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A comparative analysis of immediate induction versus expectant management of labor for prelabor rupture of membranes (PROM) in nulliparous women

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Abstract
Introduction: PROM has major impact on maternal and fetal outcome, complicating the pregnancy with significant morbidity is associated, before, during and after labor. Patients with PROM should be delivered, to avoid infection to both mother and fetus but early interference may increase the incidence of caesarean section. Early and accurate Management of PROM can prevent the risk of fetal and maternal complications.
Objectives: To assess the difference in mean Bishop score and proportion of failed induction, fetal distress, maternal-fetal outcome after oxytocin infusion at 8 hours of PROM in both groups (immediate induction v/s expectant management).
Methodology: This study was Randomized controlled trial (RCT) done on patients having complain of leaking P/V, admitted in Department of Obstetrics and Gynaecology, Zenana Hospital, SMS Medical College, Jaipur over a period of one year (2012-2013). A total of 304 cases (152 in each category) were studied. Patients were divided into two groups, in first group all patients were managed by Immediate induction (Dinoprostone gel) while in second group by Expectant management.
Results: Mean gestational age was 39.45±0.75 wks. Mean duration of leaking was 4.33 hrs. 89.47% (136) patients delivered vaginally and 10.59% (16) underwent LSCS in expectant management as compared to 54.60% (83) pts. delivered vaginally and 45.39% (69) underwent LSCS in Immediate induction. In Present study 93.15% went into spontaneous labor within 1-10 hrs. in expectant management. In our study, most common indication for LSCS was fetal distress accounting for 54.11% (46) in immediate induction and 14.11% (12) in expectant management. Maternal complication rate in 8-16 hrs duration of PROM was 11.38%, while in 17-28 hrs duration, it was 43.47%. Neonatal complication rate in 8-16 hrs of PROM was 6.76% while 60.86% in 17-28 hrs of PROM.
Conclusion: An expectant management followed by delayed induction with oxytocin will allow a good number of women go into labor without an increase in CS rate. Infectious morbidity for mother and fetus are low in expectant management. Therefore expectant management is better than immediate induction in term PROM patients.

Keywords: Prelabor rupture of membranes (PROM), immediate induction, expectant management

1. Introduction
Pre labor rupture of the membrane (PROM) is an obstetric conundrum, with an obscure etiology. It has major impact on fetal and maternal outcome, complicating the pregnancy with significant morbidity is associated, before, during and after labor [1].
There is a general agreement that patients with PROM should be delivered, to avoid infection to both mother and infant as infection increased with prolonged latent period. But early interferes may increase the incidence of caesarean section. Approximately 80% of PROM at term, go in labor within 24 hours and 95% within 72 hours.
Steven R Allen M.D. (1991) [2] defined PROM as spontaneous rupture of membranes before the onset of labor. Garite (1984) [3] has defined prolonged rupture of membranes as rupture of membranes for more than 24 hours.
According to gestational age PROM is classified as (Rathore M Ashmita, 2000) [4]
a) Term PROM – After 37 weeks of gestational age.
b) Preterm PROM – 28-37 weeks of gestational age.
c) Mid trimester PROM – 16-27 weeks of gestation

PROM occurs in about 8% of term pregnancies [5]. Indian studies show an incidence of PROM between 7-12% [1] The maternal complications most frequently associated with PROM are: - Acute Chorioamnionitis, Subclinical Chorioamnionitis, Placental separation and Postpartum endometritis. Fetal/Neonatal Complications are Hyaline membrane disease, Nonreassuring fetal heart rate, Pulmonary hypoplasia, Cerebral palsy, Congenital abnormalities andFetal deformities.

Objectives

1. To assess the difference in mean Bishop score and proportion of failed induction at 8 hours of PROM in both groups (immediate induction v/s expectant management).
2. To assess the difference in proportion of fetal distress during first 8 hours of PROM in both groups.
3. To assess the difference in maternal-fetal outcome after oxytocin infusion after 8 hours of PROM in both groups in terms of a) Mean duration of labor b) Nature of delivery c) Mean Apgar score of newborns d) Maternal complication related to labor

Methodology

This study was Randomized controlled trial (RCT) done on patients having complain of leaking P/V, admitted in Department of Obstetrics and Gynaecology, Zenana Hospital, SMS Medical College, Jaipur over a period of one year (2012-2013).

