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""Study of Feto-Maternal Outcome of Delayed Intervention in Cases of Term Premature Rupture of Membrane"

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ABSTRACT

Background: Premature rupture of membranes [PROM] is the spontaneous rupture of membranes prior to the onset of labour and can occur any gestational age even at 42 weeks of gestation.

Materials & Methods: This was a prospective observational study. Patients were monitored for spontaneous onset of labour as well as for mode of delivery, requirement of instrumental and operative delivery. Maternal and neonatal morbidities were noted. The study was conducted in Obstetrics department of Armed Forces Medical College Hospital from Nov '12 to Aug '14

Results: Total deliveries during study period were 4010. Of them 246 had a complaint of PROM giving an incidence of 9.8%. Maternal morbidity in the form of puerperal pyrexia, wound infection and neonatal morbidity in the form of septicemia were recorded. Swabs from this cases were taken and sent for culture. The culture was positive in 15 Cases and negative in 85 cases. 87% patients went into spontaneous labour. Of these 83.8% were primi gravida and 93.8% were multi gravida.13% patients required induction of labour. No neonatal death reported.

Conclusion: An expectant management will allow a good number of women to go into labor without an increase in CS rate and infectious morbidity for mother and fetus as per the present study and therefore expectant management will decrease the incidence of CS as compared to immediate induction

KEYWORDS :

Introduction:

Premature rupture of membranes (PROM) is defined as rupture of the membranes prior to the onset of labour in women at or over 37 weeks gestation [1]. It continues to be an obstetric enigma in terms of cause and management despite modern perinatal care. PROM occurs in approximately 5-10 % of all pregnancies, of which approximately 80 % occur at term (Term PROM) [2]. The interval between rupture of membranes and onset of labour is called latent period of leaking, which is the key factor for determining maternal and fetal outcome. Several reports have been published that demonstrated a markedly increased risk, at all gestations, of both maternal and fetal morbidity and mortality with a prolonged latent period [3].

Fetal membranes protect fetus and amniotic fluid from microbial infection. Some of serious complications associated with PROM include chorioamnionitis, cord prolapse, placental abruption leading to various fetal complications like fetal death, respiratory distress syndrome (RDS), neonatal sepsis etc. The frequency & severity of complications is inversely proportional to the gestational age at the time of membrane

rupture & its duration.

PROM occurs when intrauterine pressure overcomes membrane resistance. This happens as a result of weakening of membrane either congenital or acquired (smoking and vitamin C deficiency), or because of damaging factors, either mechanical (amniocentesis or amnioscopy) or physical-chemical damage by infection (Trichomonas, group B Streptococci, bacterial vaginosis, etc.). Failure of mechanical support such as cervical dilatation can lead to PROM, favoring bacterial contamination

as well. Other etiological factors are over-distended uterus: big baby, polyhydramnios, and multiple pregnancy. Some cases of PROM may present with malpresentations as the presenting part is not fitting against the lower uterine segment. Interestingly, at term, PROM can be a physiological variation rather than a pathological event (ACOG, 1988)

A careful consideration of various factor and individualization of cases is necessary for appropriate management. This study has been carried out to determine the maternal and fetal outcome in cases of expectant management of Term PROM.

Materials and Methods

The study was conducted in Obstetrics department of Armed Forces Medical College Hospital from Nov '12 to Aug '14. Total deliveries during study period were 4010. Of them 246 had a complaint of PROM. Taking into criteria of inclusion and exclusion criteria, 100 patients were selected for the study with complaints of draining per vaginum after 37 completed weeks of pregnancy. Consent was taken from the study subjects.

Inclusion criteria:

a) Booked cases reported to labour room with history of leaking per vaginum and diagnosed as case of rupture of membranes by conventional methods.

