Maternal and Perinatal Outcome in Premature Rupture of Membranes at Term

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Abstract: *The objective was to study the incidence of premature rupture of membranes at term, evaluate the risk factors , risk of operative delivery ,the effects and complications of premature rupture of membranes at term and its influence on maternal and perinatal outcome. The study was a prospective study where patients with confirmed premature rupture of membranes at term were recruited and monitored for progress of labour, mode of delivery and evaluated for maternal and perinatal outcome. The incidence of premature rupture of membranes was higher in women of lower socioeconomic group, unbooked cases and in those with previous history of abortions and premature rupture of membranes. The rate of caesarean delivery was increased with a concomitant increase in incidence of maternal morbidity and perinatal morbidity and mortality with an increase in the duration of labour and delivery.*
Keywords: *Premature rupture of membranes (PROM) , maternal and perinatal outcome*

I. Introduction

Premature rupture of membranes is defined as rupture of membranes before the onset of labour. When it occurs before 37 completed weeks of gestation it is termed as preterm premature rupture of membranes and when it occurs after 37 completed weeks of gestation it is called term PROM[1]. Term PROM complicates approximately 5-10% of pregnancies. Among these in approximately 50% of cases labour starts spontaneously within 12 hours ,70 % within 24 hours ,85 % within 48 hours and 95% within 72 hours .Fetal morbidiies associated with term PROM include ascending infection and in utero cord compression. Maternal risks include chorioamnionitis ,endometritis , abruption placenta and postpartum febrile morbidity[2]. The main objective for the obstetrician is early detection of possible factors predisposing to PROM during antenatal period , their effective management , correct diagnosis of rupture of membranes and management of delivery that gives a high rate of successful vaginal deliveries without a rise in neonatal and maternal infections. A prospective study was thus done to evaluate the maternal and perinatal outcome in term PROM cases.

II. Methodology

A prospective hospital based study was conducted from april 2011 to march 2012 on 100 cases of spontaneous rupture of membranes attending the department of obstetrics and gynecology , government general hospital , Vijayawada, Siddhartha medical college. Pregnant women with gestational age between 37 to 42 weeks with spontaneous rupture of membranes before the onset of labour pains with single live fetus with any presentation at term were included in the study. Those with premature rupture of membranes before 37 weeks , those with congenital anamolies of fetus ,intrauterine death, multiple pregnancies ,post caesarean pregnancies and associated medical complications in pregnancy were excluded from the study.

Patients with prelabour rupture of membranes were admitted and a detailed history was taken . General and pbstetric examination was done taking into account all parameters of maternal and fetal well being. A sterile speculum examination was conducted and the presence of amniotic fluid was noted by collecting the fluid on the slide and examining under microscope for ferning . Amniotic fluid culture and urine culture were done in suspected cases. All study cases were given prophylactic IV antibiotics. A 4th hourly record of maternal pulse , blood pressure and temperature was maintained. In a view to deliver the patient within 24 hours , induction was planned in all cases except those with malpresentations and with severe oligohydamnios who were taken for emergency caeserean section without any induction. Depending on the bishop score labour was induced with prostaglandin E 2 gel if the score was unfavourable and PGE1 vaginally when the score was favourable. Labour was monitored by partogram and continuous electronic fetal monitoring was done . Cases with fetal distress were delivered by emergency caesarean section.

III. Results

The incidence of PROM was 7.86%. The incidence among lower socioeconomic group was (62 %) higher than the incidence (10 %) among higher socioeconomic group. Incidence among unbooked and booked cases were 78 % and 22 % respectively. 17 % of cases with PROM had history of one or more abortions in

previous pregnancies , 20 % cases had history of PROM in previous pregnancies ,10 % cases had history of preterm delivery due to PROM.15 cases had history of coitus 48 hrs prior to PROM and 21 cases had history of coitus 2 days to 2 weeks back. In majority of the cases the cause for PROM was idiopathic (42%). Anemia (22 %), infections (13 %), cervical stich (3 %), malpresentations (5%), hydramnios (5 %) were implicated risk factors for PROM in our study.

Among 52 primigravidae , 27 delivered vaginally , 6 were delivered by ventouse or forceps and 19 were delivered by LSCS. Among 48 multigravidae , 34 delivered vaginally , 4 were delivered by assisted vaginal delivery and 10 cases by LSCS. The p value =0.14 and not statistically significant. Among 100 cases with PROM 10 cases were taken up for emergency LSCS in view of malpresentations and severe oligohydamnios. Among remaining 90 cases bishops score at admission was favourable in 20 cases of primigravidae and 30 cases of multigravidae , the score was unfavourable in 27 cases of primigravida and13 cases of multigravidae, the p value being 0.01 and was considered statistically significant. Among 90 cases , 50 cases with favourable bishop score were induced with PGE1 and 40 cases with unfavourable bishop score were induced with PGE2 gel .In cases with fetal distress , failed induction and progress of labour delivery was by LSCS. The p value was equal to 0.02 and the relation was found to be statisticalliy significant. Induction-delivery interval was < 12 hours in 14 % cases , between 12-24 hrs in 44% cases and > 24 hrs in 32 % of cases. Indications for LSCS were fetal distress(24.13 %), oligohydramnios (17.24 %), failed progress of labour (41.37 %),transverse lie (3.44 %), breech (13,79 %).

