

FOETOMATERNAL OUTCOME IN CASES OF PREMATURE RUPTURE OF MEMBRANE (PROM) AT TERM: AN EXPERIENCE IN OUR INSTITUTE

Badam Rajani Kumari¹, Chodavarapu Sailaja², Prasad Usha³

¹Assistant Professor, Department of Obstetrics and Gynaecology, Andhra Medical College, Visakhapatnam, Andhra Pradesh.

²Assistant Professor, Department of Obstetrics and Gynaecology, Andhra Medical College, Visakhapatnam, Andhra Pradesh.

³Assistant Professor, Department of Obstetrics and Gynaecology, Andhra Medical College, Visakhapatnam, Andhra Pradesh.

ABSTRACT

BACKGROUND

Prelabour Rupture of Membranes (PROM) remains a day-to-day problem for each and every obstetrician. Despite extensive research, most aspects of PROM remain unknown and as prevention of PROM is difficult one has to concentrate more on management of PROM to reduce its complications.

AIM OF THE STUDY

This study was aimed to understand incidence, causes, neonatal morbidity and mortality, maternal morbidity and mortality in cases of PROM and its effective management.

MATERIAL AND METHODS

A prospective hospital-based study was undertaken on 100 cases with PROM at term between 37 and 40 weeks in the Department of Obstetrics and Gynaecology during the period from April 2015 to March 2016. After delivery, APGAR scores at 1 minute were noted and those babies needing NICU admission were recorded. The causes for maternal morbidity were noted and results tabulated.

RESULTS

The incidence of PROM was highest in age group 20-29 years [49%] followed by age group less than 20 years [38%] and 13 cases [13%] in the age group above 30 years. In primigravida, the incidence was highest [58%]. PROM cases were higher in the below poverty line group [76%]. In 33%, no risk factors were identified. Maximum number of cases delivered within 7-12 hours of PROM [69%]. Most of the women delivered vaginally either spontaneously or after induction with misoprostol in 66% of cases. 88 babies [88%] had Apgar score 8-10. Most common complication in the mother was fever [12%] and in the newborn was septicemia [6%].

CONCLUSION

PROM is associated with increased maternal and perinatal complications especially when duration of PROM is more than 12 hours. Identifying known risk factors, proper counseling, and prompt treatment of infections either UTI or vaginal is mandatory.

KEYWORDS

PROM, Term, Sepsis, UTI, Antibiotics, Maternal, and Perinatal Complications.

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INTRODUCTION

Prelabour rupture of membranes still features in the majority of causes of neonatal morbidity and mortality and accounts for a great number of admissions to neonatal intensive care unit.^[1,2] At term, infection remains the most serious complication associated with PROM for the mother and the baby. The risk of chorioamnionitis with term PROM has been reported to be less than 10% and to increase to 40% after 24 hours of PROM.^[3] The aetiology of PROM is multifactorial; enzymes, nutritional, mechanical factors, chorioamniotic membrane phospholipid content, collagen disruption by amniotic cells cytokines induced by foetal signals, bacterial phospholipase and collagenases, all play major and interrelated role.^[4]

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Corresponding Author:

Dr. Prasad Usha,

#Q. No 49-3-3, Lalithanagar,

Visakhapatnam-530016,

Andhra Pradesh.

E-mail: ushaprasad411@gmail.com

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MATERIAL AND METHODS

A prospective hospital-based study was undertaken on 100 cases with PROM at term between 37 and 40 weeks in the Department of Obstetrics and Gynaecology during the period from April 2015 to March 2016. The number of deliveries during this period was 8,328. Those with premature rupture of membranes before 37 weeks, those with congenital anomalies of foetus, intrauterine death, multiple pregnancies, post caesarean pregnancies, and associated medical complications in pregnancy were excluded from the study.

A sterile speculum examination without using antiseptic was done and the presence of amniotic fluid was noted and the fluid examined under microscope for ferning. High vaginal swab was taken and sent for culture and sensitivity. The women were admitted and a detailed history was taken and clinical examination and laboratory investigations were done. Duration of PROM was noted. All cases were given prophylactic IV antibiotics, mostly cephalosporins. Mode of delivery was planned according to other obstetric factors. After delivery, APGAR scores at 1 minute were noted and those babies needing NICU admission were recorded. Maternal morbidity such as fever, wound infection, sepsis, etc. was noted.