Inclusion Criteria

- Nulliparous women
- PROM at term
- Singleton fetus in cephalic presentation
- Unfavourable Modified Bishop Score < 4

Exclusion Criteria

- Active labor
- Contraindication to expectant management such as – Meconium staining of amniotic fluid or chorioamnionitis
- Contraindication to induction of labor
- Previous uterine incision
- Known severe fetal anomaly or high risk pregnancy eg. Diabetes, hypertension, maternal asthma, allergy to drugs.

Sample Size is calculated at 80% study power and alpha error 0.05. A total of 304 cases (152 in each category) were studied. All the study participants offered chit box method and consequently randomly allocated in both groups. Detailed history, clinical examination, confirmation of diagnosis of PROM [Pool test, fern test [11, 12], Nitrazine Paper Test [11, 12] and investigations [CBC, CRP, USG with AFI] done.

Group A (Immediate induction) – Within one hour of PROM, patients induced with PGE2 gel 0.5 mg, antibiotic (inj. Ampicillin 2 gm iv was given and observed for labor pain).

Group B (Expectant Management) – Upto 8 hours of PROM patients were observed for labor pains, FHS, pulse, temperature 4 hourly, antibiotic (inj. Ampicillin 2 gm iv was given).

Results

Table 1: Distribution of cases according to Gestational Age

Gastational Age (wks)	No.	%
37 wks	4	1.31
38 wks	33	10.85
39 wks	90	29.60
40 wks	174	57.23
>40 wks	3	0.98
Total	304	100

Maximum 57.23% (174) cases were in the 40 wks gestational age group followed by 39 wks gestational age 29.60% (90). Mean gestational age was 39.45 ± 0.75 wks.

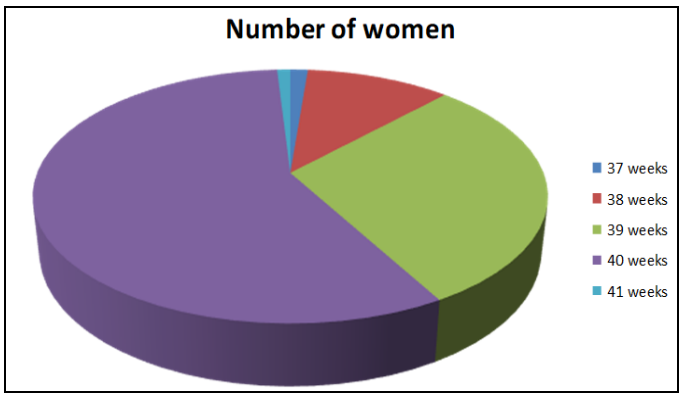

Fig 1: Distribution of cases according to Gestational Age

Table 2: Distribution of cases according to Duration of Leaking P/V

Duration of Leaking P/V on admission (in hrs)	No.	%
0-4	193	63.48
5-8	107	35.19
9-12	2	0.65
13-16	2	O.65
Total	304	100

Most of the cases reported leaking between 0 - 4 hours (63.48%). Mean duration of leaking was 3.75 ± 2.52 hrs.

Table 3: Distribution of cases according to mode of delivery in Expectant Management v/s immediate induction

Mode of delivery	Expectant management	Immediate induction
Normal delivery	136	83
LSCS	16	69
Total	152	152

Chi-square is =44.159 d.f.= 1

In this study, 89.47% (136) patients delivered vaginally and 10.59% (16) underwent LSCS in expectant management while 54.60% (83) pts. delivered vaginally and 45.39% (69) underwent LSCS in Immediate induction. P value is 0.0001 that is extremely statistically significant.

Table 4: Distribution of cases according to indication of LSCS in both groups

Indication of LSCS	Immediate induction	Expectant management
Fetal Distress	46	12
Failed Induction	14	2
PIH	3	1
DTA	2	0
NPOL	2	1
APH	1	0
Deflexed head	1	0
Total	69	16

In our study it was found that the most common indication for LSCS was fetal distress accounting for 54.11% (46) in immediate induction and 14.11% (12) in expectant management followed by failed induction.

Table 5: Correlation b/w NICU admission in Immediate induction v/s Expectant management

NICU Admission	Immediate induction	Expectant management
Neonatal infection	15	5
Birth Asphyxia	4	2
Perinatal death	2	5
Total	21	12

In our study, 71.42% (15) neonatal infection, 19.04% (4) birth asphyxia, 9.52% (2) perinatal death occurs in immediate induction & 41.66% (5) neonatal infection, 16.66% (2) birth asphyxia, 41.66% (5) perinatal death occurs in expectant management group.