Maternal complications included chorioamnionitis (4 %) , puerperal fever (22 %), abruption placenta (2 %) and wound infection (both abdominal and episiotomy) in 14 % cases. 82 neonates were delivered with apgar > 5 at birth and 18 with apgar <5 at birth. Common causes for perintal morbidity included birth asphyxia (2 %), hyperbilirubinemia (2 %), septicemia (10 %), meningitis (1 %) and pneumonia (5 %) . causes for perintal mortality included septicemia (1 %), meningitis (1 %) and pneumonia (2 %) and birth asphyxia (1 %

Table 1. Previous obstetric history and gynecological history vs PROM

Variable	Percentage
History of term PROM	20 %
History of abortion	17%
History of preterm PROM	10 %

Table 2 : Risk factors vs PROM

Risk factor	Percentage
anemia	22
Urinary tract infections	13
Lower genital tract infection	10
Cervical stich	3
Malpresentations	5
hydramnias	5
No risk factors	42
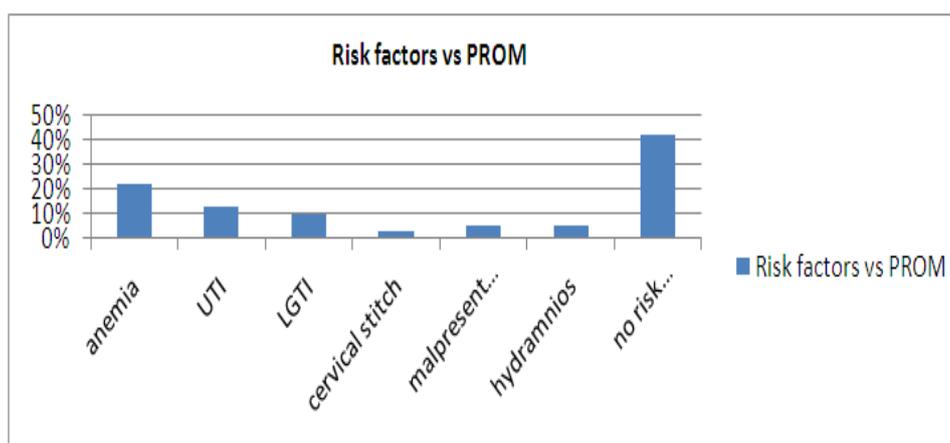
Table 3 : Bishop score and mode of delivery in PROM

Bishop score	Vaginal delivery	LSCS	Total no. of cases
Favourable score	43	7	50
Unfavourable score	28	12	40
Total no. of cases	71	19	90
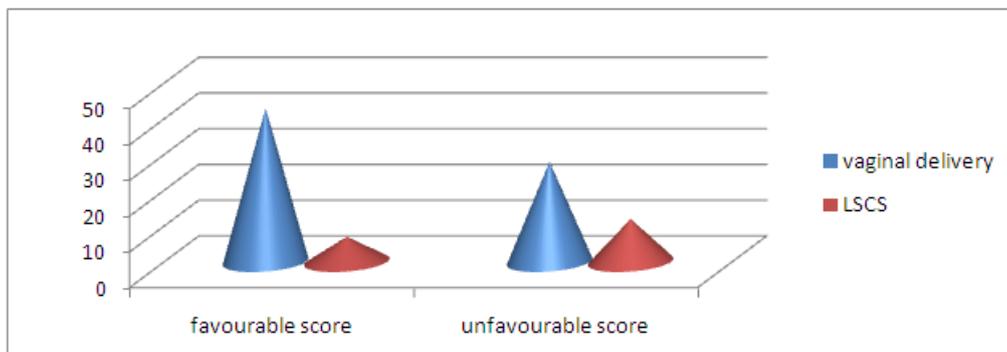
Table 4 : Maternal morbidity vs duration of PROM