- History (>3 hr of leaking per vaginum before onset of labour)
- Clinical examination (including per speculum examination demonstrating leaking)
- Nitrazine test

b) Period of gestation more than 37 completed weeks

Exclusion criteria:

- Those women in whom vaginal delivery is contraindicated e.g. CPD, Transverse lie
- PROM before 37 completed weeks of gestation
- Women with other obstetrics complication like - Fetal malpresentation, Fetal distress, Gestational diabetes, Multiple pregnancy, Heart disease, Previous LSCS, Ante partum hemorrhage

Results:

Total deliveries during study period were 4010. Of them 246 had a complaint of PROM giving an incidence of 9.8%.

Table 1: Demographic data of study population

S. No.	Parameters	Description
1	Mean Age in years(95%CI)	24.2 (23.55 – 24.85)
2	Mean Gestational age(weeks)	38 (37 – 40)
3	Parity status Nulliparous multipara	 68% 32%

The baseline demographic characteristics of study population comprisedMean age of patients were 24.20 years (95% Confidence Interval – 23.55 – 24.85 years), Mean Gestational age of 38 weeks.

Majority of the patients were booked cases in the hospital.

Table 2: PROM to Delivery Interval

Time in hours	Primigravida		Multigravida	
	Frequency	Percentage	Frequency	Percentage
0-6	0	0	1	3.1
6-12	23	33.8	13	40.6
12-24	30	44.1	13	40.6
24-48	13	19.1	5	15.6
>48	2	2.9	0	0

Highest number of women delivered within 12-24 hours in both primigravida

and multigravida (with least duration of delivery interval of 5 hours).

84.1% of women delivered within 24 hours in primigravida.

84.3% of women delivered within 24 hours in multigravida.

Highest duration of Delivery interval 72 hours.

Median duration of PROM to delivery interval in primi was 17.7 hours and in multi was 13.6 hours. It is statistically signicant.

Table 3: Outcome of Labour in Primi and Multigravida

Gravida	Vaginal delivery		Instrumental		LSCS		Total	P Value
	No.	%	No.	%	No.	%		
Primi	56	82.4	3	3.0	9	13.2	68	0.75
Multi	27	84.4	0	0	5	15.6	32	

It is seen that rate of normal delivery was higher in multigravidae compared to primigravidae. Cesarean sections were more among primigravidae compared to multigravidae. This difference is not statistically significant.

Table 4: Onset of labour

Gravida	Onset of labour		Total	p Value
	Spontaneous	Induced		
MULTI	30 (93.8%)	2 (5.9%)	32	0.129
PRIMI	57 (83.8%)	11 (16.7%)	68	
Total	87 (87%)	13 (13%)	100	

87% patients went into spontaneous labour. Of these 83.8% were primi gravida and 93.8% were multi gravida.13% patients required induction of labour. Of these 16.7% were primi gravida and 5.9% were multi gravida. However this difference is statistically not significant.

Table 5: Relationship between PROM to delivery Interval – Maternal and Fetal Morbidity

Duration of PROM to delivery(hours)	Maternal morbidity		Fetal morbidity	
	No.	%	No.	%
0-6	-	-	-	-
6-12	-	-	3	18.8
12-24	1	12.5	5	31.2
24-48	6	75.0	6	37.5
>48	1	12.5	2	12.5

PROM to delivery has an impact on maternal and fetal morbidity. Longer the interval

between PROM to delivery, more the maternal and fetal morbidity. 87.5% of maternal

morbidity occurred with PROM to delivery interval of greater than 24 hours. Fetal

morbidity was 50% with PROM to delivery interval greater than 24 hours duration.

Discussion:

Pre-labor rupture of the membrane (PROM) is a common and challenging problem in perinatal medicine today, due to high rates of neonatal and maternal morbidity. The incidence of PROM observed in this study is 9.8%, which is higher than the incidence of 2.6% obtained in a hospital based study carried out in West Bengal India. The present incidence is lower than 6-19% as mentioned by Doyle, and 2.7-17% by Arias [4].

The present study showed that mean time interval for PROM to delivery was 16.4 hour. The results of the present study are also similar to the study conducted by Aqueela Ayaz [5], wherein it was noted that the mean time interval for PROM to delivery was 17 hours in expectant group and Bangal et al. found 18.5 hour.