RESULTS

The incidence of PROM in our study was 1.2%. The incidence of PROM was highest in age group 20-29 years 49 cases [49%], followed by age group less than 20 years 38 cases [38%], and 13 cases [13%] in the age group above 30 years. In primigravida, the incidence was highest 58 cases [58%]. PROM cases were higher in the Below Poverty Line [BPL] group 76 cases [76%] [Table 1]. In 33 cases [33%], no risk factors were identified, previous history of D and C was present in 12 cases [12%], cervical incompetence in 11 cases [11%], h/o previous preterm in 9 cases [9%], h/o previous PROM in 8 cases [8%], recent coitus in 7 cases [7%], malpresentations in 6 cases [6%], UTI in 6 cases [6%], hydramnios in 4 cases [4%], and twins in 4 cases [4%]. [Table 2].

Maximum number of cases delivered between 7-12 hours of PROM, the number being 43 [43%]. The number of cases delivering within 6 hours was 26 [26%], 21 [21%] women delivered between 13-18 hours. The number of cases who delivered between 19-24 hours was 18 [18%]. In 12 cases [12%], delivery occurred after 24 hours [Table 3]. Most of the women delivered vaginally either spontaneously or after induction with misoprostol in 66 cases [66%]. Forceps was applied in 13 cases [13%]. Elective LSCS and emergency LSCS was done in 7 [7%] and 14 [14%] cases respectively. [Table 4].

There was 2 babies [2%] with Apgar score 0-4, 10 babies [10%] with Apgar score 5-8 and 88 babies [88%] with Apgar score 8-10. The most common cause for NICU admission was septicaemia 6 cases [6%] [Table 5]. Most common complication in the mother was fever in 12 cases [12%] followed by wound infection in 8 cases [8%]. Septicaemia shock was seen in 2 cases [2%] and abruption in 4 cases [4%] [Table 6]. In 67 cases [67%], culture was sterile and the most common bacteria isolated was Staphylococcus in 20 cases [20%] [Table 7].

Age	No. of Cases	Percentage
<20 yrs.	38	38%
20-29 yrs.	49	49%
>30 yrs.	13	13%
Parity		
Primi	58	58%
2 nd Gravida	16	16%
3 rd Gravid	26	26%
Socioeconomic Status		
BPL	76	76%
APL	24	24%

Table 1: Demographic Factors

Risk Factor	No. of Cases	Percentage
Cervical incompetence	11	11%
Malpresentations	6	6%
H/o previous PROM	8	8%
H/o previous Preterm	9	9%
Hydramnios	4	4%
UTI	6	6%
Twins	4	4%
Previous D and C	12	12%
Recent coitus	7	7%
No risk factors	33	33%
Total	100	100%

Table 2: Risk Factors Associated with PROM

Duration of PROM [hrs.]	No. of Cases	Percentage
0-6 hrs.	26	26%
7-12 hrs.	43	43%
13-18 hrs.	21	21%
19-24 hrs.	18	18%
>24 hrs.	12	12%
Total	100	100%

Table 3: Duration of PROM

Mode of Delivery	No. of Cases	Percentage
Vaginal	66	66%
Instrumental	13	13%
Emergency LSCS	14	14%
Elective LSCS	7	7%
Total	100	100%

Table 4 Mode of Delivery

APGAR Score	No. of Cases	Percentage
0-4	2	2%
5-8	10	10%
8-10	88	88%
NICU Admissions		
Septicaemia	6	6%
RDS	4	4%
Birth Asphyxia	3	3%
Perinatal Death	2	2%

Table 5: Perinatal Outcome

Complication	No. of Cases	Percentage
Septicaemic Shock	2	2%
Wound Infection	8	8%
Fever	12	12%
Abrupton	4	4%

Table 6: Maternal Morbidity

Organism	No. of Cases	Percentage
Staphylococcus	20	20%
Streptococcus	4	4%
Klebsiella	1	1%
Pseudomonas	8	8%
Sterile	67	67%

Table 7: Organism on Culture

DISCUSSION

M Gandhi et al^[5] from Gujarat analysed 384 cases of PROM giving incidence of 5.2%. Emechebe C et al^[6] the incidence of prelabour rupture of membranes constituted 6.38% of all antenatal admissions. The incidence of term PROM in East China is approximately 12.5%.^[7] M Shah et al^[8] in their study, the incidence of PROM was 7.86%. The incidence of PROM in the present study was 1.2%.

In a study by Emechebe C et al^[6] most patients 63 (32.8%) were in 25-29 years age group and nulliparous 53 (27.60%). In the present study, the incidence of PROM was highest in age group 20-29 years 49 cases [49%] and nulliparous 58 cases [58%].

M Shah et al^[8] in their study, the incidence among lower socioeconomic group was (62%) higher than the incidence (10%) among higher socioeconomic group. In the present study, PROM cases were higher in the below poverty line [BPL] group 76 cases [76%].