| Duration of PROM	No. of cases with maternal morbidity	Percentage
< 12 hrs	1	3.44 %
12- 24 hrs	6	20.68 %
More than 24 hrs	22	75.86 %
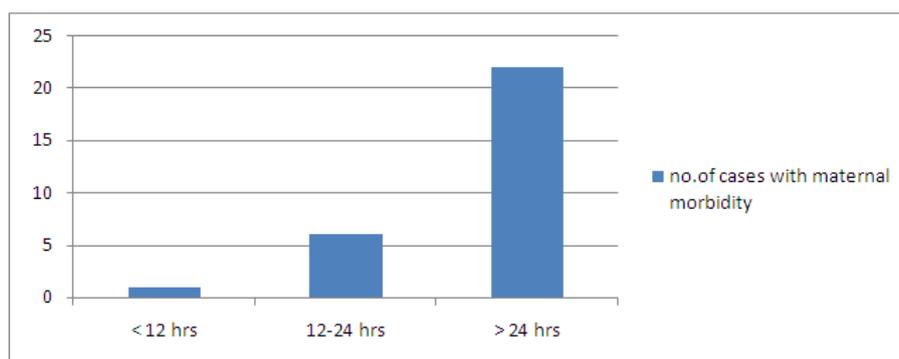
Table 5 : Perinatal morbidity and mortality vs duration of PROM

Duration of PROM	No. of cases	Perinatal morbidity	Percentage	Perinatal mortality	Percentage
< 12 hrs	14	2	14.28	0	0
12-24 hrs	44	7	15.9	2	4.54
More than 24 hrs	36	11	30.55	3	8.33
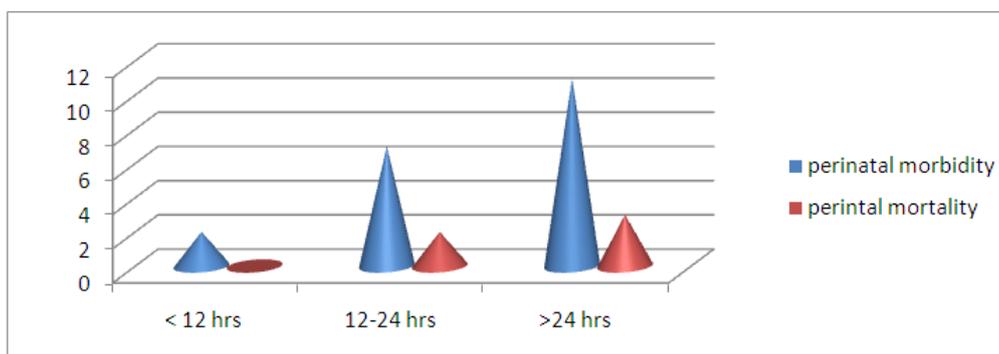
IV. Discussion

The incidence of PROM was 7.86 % with incidence high in women of low socioeconomic group and among unbooked cases. This is comparable to the incidence of PROM in studies conducted by alberto bacchi madena etal[3] (9-10 %) and L.Eslamian study[4] (7.5 %). No statistical significance in relation to parity was observed. PROM in present pregnancy was influenced by previous obstetric history in relation to abortions and history of PROM in previous pregnancies. Similar results were obtained in Doody etal[5] study. Antecedent coitus , urinary and lower genital tract infections , anemia , malpresentations , hydramnias were risk factors identified leading to PROM , cause being idiopathic in majority of cases. Pathological vaginal flora and urinary tract infections were identified in 23 % cases emphasizing the role of infections in PROM. Vaginal delivery was the commonest mode of delivery. There was a four fold increase in the caeseran section rate , the rate of LSCS

being 29% in present study comparable to 27 % in Sita ram shresta etal[6] study and 30% in Kodkany telang etal study[7]. The rate of caesarean was 2 fold high in women with unfavourable bishop score at admission when compared to women with favourable bishop score. The maternal morbidity was increased by 3 fold with post partum fever and wound infection being the most common and chorioamnionitis being the most dreaded complications. The incidence of perinatal mortality was 5 % with most common causes being neonatal sepsis and pneumonia. The lesser the time interval between the rupture of menbranes and delivery , the lesser was the maternal and perinatal morbidity and mortality.

V.   Conclusion

PROM is a high risk obstetric condition which is a common problem among pregnant women and a big challenge to the neonatologists. Evaluation of risks of PROM and timely diagnosis is essential to reduce maternal and perinatal morbidity and mortality. Antibiotic administration to women with PROM significantly reduces maternal and neonatal morbidity. Active management is needed to enable delivery within 24 hrs of PROM and it offers better maternal and neonatal outcome. The main objective of the obstetrician should be early screening , adequate antenatal visits and improvement of general condition of the mother , identifying risk factors , treating associated complications ,correct diagnosis of rupture of membranes and induction of delivery that gives a high rate of successful vaginal deliveries without a rise in neonatal and maternal infections. A healthy neonate as well as a healthy satisfied mother are natural aims for the obstetrician.

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