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A study of maternal and perinatal outcome in premature rupture of membranes

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Abstract
Background and Objectives: Premature rupture of membranes is a significant event which is unpredictable. As it can cause maternal complications like chorioamnionitis, increased operative procedures, puerperal sepsis and neonatal morbidity and mortality. The present study is undertaken to study the labour outcome, maternal morbidity and perinatal morbidity and mortality in PROM.
Methods: Cases of spontaneous rupture of membranes with confirmed PROM by a speculum examination were selected. A detailed history was taken and gestational age confirmed, general, systemic and obstetric examinations were done. Parameters of maternal and fetal wellbeing were recorded. The diagnosis of chorioamnionitis was done by clinical examination, all study groups received prophylactic antibiotics. Single pelvic examination done and maternal vitals recorded fourth hourly.
Results: PROM was common in primigravida. Majority of women were admitted within six hours of PROM (46.0%). Cesarean sections were more among primigravidas. Failure to progress was the common indication. Maternal morbidity was significant (24.0%). No maternal mortality in the study. Perinatal mortality 3.5%. Birth asphyxia was the commonest cause. Perinatal morbidity was seen in 28%.
Interpretation and Conclusion: PROM is associated with many complications which can be reduced, by educating the women to have regular antenatal care, and early recognition of genital tract infection, and treat appropriately and to report at the earliest.

Keywords: PROM, chorioamnionitis, caesarean section, maternal morbidity, perinatal morbidity, mortality

Introduction
Premature Rupture of Membranes is an enigmatic condition associated with high risk of maternal and Perinatal Morbidity and Mortality. Premature rupture of the membranes is defined as the spontaneous rupture of the chorioamnion before the onset of uterine contractions. It is also defined as the leakage of amniotic fluid beginning at least 1 hour prior to the onset of labour at any gestational age.

Latent period: It is the time interval between the rupture of the membranes and the onset of uterine contractions.

Prolonged PROM: It is the term used when >24 hours have elapsed before labour ensues.

High rupture of the membranes: It is due to the rupture of the amniochorion at a site distant from the internal os. Spontaneous cessation of leakage can occur. PROM is one of the most common complications of pregnancy occurring in about 10% o± an births

Incidence of PROM: It is variable. According to Gunn *et al*. (1970), 2 it varies between 2-18%. Bourgeois *et al*. (1988) gave an incidence of 7.35%. Aktar *et al*. coated an incidence of 3.3%. In the study by Swati Pandey (2000), 3 it was 7.71%. Duff P. (1991) said that the incidence of PROM varies between 8-10%. 60-80% of cases of PROM occur at term (Allen 1991). According to Grant and Kierse (1989), 4 PROM occurs in 3- 10% of term deliveries. Incidence of PPROM ranges from 0.7 to 2.1% and accounts for 20-40% cases of PROM before 37 weeks. According to Graham *et al*., PPROM occurs in 2% of cases. It is the commonest cause for preterm labour and 10% of perinatal deaths. 80% of term PROM patients begin labour within 24 hours and 95% within 72 hours. 10-25% will have a latent period of more than 24 hours and 2-5% remain undelivered after 72 hours.

Methodology

This study consists of an analysis of labour outcome in 100 cases with premature rupture of membranes.

Inclusion criteria

1. Gestational age of >30 weeks confirmed by dates, clinical examination or ultrasound.
2. Cervical dilatation of 3 cms.
3. Lack of uterine contractions for atleast 1 hour from PROM.
4. Single live pregnancy in vertex presentation.
5. PROM confirmed by - Direct visualization

Exclusion criteria

1. Gestational age >30 weeks.
2. Cervical dilatation more than 3 cms
3. Women in labour or with uterine contractions within 1 hour of rupture of membrane.
4. Malpresentations and multiple gestations.

Note: Complications like contracted pelvis, cephalopelvic disproportion, multiple pregnancy and malpresentations were excluded from study. A detailed history was taken including age, booking, socio-economic status, time of onset of draining, amount of fluid lost, its colour, odour association with pain or bleeding per vagina and perception of fetal movements.
Detailed obstetric and menstrual history was taken.