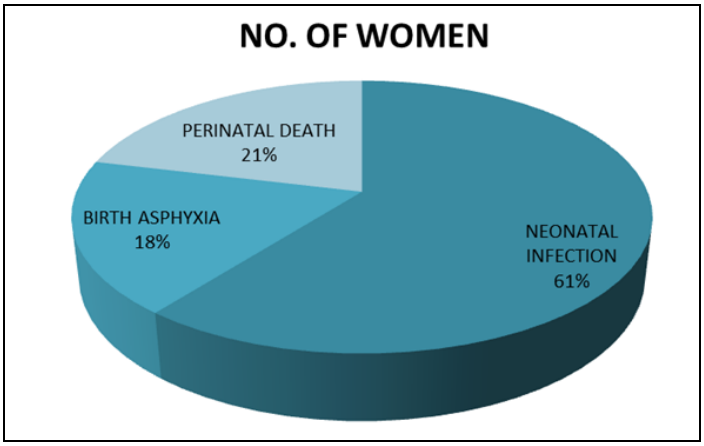

Fig 2: Distribution of cases according to neonatal complications

Table 6: Cases according to maternal outcome in immediate induction v/s Expectant management

Maternal Outcome	Immediate induction	Expectant management
Chorioamnionitis	9	2
PPH	10	4
Maternal infection	7	5
Endometritis	3	0
Any other	0	2
Total	29	13

Above table shows that 23.80% (10) PPH present in women in immediate induction & 9.52% (4) PPH present in expectant management group, 21.42% (9) chorioamnionitis present in immediate induction & 4.76% (2) chorioamnionitis present in expectant management group.

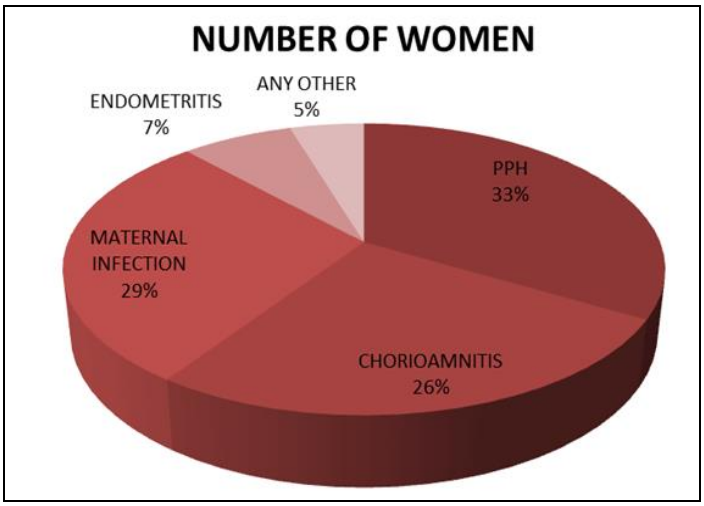

Fig 3: Distribution of cases according to maternal complications

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 fetal and maternal complications, premature birth and help us to initiate obstetric intervention to optimise the outcome of pregnancy.

Mean age of the cases was 22.18 ± 2.58 yrs. Most of the cases (83.50%) were Hindu and 16.44% were Muslim. Majority of the women (79.60%) were from urban area and 20.39% were from rural area. Most of the cases 75% belonged to middle socio-economic status, 20.39% were from lower and 4.6% were from upper socio-economic status. 81.57% cases were booked. 84.86% cases were literate. Maximum 57.23% (174) cases were in the 40 wks gestational age group followed by 39 wks gestational age (12.82%). Mean gestational age was 39.45±0.75 wks. Most of the cases reported leaking of 0 to 4 hrs (63.48%) from admission. Mean duration of leaking was 3.75 ± 2.52 hrs.

In present study, most of the patients 89.47% (136) delivered vaginally and 10.59% (16) underwent LSCS in expectant management as compared to 54.60% (83) pts. delivered vaginally and 45.39% (69) underwent LSCS in Immediate induction. 49.46% delivered in 8-16 hrs of PROM in Immediate induction & 50.53% delivered in 8-16 hrs of PROM in Expectant management. 56.52% delivered in 17-28 hrs of

PROM in Immediate induction & 43.47% delivered in 17-28 hrs of PROM in Expectant management. 95.39% delivered in 1-10 hrs of admission to delivery in immediate induction, 82.23% delivered in 1-10 hrs of admission to delivery in Expectant management. In Present study, 93.15% went into spontaneous labor within 1-10 hrs. in expectant management.

