

# Maternal and Fetal Outcome of Prelabor Rupture of Membranes at Term. Prom) - a trial of 24 hours of expectant management

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**Objective:** To find out the maternal and fetal outcome of 24 hours of expectant management. **Design:** Prospective descriptive study. **Settings:** Labor room of obstetrics and gynae unit 1, services hospital Lahore. **Subjects:** Participants were 100 women presenting with prelabor rupture of membranes at term, 50 nullipara and 50 multipara with cephalic presentation and no contraindication to vaginal delivery. **Methods:** All the participants of the study group were subjected to conservative management for 24 hours under antibiotic cover of inj cefataxime followed by induction if labor did not start spontaneously in 24 hours or if signs of chorioamnionitis developed at any stage. Data was collected on a Performa, which was then entered on database IV and analyzed in percentages on spss statistical package. **Results:** The magnitude of PROM in gynae unit 1 services hospital in the year 2002 was 7.008%. 84% patients went into spontaneous labor, 2% patients developed signs of chorioamnionitis, and 14% patient did not enter into spontaneous labor after 24 hours of PROM. 94% patients with PROM delivered vaginally total of 6 c/s were carried out, 2% c/s due to fetal distress, 2% for failed induction and 2% for fetal distress after induction. Postnatal complications included chorioamnionitis 2%, PPH 7%, puerperal pyrexia 4%, wound infection 3%. and DVT in 1% patients. Neonatal complications included admission to ICU in 8% babies and neonatal infection in 1%. There was no fetal mortality. **Conclusion:** Conservative approach did not negatively affect fetal maternal outcomes.

**Key words:** Outcome-Rupture-Membranes- Term

PROM i.e. rupture of membranes prior to the onset of labor at or beyond 37 weeks gestation<sup>1</sup> complicates about 10% of all gestations.<sup>2</sup> Natural course of PROM is labor and 80% of cases go into spontaneous labor within 24 hours of PROM<sup>3</sup>. Its management is either expectant or active. Which of these two is better management has remained a highly controversial issue. In case of expectant management there is increased risk of infection to the mother and baby when labor is delayed for more than 24 hours. On the other hand, there is increased risk of failed induction and operative delivery when induction is attempted too soon after PROM. So in this study a tailor made approach of the expectant management for 24 hours was adopted followed by induction if labor did not start spontaneously or if signs of chorioamnionitis developed at any stage.

Purpose of study was to analyze the maternal and fetal outcome of 24 hours expectant management in patients of PROM at term and to find out that this regimen does decrease maternal morbidity without increasing the chances of fetal morbidity and mortality.

## Subjects and methods

It was a prospective descriptive study. 261 women were admitted with PROM at term. Out of these, 100 women who fulfilled the criteria of study were selected. Nullipara and multipara were equal in number (50% each). All the patients of study group were subjected to conservative management for 24 hours after counseling and Informed consent. Inclusion Criteria were Singleton pregnancy, Gestational age 37-42weeks, Cephalic presentation,

PROM, reactive cardiotocography, and no other contraindication to vaginal delivery.

The patients in active labor or with fetal distress at the time of admission were excluded from participation. Other exclusion criteria were patients with signs of chorioamnionitis, cephalopelvic disproportion, patients with medical illnesses like diabetes, cardiac disease, hypertension, and chronic renal and airway disease, and multiple pregnancies, previous history of difficult delivery, instrumental delivery or caesarian section.

Digital examination was avoided and PROM was confirmed by sterile speculum examination to see the pooling of amniotic fluid in posterior fornix of vagina or repeated pad checks. Complete blood and urine examinations were sent as baseline. Vaginal swabs were sent for culture and sensitivity and antibiotic cover was given with injection cefataxime 1gram I.V. at 12 hourly intervals. Patients were monitored for their pulse, temperature, color and odor of liquor on pad and uterine tenderness.

If labor did not start spontaneously in 24 hours or if there was any sign of chorioamnionitis, induction was done after Bishop scoring. If Bishop score was 5 or <5, ripening and induction was done by insertion of prostaglandin E<sub>2</sub> pessary in the posterior fornix of vagina. If Bishop score was greater than 5, induction was done with oxytocin infusion.

Poor fetal outcome was determined by low Apgar score at 5min, signs of asphyxia, prolonged tachypnoea, tachycardia and admission to neonatal intensive care unit for sepsis, hyperpyrexia or hypothermia.

Maternal outcome was determined by failure of labor to start spontaneously, poor bishop score after 24 hours of PROM, failure of induction, development of chorioamnionitis, c/s, postnatal complications e.g. postpartum hemorrhage and pyrexia, offensive vaginal discharge and thromboembolism.

### Results

Total No of deliveries conducted during the year 2002 were 3724. Out of these, 261 patients were admitted with PROM. Thus magnitude of PROM during year 2002 was 7.008%. Majority of the studied patients of PROM was admitted as unbooked patients (72%) in labor room. Only 28% patients were booked.

86% of the patients had spontaneous onset of labor. Only 14% were subjected to induction after Bishop scoring, 2% for chorioamnionitis, and 12% for failure of spontaneous onset of labor in 24 hours.

Majority of patients had bishop score of 6 and above. In 14 patients active labor started by induction in the next 12 hours while in 2 patients, induction failed and they were delivered by c/s.