Relevant past obstetric history was noted.

- Past and family history was noted.
- General examination was done at the time of admission which included vital signs especially temperature and maternal pulse. Presence of pallor and pedal oedema were looked for.
- Height and weight were noted.
- Systemic examination included cardiovascular, respiratory systems and CNS systems. In the obstetric examination, following were noted.
- Height of uterine fundus, lie, presentation and position of fetus, engagement of presenting part, condition of uterus whether acting or relaxed. Uterine tenderness was looked for as a sign of chorioamnionitis.
- Fetal heart sound was auscultated and its rate, rhythm and tone were noted. A sterile speculum examination was done and the condition of vagina and cervix noted. Liquor draining from the OS was observed. The colour and smell of fluid was noted
- If no fluid was seen, the lady was asked to cough and drainage of fluid was looked for. Cervical swab was taken and sent for Gram stain and culture sensitivity.

A single pelvic examination was done to note the Bishop's score, adequacy of pelvis, assessment of CPD and to rule out cord prolapse. Investigations like total count, differential count and C-reactive protein were done. Prophylactic antibiotics in the form of injection Cefoperazone + Salbectum (1.5gm) IV every 8 hours were given. Depending upon the Bishop's score, labour was induced with prostaglandins or accelerated with oxytocin. Time of induction was noted. The labour of each case was closely monitored. Induction to delivery interval and PROM to delivery interval were noted.
Progress of labour was monitored. If there was any evidence of fetal jeopardy or any other obstetrical complications, labour was cut short by instrumental delivery or cesarean section as required.
Following facts were noted Soon after delivery,
APGAR score at 1 and 5 minutes birth weight, sex, congenital anamolies, immediate complications and birth injuries, signs of asphyxia, meconium aspiration, sepsis and other associated complications were recorded.
In presence of complications, the opinion of neonatologist was sought for. The babies were followed up in the postnatal period Mothers were watched for third stage complications like PPH and retained placenta.
They were followed up in puerperal period. Vital parameters like temperature, pulse, blood pressure were frequently monitored. Women were specifically asked for foul smelling lochia and the presence of febrile morbidity. Episotomy wound and cesarean section wound was observed and regular follow-up was done. Maternal morbidity like puerperal sepsis, urinary and respiratory tract infection and wound infection were looked for. Both mother and the baby were followed up till their stay in the hospital

Results

The present study was performed in 100 women with PROM not in labour or in early labour.