The most common indication for LSCS was fetal distress accounting for 54.11% (46) in immediate induction and 14.11% (12) in expectant management followed by failed induction accounting for 16.47% (14) in immediate induction & 2.35% (2) in expectant management group. In our study, maternal complication rate in 8-16 hrs duration of PROM was 11.38%, while in 17-28 hrs duration of PROM, it was 43.47%. In our study, neonatal complication rate in 8-16 hrs of PROM was 6.76% while it is 60.86% in 17-28 hrs of PROM. 3.80% (10) had PPH in women in immediate induction & 9.52% (4) had PPH in expectant management group. 21.42% (9) got chorioamnionitis in immediate induction & 4.76% (2) in expectant management group. So in present study, there is low rate of maternal & neonatal infection in expectant management group.

Conclusion

An expectant management followed by delayed induction with oxytocin will allow a good number of women to go into labor without an increase in CS rate. Infectious morbidity for mother and fetus are low in expectant management as compared to early Induction with PGE2 gel as per the present study. Therefore expectant management is better than immediate induction in term PROM patients.

References

1. Fernando *et al.*, Practical guide to High Risk Pregnancy & Delivery, 3rd edition, chapter 9-240, 241.
2. Steven R Allen MD. Epidemiology of PROM. Obstet Gynecol, 1991; 34:685.
3. Garite TJ. PROM: The enigma of obstetricians. Am J Obstet Gynecol, 1984; 63:697.
4. Rathore M, Ashmita. Prelabour rupture of membrane. Obstet and Gynae Today. 2000; 5(6):342.
5. John M *et al*. 4th edition, High risk pregnancy. Pre labor rupture of membranes, Chapter 62, 1092.
6. Dutta *et al*. Prelabor Rupture of membrane 6th edition chapter-21, 317
7. Bhalerao S, Desai A. Premature rupture of membranes. In Saraiya UB, Rao KB, Chatterjee A, eds. Principles and Practice of Obstetrics and Gynaecology (2nd edn). An FOGSI Publications. New Delhi: Jaypee Brothers, 2003, 125.
8. Bhide AG. Pregnancy at risk: current concepts. In: Krishna UR Tank DK, Daftary SN, eds. Premature Rupture of Membranes (4th edn). An FOGSI Publication. New Delhi: Jaypee Brothers, 2001.
9. Daftary SN, Desai SV. Preterm labour and premature rupture of membranes. In Daftary SN, Desai SV eds. Selected Topics in Obstetrics and Gynaecology (2nd edn). New Delhi: BI Publications, 2006, 128.
10. Neil PRL, Wallace EM. Is AmniSure1 useful in the management of women with prelabor rupture of the membranes? Aust N Z J Obstet Gynaecol, 2010; 50(6):534-8.
11. McGregor JA, Johnson S. "Fig leaf" ferning and positive Nitrazine testing: semen as a cause of misdiagnosis of premature rupture of membranes. Am J Obstet Gynecol, 1985; 151:1142-43.
12. Bennett SL, Cullen JB, Sherer DM, Woods JR, Jr. The ferning and nitrazine tests of amniotic fluid between 12 and 41 weeks gestation. Am J Perinatol, 1993; 10:101-04.
13. Garite TJ, Gocke SE. Diagnosis of preterm rupture of membranes: is testing for -fetoprotein better than ferning or nitrazine? Am J Perinatol, 1990; 7:276-8.
14. Atlay RD, Sutherst JR. Premature rupture of the fetal membranes confirmed by intraamniotic injection of dye (Evans blue T-1824). Am J Obstet Gynecol, 1970; 108:993-4.
15. Mercer BM. Preterm rupture of the membranes: diagnosis and management. Clin Perinatol, 2004; 31:765-82.
16. Hannah ME, Ohlsson A, Farine D, Hewson SA, Hodnett ED, Myhr TL *et al*. Induction of labor compared with expectant management for prelabor rupture of the membranes at term (TERM PROM study). New England Journal of Medicine. 1996; 334(16):1005-1010.
17. George SS, Gangarani VS, Shesadri L. Term PROM-A 12 hr expectant management. J Obstet Gynecol India 2003; 53:230-233.
18. Snehamay G, Shankaranath M. Premature rupture of membrane at term: Immediate Induction with PGE2 gel compared with delayed induction with Oxytocin Indian J Obstet Gynecol. 2006; 56:224-229.
19. Seema Tariq *et al*. (2008) Comparison of Management Outcome of Induction of Labor with Expectant Management for Term Prelabor Rupture of Membranes, Pak. Armed force medical journal 2011; 3.
20. Poornima B *et al*. Premature Rupture of Membranes at Term: Immediate Induction with Pge2 Gel Compared with Delayed Induction. 2011; 61(5):516-518.