

STUDY OF PATIENTS WITH PREMATURE RUPTURE OF MEMBRANESGeeta Ahirwar¹, Neelam Rajput², Yogendra S. Verma³**HOW TO CITE THIS ARTICLE:**

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ABSTRACT: CONTEXT: This study was conducted in department of obstetrics and gynaecology of a tertiary care hospital of medical college. Aims- The study was carried out to study the patient profile in cases with pre-mature rupture of membrane (PROM) and to study the neonatal outcome in patients with pre-mature rupture of membrane. Design- cross sectional observational study. **MATERIAL AND METHODS:** Study was done on 100 antenatal women with the diagnosis of pre mature rupture of membranes who fulfilled the inclusion and exclusion criteria and who delivered subsequently. A detailed history in study proforma was obtained and complete clinical examination was done. After delivery neonatal blood sample was sent for CRP estimation. Blood culture of those neonates who were reported CRP positive was sent. **RESULTS:** More than half of the cases (58%) were primigravida. Majority of them (84%) were unbooked. Almost half (47%) of the cases were preterm PROM followed by term (43% and Postterm (10%). two third cases of the PROM were the mothers carrying the male babies. In present series 47% of patients reported after 24 hrs. Among the etiological factors of PROM antecedent coitus was found in highest number (60%), vaginitis and UTI together were found in 39% of the cases. CRP was positive in 75% of neonates born to mothers with PROM. Blood culture in babies was found positive in 55% of CRP positive neonates. Among neonates with positive blood culture the commonest organism grown was Klebsiella pneumoniae (80%) and E. coli in 9% of cases. **CONCLUSION:** PROM is associated with higher number of preterm births, neonatal Septicemia. Antecedant coitus, UTI and vaginitis are the leading etiological factors found associated with PROM.

KEYWORDS: PROM; Preterm labour; Chorioamnionitis; Neonatal sepsis.

INTRODUCTION: Pre-labor rupture of membranes before the 37th week of gestation, termed preterm premature rupture of membrane (PPROM), is a common obstetric complication which occurs in approximately 3–4. 5% of all pregnancies.¹ PPRM is associated with 30% of neonatal morbidities and mortalities in preterm delivery,² and remains a challenge for the obstetrician.³ Over the past decade, studies have emerged associating maternal upper genital tract infection with PPRM and spontaneous preterm delivery.⁴⁻⁵

Premature rupture of membranes (PROM) is a syndrome characterized by rupture of membranes before onset of labour. It may be preterm PROM (PPROM) 30% or term PROM (70%). During the intrauterine period fetus is enclosed in the bag of water which serves the following functions. It prevents the ascending infections from lower genital tract. The bag of water provides uniform environment of temperature around the fetus and acts as a shock absorber. It also allows fetus to move freely inside it. During labour the bag of membrane helps in ripening and dilatation of cervix. PROM is one of the common complication during pregnancy which may lead to various ill effects of mother and fetus. The overall incidence of PROM is about 10% (2-17%) of all the pregnancies. About 30% of preterm labours are because of PROM. The labour usually starts within

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24 hours of rupture of membranes in pregnancies above 36 week of gestation in over 80% of the patients. But in patients with gestational age between of 28 to 36 weeks spontaneous labour pains starts after 72 hours in 48% of the cases.⁶⁻¹⁰

Risk of chorioamnionitis in PROM is inversely related to period of gestation. It is more than 50 % before 28 weeks of gestation. The most probable cause of PROM is reduction in the tensile strength of the membranes caused by bacterial proteases. Vaginitis and UTI have been found in more than 40% of the cases of PROM. In neonates it has been associated with increased incidence of prematurity, RDS, Septicemia, cord sepsis, pneumonia and meconium aspiration syndrome.¹¹

AIMS AND OBJECTIVES:

- The study was carried out with the aim to;
- Study the patient profile in cases with pre-mature rupture of membrane (PROM);
- Study the neonatal outcome in patients with pre-mature rupture of membrane.

MATERIAL AND METHODS: This is a cross sectional observational study conducted in the Department of Obstetrics and Gynaecology of Kamla Raja Hospital, Gajra Raja Medical College, Gwalior (M. P.) from Aug 2011 to Sept. 2012 in collaboration with the department of microbiology on 100 antenatal women with the diagnosis of pre mature rupture of membranes who delivered subsequently.

Inclusion Criteria: Patients with Spontaneous rupture of membranes any time beyond 28th week of pregnancy, but before the onset of labour.

Exclusion Criteria: Patients with following conditions were excluded from the study- Meconium stain liquor, cord prolapse, fetal distress, antepartum haemorrhage, Active infection at other sites, active Liver disease.

Patients with chief complaints of leaking per vaginum were thoroughly examined. A detailed clinical history regarding age, religion, parity, address, education, socio economic status was taken. History of genital infection, previous pregnancy outcome and time of rupture of membrane and any intervention before admission, history of vaginal examination done outside the hospital were recorded.

In this study leaking was diagnosed by a per speculum examination. Patient was asked to evacuate the bladder and to take lithotomy position. Sims double blade speculum was introduced along with anterior vaginal wall retractor. Patient was asked to cough and presence or absence of leaking was noted.

Detailed per vaginal examination was done to note the status of the membranes.

Patients were followed upto delivery. After delivery two neonatal blood sample of 2ml in plain vial were taken one at initial estimation and other after 24 hours and were sent to Microbiology Department for C-reactive protein estimation. Neonates who were CRP positive were further investigated with blood culture for presence of any growth. All the mothers and babies were closely monitored during their hospital stay.

