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Prelabour rupture of membranes: A study of fetal and maternal outcomes with expectant management

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Abstract
Background: The management of Prelabour rupture of membranes (PROM) has been traditionally dependent on the gestational age at presentation. This study was undertaken to observe the maternal and perinatal outcomes in PROM patients with emphasis on expectant management of the patients.
Methods: A retrospective observational study was done in a tertiary care centre over a period of one year. Patients with PROM after 24 weeks gestational age were included, of these, preterm patients (<37 weeks gestation) were managed expectantly and term patents were managed with a combination of expectant management and active intervention. These patients were observed for the latent period to onset of spontaneous labour, intrapartum complications, NICU admission and neonatal infection.
Results: The overall incidence of PROM was 9.5%. The latent period to onset of labour was less than 6 hours in majority of cases, both term (50.8%), as well as preterm (34.61%). The caesarean section section rate was 20.1%. 4 cases had meconium stained liquor and 1 case had abnormal fetal heart rate tracings. Neonatal ICU admissions were 12.7%. No cases of chorioamnionitis or intrapartum fetal demise were observed in the study.
Conclusion: Expectant management of preterm PROM patients is a viable course of management with good perinatal outcomes.

Keywords: prelabour rupture of membranes, PROM, induction of labour, expectant management

1. Introduction
Prelabour rupture of membranes (PROM) is a common presentation of the antenatal patient to the emergency room. Most cases of PROM present at Term, while Preterm prelabour rupture of membranes (PPROM) complicates approximately 2-3% of all pregnancies [1]. Many theories have been proposed about the pathophysiology behind PROM [2], most common being Choriodecidual inflammation [3] and decrease in collagen content of membranes [4], but no single one has encompassed the whole spectrum of causes.
One of the most significant sequele of PROM is chorioamnionitis which can be either clinical or subclinical, with an overall incidence of 6 to 10% [5], while higher rates (>40%) were observed with prolonged leaking and earlier gestational ages [6]. At the same time, preterm PROM contributes to almost 40% of preterm births[5], hence the risk of iatrogenic prematurity.
Broadly, the PROM patient can be managed either expectantly, or with early induction and delivery, depending on the gestational age at presentation. The following is a cross sectional observational study aimed at evaluating the outcomes of an expectant management in prelabour rupture of membranes in our institute and its benefits in clinical practice.

2. Material and Methods
This observational study was carried out at a tertiary care hospital over a period of one year. All cases of Prelabour Rupture of Membranes presenting to labour ward of hospital after 24 weeks of gestation, over a period of one year were included. The diagnosis of prelabour rupture of membranes was made after detailed history and physical examination, and confirmed with a sterile speculum examination and ultrasound examination.
After confirmation of PROM, all these cases were given prophylactic antibiotic coverage with Injection Ampicillin or oral Metronidazole and Azithromycin. Preterm PROM patients (<34 weeks) were given Injection Dexamethasone to aid foetal lung maturity[8]. Tocolytics were used during the periods of steroid coverage only[8]. The emphasis is to manage all patients with Preterm PROM conservatively unless conservative management is contraindicated or if the

patients refuse management. The term PROM patients are managed expectantly till 12-18 hours awaiting spontaneous onset of labour, after which the induction of labour may be done with vaginal prostaglandins (Dinoprostone gel and Misoprostol vaginal tablet) and oral Mifepristone.

During the expectant management, patients were given hospitalised and given bed rest. They were closely observed for any signs of chorioamnionitis in the form of maternal supervision (parameters like rising maternal pulse, uterine tenderness or foul smelling vaginal discharge) and fetal supervision (fetal tachycardia). Biweekly TLC counts and C - reactive protein were monitored. The foetal monitoring was done with daily NST and weekly ultrasonography for growth parameters. Digital vaginal examinations were avoided in the absence of labour pains.

Expectant management was abandoned in presence of any fetal or maternal compromise, in the form of signs of chorioamnionitis or a non reassuring fetal heart rate tracing. Caesarean delivery was done when indicated for other associated obstetric indications.

4. Results

The overall incidence of cases presenting with prelabour rupture of membranes in the hospital was 9.5%, which is consistent with the documented incidence in literature[9]. Most common age group with this presentation was the 26 years to 30 years age group (42.3%), which is the commonest age group presenting in labour in our social setup. The maximum incidence of PROM was seen between 37 to 40 weeks (term PROM), that is 61.53%. Most cases of PROM were seen in Primigravida (62.5%). Majority of the patients presenting to the were booked cases, with only 10 unbooked PROM cases in the year.