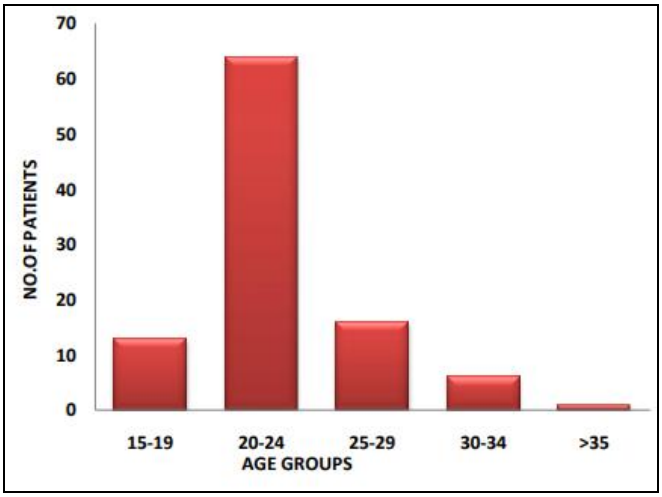

Fig 1: Age wise distribution

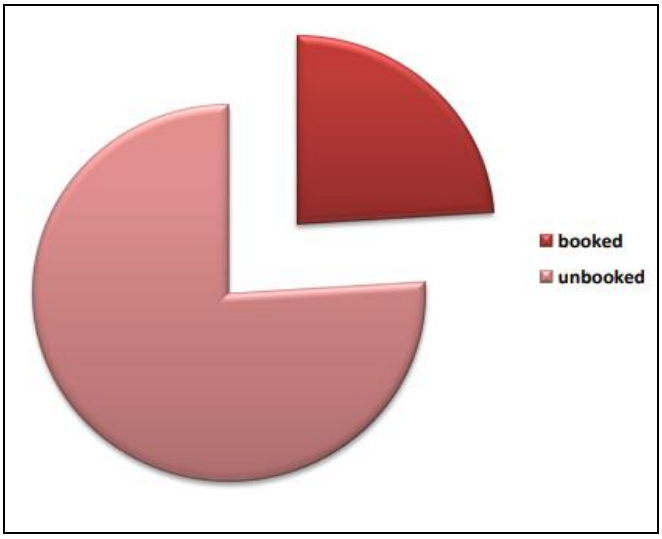

Fig 2: The Distribution of booked and unbooked case

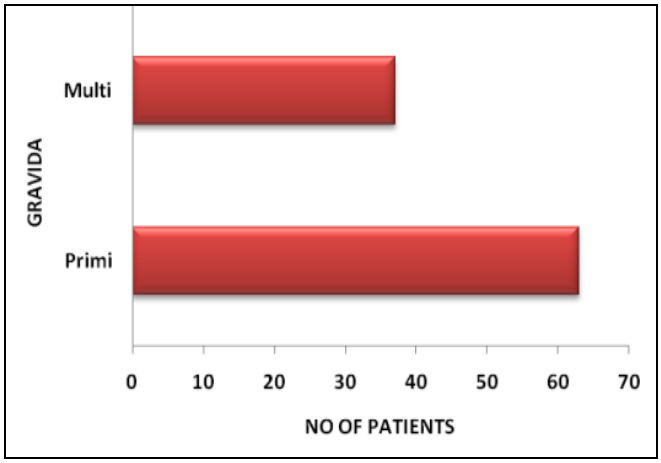

Fig 3: Obstetric Score

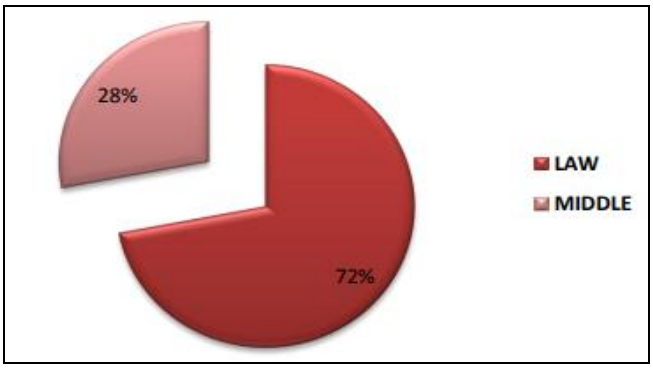

Fig 4: The distribution of socio economic status

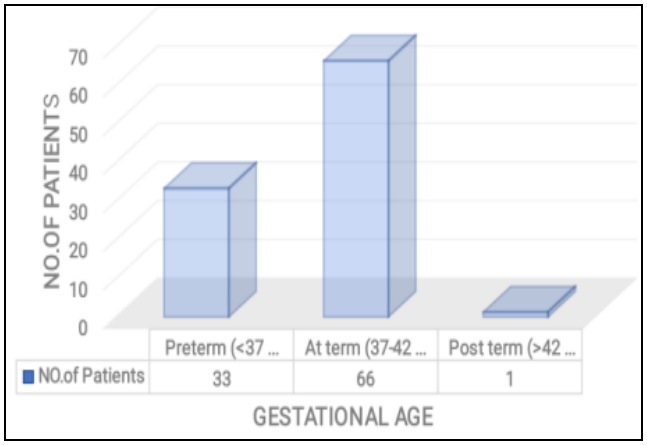

Fig 5: Relationship between gestational ages with premature rupture of membrane

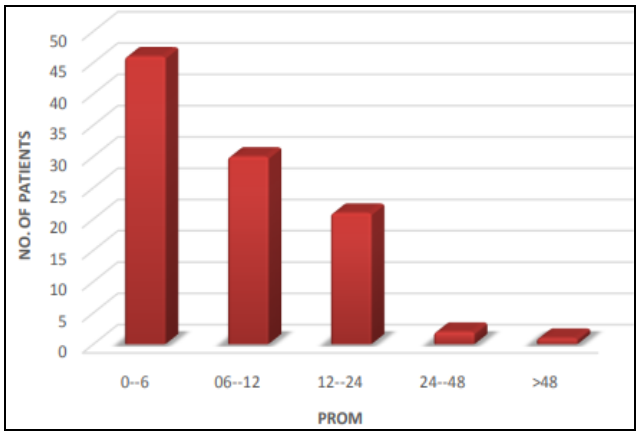

Fig 6: Time between PROM to Admission

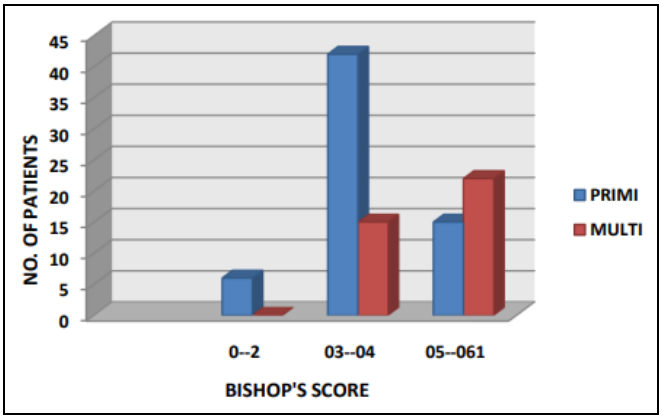

Fig 7: Bishop's Score at the time of admission

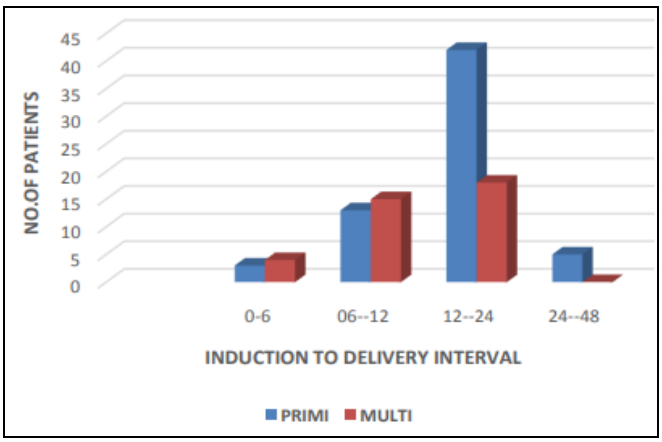

Fig 8: Induction to Delivery Interval

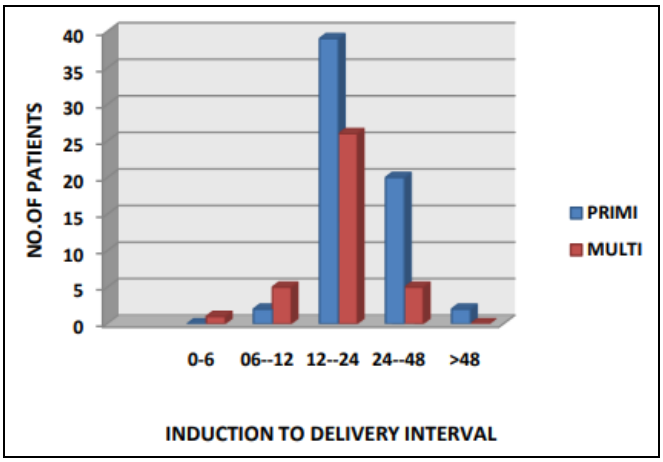

Fig 9: PROM to Delivery Interval

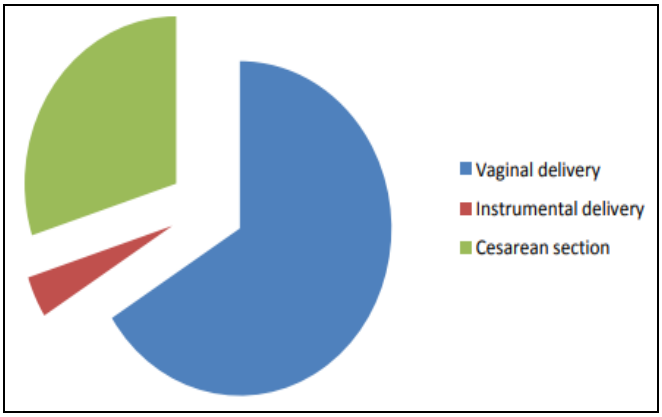

Fig 10: Outcome of Labour

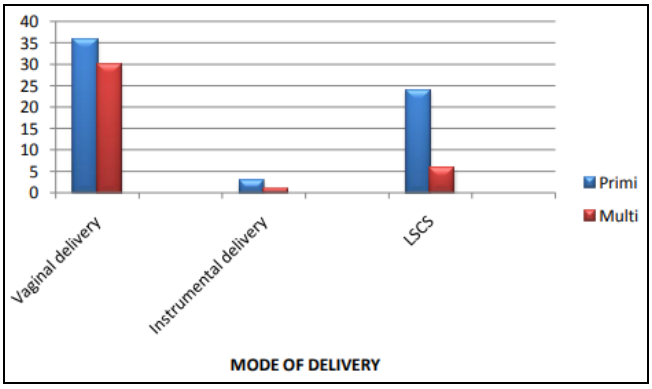

Fig 11: Outcome of Labor in Primi and Multi

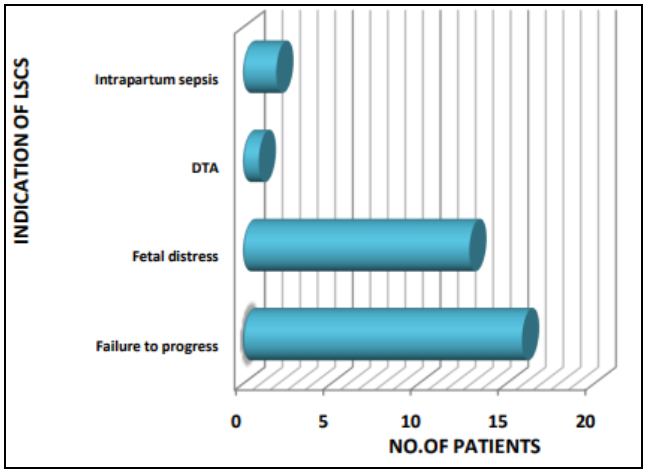

Fig 12: Indication for Cesarean Section

