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Original Research Article

PROM and it's maternal outcome: a retrospective study in a rural medical college of India

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ABSTRACT

Background: Premature rupture of membrane is the unconstrained break of layer before the beginning of labor and can happen any gestational age even at 42 weeks of growth. Around 2-30 % of all pregnancy will encounter PROM and prompts 33% of preterm birth. The analysis of PROM is to a great extent clinical and is normally proposed by a history of watery vaginal discharge and affirmed on sterile speculum assessment. This examination was led to decide the occurrence, to discover the age, equality dispersion, gestational age dissemination, presentation of PROM and plan the line of the management.

Methods: The cases selected in this study were those who had spontaneous rupture of membrane after 28 weeks of gestation but before the onset of labor pain. The study period was of one year from 1st January 2019 to 31st December 2019. The study was conducted in the labor room complex of Coochbehar Govt. Medical College and Hospital, WB India. The patients were admitted in the labor room through emergency. All datas were collected from labor room log book.

Results: Total no. of deliveries were 10900 and total no of PROM were 545. Incidence of PROM is 5% in the present study. Maximum no of cases were in the age group between 20-29yr (63%). PROM mainly occurs in primigravida (50.45%). And low rupture of membrane was 91.8%. Cephalic is the commonest presentation (85%) in PROM and the incidence of caesarean section is 24.95%.

Conclusions: PROM is the obstetric emergency and once the PROM is diagnosed it is important to weigh the risk of PROM and prematurity and make the right choice of conservative management and active management. If there is chance of maternal morbidity pregnancy should be terminated considering the maternal wellbeing first and then that of the fetus.

Keywords: Cephalic, Caesarean section, Low rupture of membrane, Primigravida

INTRODUCTION

The term premature rupture of membranes defines spontaneous rupture of membrane before onset of true labor pain.¹ PROM may be term and preterm (before completed 37 weeks). PROM likely has various causes but intra uterine infection, oxidative stress induced DNA damage and premature cellular senescence are major predisposing factors. Associated risk factors include

lower socioeconomic status, Body mass index (19.8), nutritional deficiencies and cigarette smoking.² The diagnosis of PROM is mainly clinical and is typically suggested by history of watery vaginal discharge and confirmed on sterile speculum examination. Several studies have investigated the incidence of infection induced PROM. Bacterial culture of amniotic fluid support a role for infection. In a significant proportion, one reviewed of 18 studies and almost 1500 women with

PROM found that bacteria were isolated from amniotic fluid in a third of cases.³

The traditional minimally invasive gold standard diagnosis of PROM relies on clinician's ability to document three clinical signs on sterile speculum examination.

Visual pooling of clear fluid in the posterior fornix of vagina or leakage of fluid from the cervical os. An alkaline pH of cervicovaginal discharge. Microscopic ferning of cervicovaginal discharge on drying.

Digital examination should be avoided unless delivery appears imminent or patient appears to be in active labor.⁴ The cervix should be examined during sterile speculum examination to assess cervical dilatation and effacement. If necessity culture should be obtained at the time of sterile speculum examination. Visualization of amniotic fluid passing from the cervical canal and pooling in the vagina will typically confirm the diagnosis of membranes rupture. Ultrasound should be performed to evaluate amniotic fluid index. Foetal fibronectin is a sensitive but nonspecific test for rupture of membrane. In addition there are several commercially available tests for amniotic fluid proteins which reports high sensitivity for diagnosis of rupture of membranes.⁵ No significant maternal or neonatal benefits have been shown with use of tocolytics.⁶ The key to reducing the adverse effects of PROM is to make a prompt diagnosis, admission and start antibiotics. Amoxicillin-clavulanic acid is not recommended due to increased risk of necrotizing enterocolitis.⁷ Cooch Behar Govt. Medical College is a medical college and large number of lower economic peoples drain in this hospital with history of PROM. We conducted this study to find out the incidence, it's demographic profile, presentation of PROM and to formulate the line of management of PROM.

METHODS

The cases selected in this study were those patients who had spontaneous rupture of membranes before the onset of labor but beyond 28 wks of gestation. The patients were all admitted in the labor room of Cooch Behar Govt. Medical College and Hospital through emergency. The study period was for 1 year from 1st January, 2019 to 31st December, 2019. The study was conducted in the labor room complex of the medical college. The data were collected from labor room log book.

Total no of deliveries in obstetric ward in one year is 10900 and total no of PROM is 545.

Exclusion criteria

All doubtful cases in which a diagnostic amniotic fluid sample could not be obtained in spite of history suggestive PROM.

Rupture of membrane with presence of uterine contraction which are painful, regular and associated with progressive cervical changes.