Table 1: Latent period after PROM in term and preterm babies

S. No	Hours	Term		Preterm	
		Cases	Percentage	Cases	Percentage
1.	<6	29	50.88	9	34.61
2.	7-24	11	19.29	4	15.38
3.	25-48			6	23.07
4.	>48			7	26.92
Total		40		26	

Table 2: Associated Antenatal Maternal Complications

S. No	Antenatal Maternal complications	No of patients
1	Post caesarean pregnancy	10
2	Hypothyroidism	5
3	Breech	4
4	Gestational diabetes	5
5	Twin Pregnancy	3
6	Antepartum fetal demise	1
7	IUGR	1
8	Seizure disorder	1

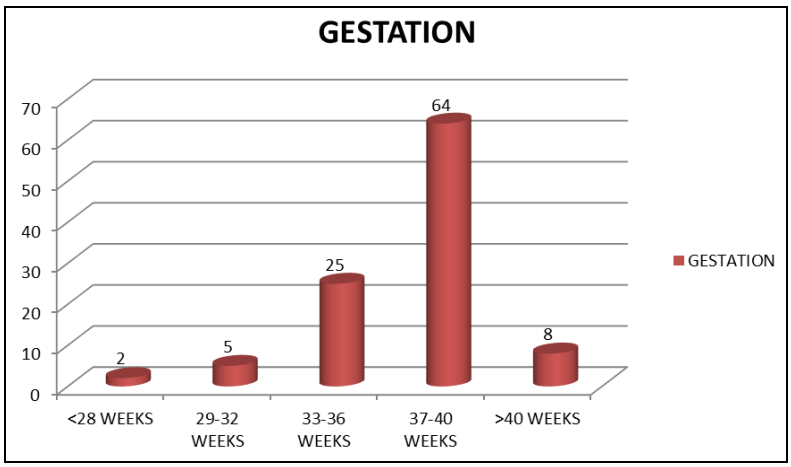

Fig 1: Distribution of gestational age at PROM

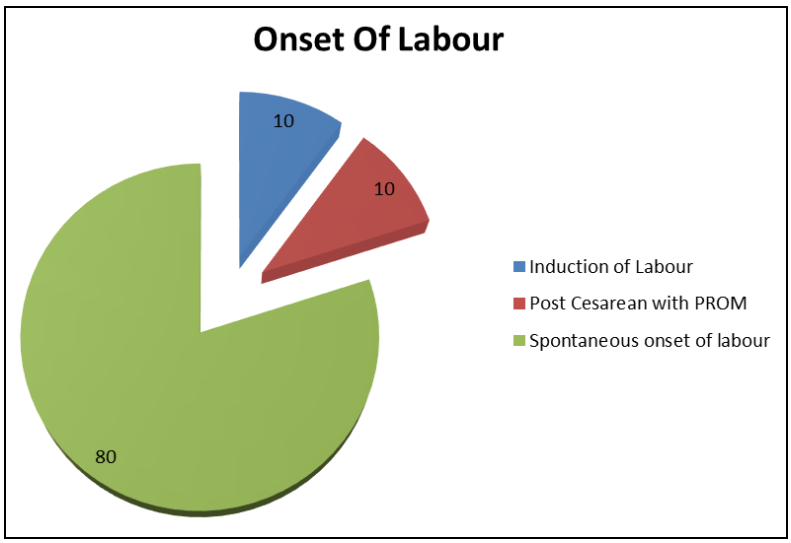

Fig 2: Figure depicting spontaneous onset of labour vs termination in the study

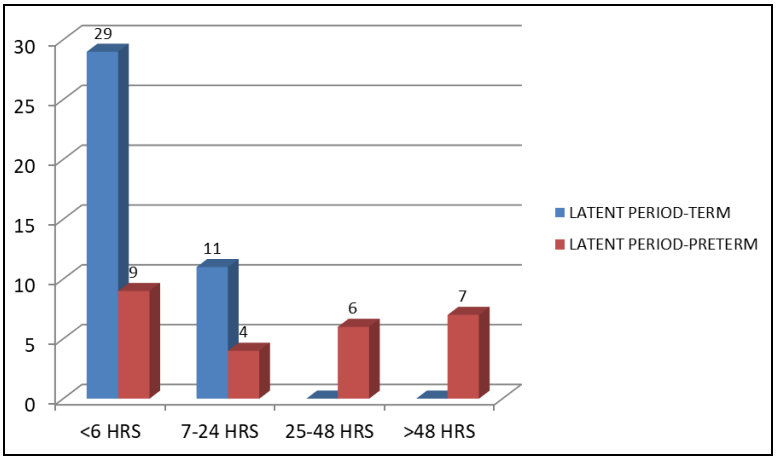

Fig 3: Graph showing latent period to onset of labour in term vs preterm pregnancies

The latent period between rupture of membranes to onset of labour pains was less than 6 hours in majority of cases, both term (50.8%), as well as preterm (34.61%) and almost 73-77% of all cases went into spontaneous labour under 48 hours.

Out of the 104 cases, Induction of labour was done in only 10 cases, of which, 7 patients with PGE_2 intracervical gel, and 2 patients with vaginal Misoprostol and 1 patient was induced with Mifepristone. A low caesarean rate has been observed in our study, which is 20.1%. In 2 cases, an instrumental delivery was done; rest 81 cases (77.88%) delivered normally. The most common indication for C-Section was post caesarean pregnancy with leaking (9.61%). Other indications included Breech presentation, Meconium stained liquor, twin pregnancy and non-progress of labour.