Mean duration of 1<sup>st</sup> stage was 8.235 hours (range 3-15hrs), Maximum number of patients had duration of 1<sup>st</sup> stage between 6-9 hours. The evaluation of results of 2<sup>nd</sup> stage of labor showed that maximum patients took 30 min in second stage of labor. Forceps were applied to due to fetal distress and prolonged 2<sup>nd</sup> stage to accomplish delivery of baby. Mean duration of 3<sup>rd</sup> stage was 29.925min. 3<sup>rd</sup> stage of labor was managed actively and 88% patients delivered in 1<sup>st</sup> 15 min. Mean duration of 3<sup>rd</sup> stage was 9min.

Mode of delivery	=n
Vaginal delivery	94
SVD	798
Forceps	15
C- section	06

94% had vaginal deliveries whereas 6% were delivered by c/s. 79% were SVD, 15% were forceps deliveries applied due to prolonged 2<sup>nd</sup> stage and fetal distress.

Indications of C/S	=n
Failed induction	02
Fetal distress	04

Maternal complication	=n
Chorioamnionitis	2
PPH	7
Puerperal pyrexia a	4
Wound infection	3
DVT	1

Maternal complications occurred in 17, 2 of them had chorioamnionitis for which they were induced but they

developed fetal distress and c/s was performed. Postoperatively both of these patients developed wound infection and one of them ended up with DVT.

### Fetal outcome

A total of 8 babies were admitted to ICU. Babies with c/s had presenting complaints of transient bradycardia (1), tachycardia and hypothermia (1), and low Apgar score (1). Two babies with forceps deliveries were admitted to ICU. Their indications of admission were meconium aspiration (1), and hyperthermia (1). Three patients delivered by SVD were admitted to ICU. They had low Apgar score (1), transient bradycardia (1), while one of the babies was delivered with apnea and had to be incubated.

Mean apgar score at one minute	5.9
Mean apgar score at 5 minutes	8.7
Admission to ICU	8
Neonatal infection	1
Fetal mortality	0

The results of culture sensitivity reports of HVS showed 95% patients to be culture negative (95%) while only 5% patients were culture positive. 2% patients had growth of staphylococcus aureus, 1% E. Coli, 1% pseudomonas, 1% klebsiella and they later developed signs of chorioamnionitis for which they were induced.

Blood cultures of all the babies were sent admitted to ICU with PROM. Of the 8 babies, only 1 baby had growth of staff aureus.

### Discussion

PROM results in increased pregnancy complications especially increased risk of infection and mechanical difficulties in delivery, cord compression and fetal distress. In this study fetomaternal outcome of 24 hours of conservative management was studied and compared with national and international studies. The magnitude of PROM at term was 7.008% which is higher than a local study by Dr. Nasira (5.3%) but lower than international studies by Dr. Rathmer (10.0%) and Dr. Ladfors (12.9%). Ratio between booked and unbooked patients showed that 28% of patients were booked cases. The attendance of women at antenatal clinic allows us to provide information about PROM to the patients as a component of routine antenatal care. Accurate dating of gestation can also be done by early ultrasound scanning if number of booked cases in antenatal clinics is improved.

In this study, 84% of subjects with PROM at term entered into spontaneous labor within 24 hours. In study by Dr H Cammu, 23% patients did not have spontaneous labor after 24 hours. This number is much larger than our series in which only 16% of the patients had not spontaneous onset of labor. This difference may be due to difference in parity between both groups as more multipara go into spontaneous labor after PROM as compared to

nullipara. (In study by H Cammu, only nullipara were taken into account). Mean Bishop Score in our study group was 4.93 as compared to 2.6 in actively managed group of Nasira Tasneem. High bishop score in our study is in accordance with the hypothesis that conservative management for 24 hours results in improvement of Bishop Score at the time of induction. The Mean duration of 1<sup>st</sup> Stage by conservative management in our study was longer than studies of active management. This difference becomes insignificant when we take into account the cost, staff involved and intensive fetal heart rate monitoring required for induction of labor. The duration of 2<sup>nd</sup> and 3<sup>rd</sup> stage was shorter in our study due to the active management of 2<sup>nd</sup> stage of labor.

The interval between induction and active labor onset is shorter in our study as compared to the national and international studies in which no conservative management was done and bishop scores are poor at the time of induction. This is again in accordance with the postulation that conservative management helps in ripening the cervix by release of natural prostaglandins at the site of rupture of membranes and thus cervix is already prepared to respond to the inducing effect thus leading to a shorter induction to active labor interval.

C/S rate was significantly lower in subjects of our study as compared to the studies with immediate induction. The studies proved that our strategy of conservative management is superior to active management as far as maternal morbidity caused by c/s is considered. Increased incidence of forceps delivery may be iatrogenic to shorten the second stage of labor and thus to avoid the risk of cord compression during this stage.

Maternal pyrexia occurred only in 4 patients of this series, which is much lower than active management groups of Nasira and H Cammu. The increase in maternal pyrexia in active group may be due to increased No of digital examinations before delivery. This shows that conservative management is not only beneficial to decrease the incidence of c/s but it is also successful to decrease the incidence of maternal pyrexia.

Neonatal infections were also lowered significantly as compared to Nasira and H Cammu studies. This may be due to reduced No of digital examinations and prophylactic antibiotic cover. In our study 3 babies had mild pyrexia for 24 hours after delivery while only one baby had a by c/s due to chorioamnionitis developed signs of neonatal sepsis.

Fortunately there was no perinatal and maternal death

#### Conclusion

Conservative management of PROM did not negatively effect maternal and fetal outcome It allows majority of women to go into spontaneous labor and improves Bishop

score in rest of the patients resulting in better response to induction and decrease in No of c/s thus reducing maternal morbidity. There is also decrease in newborn infection rate and admission to ICU thus reducing infant morbidity and mortality.

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