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OBSERVATIONS:

Sl. No.	Parity	No.	%
1.	Primi	58	58
2.	2nd gravida	20	20
3.	3rd gravida	12	12
4.	4th gravida	6	6
5.	Grand multi Para	4	4

Table 1: Parity status

Out of all study subjects more than half (58%) were primigravida followed by 2nd gravida (20%), 3rd gravida (12%), 4th gravida (6%) and grand mult gravida (4%) The table illustrates well that incidence of PROM is inversely proportional to the gravity of patient.

Sl. No.		No.	%
1.	Booked	16	16
2.	Unbooked	84	84

Table 2: Antenatal booking status

Majority of PROM patients (84%) were un-booked.

Sl. No.		No.	%
1.	Preterm	47	47
2.	Term	43	43
3.	Postterm	10	10

Table 3: Gestational age

Almost half (47%) of the cases were preterm PROM followed by term (43% and Postterm (10%).

On evaluation of sex of the neonate it was found that two third cases of the PROM were the mothers carrying the male babies.

Sl. No.	Duration	No.	%
1.	< 12 hors	16	16
2.	12-24 hours	31	31
3.	> 24 hours	47	47

Table 4: Duration of leaking

In present series, 16 patients (16%) presented within 12 hrs of leaking, 31 patients reported between 12 to 24 hrs whereas 47% of patients reported after 24 hrs.

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Sl. no.	Etiological Factors	Number	Percent
1	Anticidant coitus	60	60 %
2	Malpresentation	25	25 %
3	UTI	23	23%
4	Vaginitis	16	16%
5	CPD	05	05%
6	Polyhydramnios	03	03%
7	Trauma	01	01%
8	Uterine anomaly	01	01%
9	Incompetent os	01	01%
10	Unknown factors	15	15%

Table 5: incidence of Etiological factors

In 15% of cases no cause was found and in 85% of cases various factors were found either isolated or in combination. Antecedent coitus was found in highest number (60%), vaginitis and UTI together were found in 39 % of the cases.

Sl. No.		No.	%
1.	CRP +ve	75	75
2.	CRP -ve	25	25

Table 6: Neonatal CRP status

CRP was positive in 75% of neonates born to mothers with PROM and it was negative in 25% of cases.

Sl. No.	Blood culture	No.	%
1.	Positive	55	55
2.	Negative	45	45

Table 7: Neonatal blood culture outcome

Blood culture in babies was found positive in 55% of cases of PROM.

Sl. No.		No.	%
1.	Klebsiella	44	80
2.	E. coli	5	9.09
3.	Stap. aureus	3	5.45
4.	Pseudomonas	2	3.63
5.	Mixed organism	1	1.81
6.	Sterile culture	45	45

Table 8: Bacteriological profile of Neonatal blood culture

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Among neonates with positive blood culture the commonest organism grown was *Klebsiella pneumoniae* (80%). *E. coli* grown in 9.09% of cases and *staph. epidermidis* was grown in 5.45% of cases. *Pseudomonas* was grown in 3.68% of cases while mixed organism were grown in 1.81%.

DISCUSSION: The present study was carried out with 100 patients admitted in the hospital.

In this study we see that the highest incidence of pre mature rupture of membranes occur in primi gravida patients. Out of 100 patients 58 patients were primi, 20 were second gravida, 12 were 3rd gravida, 6 were 4th gravida and only 4 were grand multipara. The finding reveals the fact that number of PROM cases is inversely related to increasing parity.

In present study we see pre mature rupture of membranes is more in unbooked patient that is 84%, this finding can be explained by the fact that better antenatal care is essential for safe continuation of pregnancy. Among the total number of PROM cases 47% were preterm, 43% were term and 10% were Postterm. This finding shows the the significance of PROM in obstetrics as it leads to very high number of preterm births.

In the present study PROM was found in significantly higher number in the women carrying male fetus (67%) as compared to those carrying female fetus (33%). Khotua SP et al (1986) also observed the male predominance in their study 92 cases of neonatal Septicemia. Chakrabwati M et al (1999) they had reported also predominance of male and female ratio of 2: 2: 1.

In this study we see that if duration of leaking is <12 hrs, development of neonatal Septicemia is less (16%). Duration of leaking between 12-24 hrs has development neonatal Septicemia is 31 (31%). If duration of leaking is >24 hrs development of neonatal Septicemia is 47 (47%).

Among the etiological factors antecedent coitus was most commonly (60%) associated with PROM followed by UTI and vaginitis (39%) and malpresentation (25%). Findings suggest infection plays an important role in PROM.

In present study blood culture is positive in 55 (55%) cases. Out of these the *Klebsiella pneumoniae* growth was observed in 44 (44%) cases followed by *E. coli* grow in 5% cases. These gram negative pathogens were the commonest organism in our study. Ziai M et al (1957) were also reported predominance of *klebsiella pneumoniae* in their culture positive cases. Devendra Pal (1988) observed 299 neonates of which 50.2% were the septicemic over all *klebsiella* species (25%) and *staph. aureus* (17.5%) were most common isolated organism. Similar observation were made previously Khatuo et al.

The present study C-reactive protein was positive in 75 (75%) of cases which is an indicator of high incidence of neonatal Septicemia similar to those reported by Alien Xie et al.¹²

PROM is associated with higher number of preterm births, neonatal Septicemia, respiratory distress syndrome leading to higher neonatal mortality and morbidity. Maternal morbidity is also increased due to higher chances of chorioamnionitis leading to maternal sepsis, higher number of vaginal birth with abnormal presentation. Antecedent coitus, UTI and vaginitis are the leading etiological factors found associated with PROM.

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