The average birth weight for term babies was 3.1kg. A low incidence of both neonatal and maternal complications was observed. No cases of chorioamnionitis were observed in the study. In the intrapartum period, 4 cases had meconium stained liquor and 1 case showed fetal distress in the form of abnormal fetal heart rate tracings. A total of 12 Neonatal ICU admissions were documented in the early neonatal period. The most common indication of NICU admission was respiratory distress (tachypnoea), which improved with intensive care.

5. Discussion

Prelabour rupture of membranes complicates 8-10% of all pregnancies [9]. When expectant management is undertaken, 79%–95% of women will present with labour pains spontaneously within 12–24 h [10]. The expectant management is better defined a period of watchful waiting, rather than inactivity, as it is perceived to be. While it decreases the incidence of iatrogenic prematurity, it may expose the fetus to effects of prolonged rupture of membranes and cord accidents secondary to decreased liquor volume [11]. The active induction and delivery, in turn, does reduce the incidence of these complications, but prematurity in PPROM cases may contribute to serious fetal morbidity as well the inherent risks of induced vs. spontaneous labour. While expectant management may also result in prolonged hospitalisation, the iatrogenic prematurity resulting from early induction and delivery also increases the neonatal ICU stay [12].

In preterm PROM cases, the risk assessment of prematurity versus fetal compromise in utero is crucial to decision making process and generally weighs in favour of expectant management. On the contrary, in term cases, when there is no risk of fetal prematurity, the tendency is to adopt early induction and delivery, but the rates of caesarean section sharply rise when induction is attempted in an unfavourable cervix. Overall, the risk of neonatal infections and caesarean sections do not vary considerably in term PROM when compared between expectant and active management groups [13]. At the same time, it is of utmost significance that the wishes of the labouring woman are taken into account and their satisfaction is prima vitae to ensure the successful outcome of an expectant approach [13, 14].

As is evident in the study, the incidence of fetomaternal complications is significantly lower when the approach of watchful expectancy is adopted. It is important to remember that while the conservative management is challenging as it tests the patience of both the obstetrician and the patient, it is associated with higher rates of vaginal delivery, without compromising the neonatal safety.

6. Conclusion

An overall low incidence of feto-maternal complications suggests that expectant management of preterm PROM patients is a viable course of management with good perinatal outcomes. However, the patients require close in-hospital monitoring during this period.

7. References

1. Meis PJ, Ernest JM, Moore ML. Causes of low birth weight births in public and private patients. Am J Obstet Gynecol 1987;156:1165-8.
2. Uma S, Nisha S, Shikha S. A prospective analysis of etiology and outcome of preterm labour. J Obstet Gynecol India 2007;57(1):48-52.
3. Bendon RW, Faye-Petersen O, Pavlova Z, Qureshi F, Mercer B, Miodovnik M *et al*. Fetal membrane histology in preterm premature rupture of membranes: comparison to controls, and between antibiotic and placebo treatment. Pediatr Dev Pathol 1999;2:552-8.
4. Stuart EL, Evans GS, Lin YS, Powers HJ. Reduced collagen and ascorbic acid concentrations and increased proteolytic susceptibility with prelabor fetal membrane rupture in women. Biol Reprod 2005;72:230-5.
5. Romero R, Ghidini A, Bahado-Singh R. Premature rupture of the membranes. Philadelphia: JB Lippincott 1992.
6. Pristauz G, Bauer M, Maurer-Fellbaum U, Rotky-Fast C, Bader AA, Haas J *et al*. Neonatal outcome and two-year follow-up after expectant management of second trimester rupture of membranes. Int J Gynecol Obstet. 2008;101(3):264-8.
7. Arias F, Tomich P. Etiology and outcome of low birth weight and preterm infants. Obstet Gynecol 1982;60:277-

281.
8. National Institute for Health and Care Excellence Preterm labour and birth NICE guideline 2015. nice.org.uk/guidance/ng25
9. Duff P. Management of premature rupture of membranes in term patients. Clin Obstet Gynecol 1991;34:723-9.
10. Dare MR, Middleton P, Crowther CA, Flenady VJ, Varatharaju B. Planned early birth versus expectant management (waiting) for prelabour rupture of membranes at term (37 weeks or more). Cochrane Database Syst Rev 2006;(1):Art. No. CD005302. DOI:10.1002/14651858.CD005302.pub2.
11. Smith CV, Greenspoon J, Phelan JP, Platt LD. Clinical utility of the nonstress test in the conservative management of women with preterm spontaneous premature rupture of the membranes. J Reprod Med 1987;32:1-4.
12. van der Ham DP, Nijhuis JG, Mol BW, van Beek JJ, Opmeer BC, Bijlenga D *et al*. Induction of labour versus expectant management in women with preterm prelabour rupture of membranes between 34 and 37 weeks (the PPROMEXIL-trial) BMC Pregnancy Childbirth 2007;7:11.
13. Hannah ME *et al*. Induction of labour compared with expectant management for prelabor rupture of membranes at term. TermPROM study group. New Eng J Med 1996;334:1005-1010.
14. Hodnett ED *et al*. Women's evaluations of induction of labour versus expectant management for prelabor rupture of the membranes at term. Term PROM Study Group. Birth 1997;24:214-220.