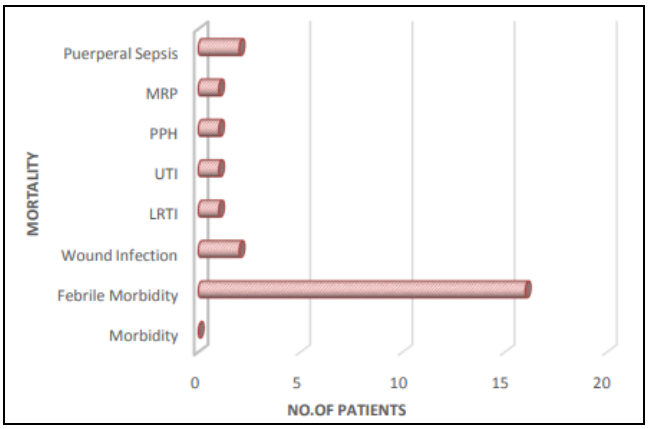

Fig 13: Maternal Morbidity

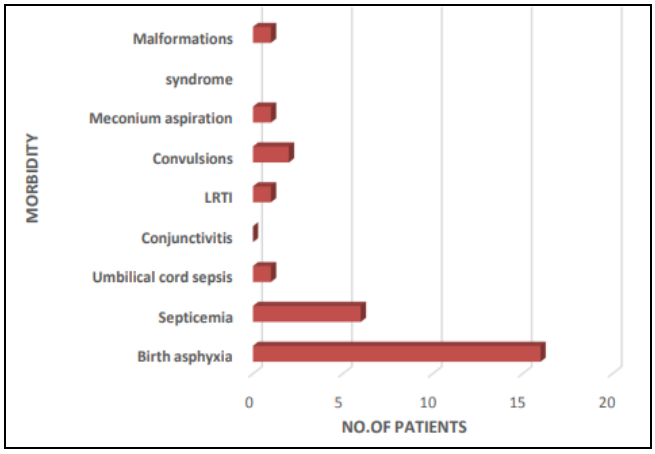

Fig 14: Perinatal morbidity

Discussion

The present study was done in c.u. shah medical collage & Hospital, surendranagar with 100 cases and was compared to similar studies done elsewhere.

Table 1: Relationship of premature rupture of membranes to maternal age

Age	Anjana	Piya Ray	Present
20-29	76.9%	82.0%	80.0%

Table 2: Relationship to Antenatal care

	Anjana Devi	Present study
Booked	52.0%	24.0%
Unbooked	48.0%	76.0%

Table 3: Relationship to Socio-Economic Status

SES	Anjana	Swati	Present
Low	88.4%	61.0%	72.0%
Middle	11.6%	39.0%	28.0%

Table 4: Relationship to obstetric score

Gravidity	Umed	Swati	Present
Primigra	53.2%	62.0%	63.0%
Multigra	46.8%	38.0%	37.0%

Table 5: Mode of Delivery

Mode of delivery	Anjana Devi	Singhal	Kamala J	Piya Ray	Present study
LSCS	45.2%	49.0%	15.0%	8.3%	30.0%
VD	42.3%	49.0%	74.0%	81.7%	66.00%
Instrumental delivery	12.5%	2.0%	11.0%	10.0%	4.0%

Table 6: Maternal morbidity