In the present study, 88 cases [88%] delivered within 24 hours comparable to study by Shah et al^[8] and M Gandhi et

all^[5] with 79.2% cases and 92.5% cases respectively.

In a study by Emechebe C et al,^[6] the majority of the patients 79 (41.2%) had a previous history of PROM. However, 45 (23.4%) of the patients had no recognised risk factor. M Shah et al^[8] in their study, 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. In 15 cases, history of coitus 48 hrs. prior to PROM was present 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%). Anaemia (22%), infections (13%), cervical stitch (3%), malpresentations (5%), hydramnios (5%) were implicated risk factors for PROM. In the present study in 33 cases [33%], no risk factors were identified, previous history of D and C was present in 12 cases [12%], cervical incompetence in 11cases [11%], h/o previous preterm in 9 cases [9%], h/o previous PROM in 8 cases [8%], recent coitus in 7 cases [7%], malpresentations in 6 cases [6%], UTI in 6 cases [6%], hydramnios in 4 cases [4%], and twins in 4 [4%] cases.

M Shah et al^[8] in their 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. In the study by Emechebe C et al^[6] majority, 124 (64.6%) had vaginal deliveries while 68 (35.4%) of them had emergency caesarean deliveries. In the present study, vaginal delivery either spontaneous or forceps was seen in 79 cases [79%]. The rate of LSCS [21%] was not increased due to PROM comparable to 27% in Sita Ram Shresta et al study^[9] and 30 by Gaikwad BH^[10] Swati Pandey^[11] showed 31% rate of caesarean section in the study group and 12% in the control group. Rate of caesarean section was higher in the studies by Anjana Devi^[12] and Singhal^[13] and lower in the studies by Piya Ray^[14] and Kamala Jayram.^[15]

M Gandhi et al^[5] maternal morbidity was 3.12% and maternal mortality was 0.26%. Neonatal morbidity was 3.38% and neonatal mortality was 2.86%. In the present study, most common complication in the mother was fever in 12 cases [12%] followed by wound infection in 8 cases [8%]. Septicaemic shock was seen in 2 cases [2%] and abruption in 4 cases [4%]. Infectious morbidity was 22% and the cases belonged to PROM of more than 19 hours. Hexia Xia et al^[7] patients in the PROM group had a higher incidence of Bacterial Vaginosis (BV), Chlamydia Trachomatis (CT) infection, postpartum haemorrhage, and caesarean section deliveries. Infants in the PROM group experienced higher rates of infection, asphyxia, and jaundice. M Shah et al^[8] in their study, 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 perinatal morbidity included birth asphyxia (2%), hyperbilirubinaemia (2%), septicaemia (10%), meningitis (1%), and pneumonia (5%). The causes for perinatal mortality included septicaemia (1%), meningitis (1%), and pneumonia (2%) and birth asphyxia (1%). David R Dowdy et al^[16] reported incidence of perinatal mortality as 5%. Gaikwad BH^[10] maternal morbidity was 23%. In study by

Sanya,^[17] perinatal morbidity was 32% and mortality was 5%; Kodkany^[18] perinatal morbidity was 39.8% among which birth asphyxia was responsible for 29.5%. In Anjana Devi's study,^[12] perinatal mortality rate was 4.8%. In Piya Ray's^[14] study, it was 2.5%. Gaikwad BH^[10] study perinatal morbidity was 28% and mortality rate was 3.0%.

In the present study, there was 2 babies [2%] with Apgar score 0-4, 10 babies [10%] with Apgar score 5-8, and 88 babies [88%] with Apgar score 8-10. The most common cause for NICU admission was septicaemia 6 cases [6%]. In the study by V. Revathi et al,^[19] the incidence of perinatal mortality was 2% similar to the present study i.e. 2%. The rate of maternal morbidity in the present study was 26%. The commonest cause was febrile morbidity (12%). The most common cause of maternal morbidity was puerperal sepsis. Infectious morbidity was 22% and the cases belonged to PROM of more than 19 hours. In 67 cases [67%], culture was sterile and the most common bacteria isolated were Staphylococcus in 20 cases [20%].

CONCLUSION

PROM is associated with increased maternal and perinatal complications especially when duration of PROM is more than 24 hours. Identifying known risk factors, proper counseling, and prompt treatment of infections either UTI or vaginal is mandatory. The use of appropriate antibiotic following high vaginal swab culture report further reduces the complications associated with PROM. Also, delivering the women within 24 hours is important and expectant management is to be avoided as precious time is lost when induction is delayed.

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