Cases of chorioamnionitis which is diagnosed clinically if two or more of the following symptoms were present.

Maternal pyrexia 100.40F or more

Uterine tenderness

Purulent vaginal discharge

Foetal tachycardia

Statistical analysis

Data was analyzed by using SPSS version 11. Frequency and percentage were calculated for qualitative variables eg. age, parity, incidence and socioeconomic status.

RESULTS

Total no of deliveries in obs and gyne ward:10,900 and total no PROM:545

Incidence of PROM (545/10900) X 100=5%

Table 1: Age Distribution of PROM (n=545).

Age (year)	No. of cases	%
15-19	25	4.587
20-24	180	33.027
25-29	165	30.275
30-34	150	27.522
35 and above	25	4.587

Table 1 shows age distribution of PROM. Maximum no of cases in between 20-29 years is 63%.

Table 2: Parity distribution of PROM (n=545).

Gravida	No. of cases	%
Primi	275	50.45
2 nd gravida	120	22
3 rd gravida	120	22
4 th gravida	30	5.5

Table 3: Distribution of socioeconomic status (n=545).

SES	No. of cases	%
Lower SES	400	73.39
Good SES	145	26.60

We have found such PROM is more common in primigravida (50.45%) (Table 2). In one study we have seen PROM commonly occurs in lower socioeconomic status (73.39%) (Table 3).

PROM commonly occurs between 36-39 weeks of gestation (72%) and rare at 40 weeks onwards 1% (Table 4). Table 5 shows that term PROM is commoner than preterm PROM (60% vs 40%).

Table 4: Gestational age distribution (n=545).

Gestational age (week)	No. of cases	%
28-31	82	15
32-35	66	12
36-39	392	72
40 or above	5	1

Table 5: Distribution of maternity status (n=545).

Maternity status	No.	%
Preterm (before completed 37 weeks)	218	40
Term (after completed 37 weeks)	327	60

Cephalic is the commonest presentation of PROM (Table 6).

Table 6: Presentation in case of PROM (n=545).

Presentation	No. of cases	%
Cephalic	463	85
Breech	76	14
Others	6	1

Incidence of caesarean section (C/S) in PROM.

Total case 545. Total no C/S in PROM cases 136. Incidence 24.95%. Out of 24.95% of C/S deliveries 28.26% was done in primi gravida and only 3.6% was done in multigravida (Table 7).

Table 7: Caesarean section in relation to parity (total C/S:136).

Parity	No. of cases	%
Primigravida	116	28.26
Multigravida	20	3.6

DISCUSSION

The incidence of PROM in present study is 18.5%. This is similar to previous observational study made by Alexander et al 1996 and Duff in 1996.^{8,9} In the present study PROM is common in primigravida (50.45%). This is different from study conducted by Bianco et al in 1996 where PROM was common in multigravida.¹⁰ This difference is due to ascending infection which is more common in developing country and important cause of PROM.

Incidence of C/S in the present study is 24.95%. This is similar to the studies conducted by Chua S et al in 1991 who found the incidence of C/S is 19.1%.¹¹ Incidence of C/S is higher in primigravida and this trend is similar to

that observed by Egans Oeterlithy in 1988 where C/S rate was four times higher in primigravida than multigravida with mother with PROM (8% vs 2%)¹² In the present study we have seen the incidence of preterm labor is 40%. This is similar to observation made by other studies where incidence of preterm labor was 30%.^{13,14}

Preterm PROM is more likely to occur in population of lower socio-economic status.¹⁵ Our study also means that PROM is common in lower socio-economic group (73.39%) Table 3. This is due to increased incidence of ascending infection in lower income group with lack of privacy and poor hygiene and decreased immunity. PROM before 37 completed weeks causing preterm labor is important cause of prematurity, hence while managing a case of PROM chance of prematurity should kept in mind but simultaneously if pregnancy is continued for fetal salvage maternal risk like chorioamnionitis which is important cause of disseminated intravascular coagulation (DIC) to be seriously thought of.¹⁶ As pregnancy is hypercoagulable state, it adversely reacts with the presence of endotoxin leading to DIC. This is similar to generalized Schwartzman reaction. In addition there is damage of endothelial capillaries because of anoxia due to vasospasm and stasis of blood which favors DIC.¹⁶ Another important factor is increased production of activators from damaged capillary endothelium which triggers fibrinolytic activity and cause defibrination.¹⁶

CONCLUSION

From the above we can conclude that management of PROM whether conservative or active intervention should be done by weighing the risk of maternal morbidity due to PROM and risk of prematurity of the baby. If there is chance of maternal morbidity, pregnancy should be terminated considering the maternal morbidity first and then that of fetus as if tree should be saved first at the cost of its fruit.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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