Morbidity	Anjana Devi	Singhal	Present study
Febrile morbidity	20.19%	17.5%	16.0%
PPH	1.92%	1.5%	1.0%

Table 7: Perinatal Morbidity and Mortality

Perinatal	Sanyal	Present study
Morbidity	32.0%	28%
Mortality	5.0%	3.5%

Conclusion

According to my study in this institution, my conclusion was.....

PROM is an enigmatic condition associated with high risk of maternal morbidity, perinatal morbidity and mortality. It complicates 5-10% of all pregnancies. Complications increase

with decrease in gestational age and increase in the latent period. Difficulties are found in the diagnosis of PROM. Recognition of etiological factors and management.

In the present study, the rate of cesarean section was 30.0%. Maternal morbidity was seen in 24.0%.Febrile morbidity being the commonest accounting for 16.0%. Perinatal morbidity was seen in 28% of cases. Birth asphyxia was the commonest cause for perinatal morbidity. The perinatal mortality rate was seen in 3.5%.Thus PROM is associated with many complications. These complications can be reduced.

First of all, women should be educated to have regular antenatal care where people advice regarding diet, nutrition and personal hygiene should be given. Early recognition of genital tract infection should be done and treated appropriately. Women should be educated about the possibility of PROM and the need to report at the earliest. Pregnancies complicated with PROM should have supervised labor preferably in an institution. Management of each case has to be individualised.

Thus a team approach, early recognition of premature rupture of membranes and their associated complication and appropriate. Management of situation helps in reducing the problems caused by PROM to a great extent. In the present study concerning PROM at term, the rate of maternal and fetal morbidity was significantly higher compared to normal cases. The same precautions can be taken to reduce the morbidity and mortality associated with PROM at term.

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