Mode of delivery	Kamala J	Piya Ray	Present study
Vaginal delivery	74%	81.4%	83%
Instrumental delivery	11%	10%	3%
LSCS	15%	8.3%	14%

In cases of PROM at term, labor usually occurs spontaneously in 75-85% of cases within first 24 hours, and 90% within 48 hours. The expected higher concentration of endogenous prostaglandins in the choriodecidual space in term PROM might be the factor in this circumstance. Rovinsky and Shapiro [6] recommended expectant management for PROM for twenty four hours, since labour started spontaneously in 85% of their patients within that time. Gordon Gunn and Daniel Mishell [2] reported that 80-90% of women went into spontaneous labour within twenty four hours.

In the present study, the rate of ceasarean section was 14%, being comparable to the studies done by Kodkany T [7], The rate of instrumental delivery in present study was 3% which is similar to the study done by Sita Ram Shrestha et al [8],

The rate of maternal morbidity in the present study was 8%. The commonest cause was febrile morbidity (4%). This is coincides to the studies done by Kamala J [9]

In the present study, prophylactic antibiotic were given to all the mothers. They may have contributed to the no occurrence of chorioamnionitis, still birth and early neonatal deaths recorded in present study.

In the present study, the major causes of neonatal morbidity were neonatal sepsis, hyperbilirubinemia, respiratory distress syndrome, birth asphyxia, LBW.

In present study, 16 babies required admission in neonatal care unit, of whom four had neonatal sepsis. In which three labour were induced. Therefore, infants born to mothers in the induction after 24 hour of expectant management were significantly more likely to undergo evaluations and treatment for sepsis than infants delivered to mothers who required no intervention.

Moreover, Maternal-neonatal morbidity can be reduced by limited pervaginal examinations, proper aseptic precautions, and appropriate antibiotic coverage.

Conclusion:

An expectant management will allow a good number of wom-

en to go into labor without an increase in CS rate and infectious morbidity for mother and fetus as per the present study and therefore expectant management will decrease the incidence of CS as compared to immediate induction. Immediate induction increases the incidence of operative vaginal deliveries. Therefore expectant management is better than immediate induction in term PROM patients.

To conclude, it can be suggested that an acceptable management plan should be expectant management in the 1st 24 hours in carefully selected patients and subsequent induction of labour thereafter if spontaneous labour has not commenced. Prophylactic antibiotics are given to prevent maternal and neonatal morbidity. This approach might save the patients the cost from hasty intervention without any added benefits in the 1st 24 hours following PROM.

REFERENCES

1) NICE clinical guideline: Induction of labour. 2008 2) Gunn G C ; Mishell D R ; Morton D G- premature rupture of the Fetal membranes : a review. Am J Obst Gynec1970;106:469-73. 3) Lanier L, Scarbrough R.,Fillingim D. Prudence of maternal and fetal complication associated with rupture of membrane before onset of labour. Am J Obstet Gynecol 1965;93:398 4) Arias F, Daftary SN, Bhide AG. Premature rupture of membranes. In: Practical guide to high risk pregnancy and delivery 3rd ed. Elsevier Health Sciences, 2008. 5) Aqueela Ayaz, Shazia Seed et al . Pre-labour rupture of membranes at term in patients with an unfavorable cervix: active versus conservative management. Taiwan J Obstet Gynecol.June 2008; 47:.2. 6) Rovinsky and Shapiro.Management of PROM at term. Obstet and Gynaecol 1968; 32: 855 7) Kodkany, Telang. Premature rupture of membranes, a study of 100 cases. Journal of Obstet and Gynecol of india (1991);41:492 8) Sita Ram Shrestha, Paban Sharma: Fetal outcome of pre-labor rupture of Membranes. N. J. Obstet. Gynaecol Vol. 1, No. 2, p. 19 -24 Nov-Dec 2006. 9) Jayaram VK, Sudha S. A study of PROM – Management and outcome. Journal of Obstet and Gynecol of India 2001;51:58-60.