defined as the latent period. The key factor in the foetal and maternal outcome is that the diagnosis of pre-labour rupture of membranes must be established. In most instances either it is obvious from the release of clear amniotic fluid from cervix or by simple laboratory test like detection of fern pattern. The key to the management is an accurate assessment of gestational age and the presence or absence of sepsis.[3]

Management is not clear, the main uncertainly relating to induction of labour or expectant care. Three decades ago the main worry of premature rupture of the membranes was intra uterine infection and this led to the wide spread adoption of a policy of induction of delivery to prevent such infection.[4]

This view has been challenged by an apparent increase in the number of caesarean sections in women with premature rupture of the membranes who had their labour induced.

The present study is undertaken to assess the effects of early induction versus expectant management for women with PROM at term on foetal and maternal well-being.

## MATERIALS AND METHODS

This is a hospital based prospective study done on 50 Patients with history of pre labour rupture of membranes before onset of labour pains were admitted to labour room in department at PDU Medical College, Churu, Rajasthan, India during one year period.

**Inclusion Criteria**

- Singleton pregnancy with cephalic presentation.
- Gestational age between 37 and 41 completed weeks.
- Spontaneous PROM confirmed by history examination, and specific test.
- Admission to labour room within 6h of PROM and cervical dilation <3m for early induction group.
- No evidence of immediate uterine contractions.

**Exclusion Criteria**

- PROM before 37 completed weeks
- Features of chorioamnionitis.
- Meconium stained liquor.
- Medical or obstretic complications indicating prompt delivery.
- Multiple pregnancies.

**Procedure of Study**

A detailed history was taken including age, menstrual and obstetric history with emphasis on exact time of rupture of membranes, duration and amount of leaking.

In general examination pulse, BP, temperature was noted followed by systemic examination. In obstetric examination, uterine height, presentation position, lie of foetus and amount of liquor were noted. All parameters of maternal and foetal well-being were recorded.

A sterile speculum examination was conducted and presence of liquor amniotic was noted when no amniotic fluid was seen in the vagina patient was asked to cough, to see drainage of amniotic fluid. In case of doubt fluid from vagina was collected on slide and examined under microscope for ferning.

For diagnosis of chorioamnionitis, clinical criteria (i.e. maternal pulse and temperature, foetal tachycardia uterine irritability and tenderness) were used. All study cases were given prophylactic antibiotic. Single pelvic examination was done to note the presence or absence of membrane, presenting part and its station.

## RESULTS

Our study showed that the mean (SD) age of the participants was 28.9 years. Of the participants, 60% were primi gravida and 40 % were multi gravida mothers. Those who had gravida index of more than one was considered as multi gravida for further analysis in this study. Mean value of Bishop score was 6.7±0.6. [Table 1]

In the early induction group, 36% had successful outcome in early induction with syntocin and 64% required secondary induction with misoprostol one or more tablets. The mean (SD) duration for delivery since admission was 1.6 (3.4) hours and the mean (SD) duration time since induction to delivery was 4.5 (4.3) hours. [Table 1]

Among the mothers 74% of early induction group proceeded with vaginal delivery. The remaining proportion underwent LSCS (26%), which was statistical non-significant. Among the total participants 32% and 42% underwent vaginal delivery among early induction which was successful and early induction + misoprostol secondary induction respectively. Yet none of the factors are significant. [Table 2]

Our study showed that among early induction group 4% had perinatal complication. In early induction group 22% had maternal complication. Yet there was no statistically significant difference between the groups (p=0.366). [Table 3]

**Table 1: Demographic profile of patients**

| | | No. of patients (N=50) | Percentage |
|---|---|---|---|
| **Age (yrs) (Mean±SD)** | | 28.9±3.6 | - |
| **Obstetric index** | **Primigravida** | 30 | 60% |
| | **Multigravida** | 20 | 40% |
| **Bishop score (Mean±SD)** | | 6.7±0.6 | - |
| **Mode of Delivery** | **Vaginal** | 37 | 74% |
| | **LSCS** | 13 | 26% |
| **Duration for delivery since admission (hours) (Mean±SD)** | | 1.6±3.4 | - |
| **Duration time since induction to delivery (hours) (Mean±SD)** | | 4.5±4.3 | - |

**Table 2: Association between mode of delivery of participants of the study andtheir labour management**

| Method of induction | Vaginal delivery | LSCS | Relative Risk (95%CI) | P value |
|---|---|---|---|---|
| **Early induction successful (Dinoprostone gel)** | 16 (32%) | 2 (4%) | 0.33 (0.08-1.35) | 0.124 |
| **Early induction failure + misoprostol secondary induction** | 21 (42%) | 11 (22%) | 1.03 (0.51-2.07) | 0.931 |

**Table 3: Association between perinatal & Maternal complication of the babies of participants of the study and labour management**

| Perinatal & Maternal complication | No. of babies | Relative Risk (95%CI) | P value |
|---|---|---|---|
| **Perinatal complication -NICU Admission present** | 2 (4.0%) | 1.00 | 0.014 |
| **No perinatal complication** | 48 (96.0%) | | |
| **Maternal complication Present** | 11 (22%) | 1.36 (0.69-2.67) | 0.336 |
| **No maternal complication** | 39 (78%) | | |

## DISCUSSION

Premature rupture of membrane (PROM) constitutes one of the most important dilemmas in the obstetric practice. Early and accurate Management of PROM can prevent the risk of foetal and maternal complications, premature birth and help us to initiate obstetric intervention to optimise the outcome of pregnancy.

Our study showed that the mean (SD) age of the participants was 28.9 years. Of the participants,60% were primi gravida and 40 % were multi gravida mothers. This was comparable to the study done by Mahmoud Fetal and Mukharya Jetal.[5,6]

The mean (SD) duration for delivery since admission was 1.6 (3.4) hours and the mean (SD) duration time since induction to delivery was 4.5 (4.3) hours in our study. Similar results were reported by Mukharya J et al and Gracakrupa et al.[6,7] No significant difference was found in present and past studies between PROM to admission interval.

In Mukharya J et al study, percentage of spontaneous vaginal delivery was 63% inactive management group and 71% in expectant management group.6 Most common indication of caesarean section was meconium stained liquor/non-reassuring foetal heart rate. There was no significant difference in the present study regarding indication of LSCS. Similar study was done by Shah K et al.[8]

However, Dare MR, Middleton P, Crowther CA, Flenady BJ, Varatharaju B.[9] A randomized or quasi – randomized trial showed, fewer infants under plannedmanagement went to NICU compared with expectant management (RR 0.72). Fewerwomen in the planned compared with expectant management had chorio amnionitis (RR 0.74) or endometritis.

## CONCLUSION

We concluded that immediate induction of labour in term of PROM leads to reduced maternal infections, reduced neonatal infections and greater maternal satisfaction without an increase in caesarean section. Immediate induction with prostaglandin shortens the delivery interval and lowers the caesarean section rate.

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