



## Original Article

# Pprom - Its Prevalence, Predictors, maternal and neonatal outcomes

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## Abstract

**Background:** Preterm birth is leading cause of perinatal mortality and morbidity worldwide and account for 75% of neonatal deaths. pprom accounts for 30% of preterm births in world. A prospective study was carried out in kashmirs lalla ded hospital, (which is Valleys biggest tertiary care maternity hospital) With aim to study prevalence of preterm premature rupture of membranes & to identify those women who are at its increased risk & fetal and maternal outcome. Predictors of pprom by patient demographics can improve diagnosis, allow early intervention and hence a reduction in health and economic burden.

**Method:** A total of 2116 patients were admitted in labour room of Lal Ded hospital from march 2019 to September 2019. out of these patients 382 patients were confirmed to have PPRM. a detailed history was taken, and gestational age confirmed, general, systemic and obstetric examinations were done. all baseline investigations were carried out along with obstetric ultrasound. every patient was followed till her delivery, and the mode of delivery and maternal and fetal outcomes were recorded and data was analysed statically.

**Result:** In our study prevalence of PPRM was 18%. More common in young age group of 20 to 25 years (56.8%), patient belonging to low socioeconomic status (48.2%), those who were unbooked antenatal cases (52%) & Primigravidas (47.8%). Risk of PPRM was highest in patients who had history of recurrent bacterial vaginosis in their antenatal period. (42%), recurrent bacteriuria (31%), only (24.6%) patients had history of previous pre term deliveries.

In present study 62% cases had normal vaginal delivery, 10% had instrumental delivery and about 28% had LSCS. Fetal distress was most common indication for LSCS followed by non progression of labor. Postnatally 18% mothers & 26.8% babies developed infection and needed antibiotics. Majority of babies born were low birth weight babies (72.3%). Perinatal mortality rate was 16% of total births.

**Conclusion:** PPRM is responsible for considerable maternal morbidity, neonatal morbidity and mortality. The demographic variables with previous antenatal history can help to predict high risk cases so as to screen and treat them beforehand to decrease the prevalence of preterm births and perinatal mortality.

## Introduction

Preterm prelabour rupture of membranes (PPROM) is defined as the spontaneous rupture of fetal membranes prior to the onset of labour and before 37 weeks of gestation. It complicates 2% of pregnancies and occurs in 14000 pregnancies in UK and 15000 pregnancies in USA and accounts for 30% of preterm deliveries<sup>(1)</sup>. It is associated with significant maternal risk including chorioamnionitis with serious systemic infection and neonatal morbidity and mortality including prematurity, sepsis, pulmonary hypoplasia.<sup>(2)</sup> Preterm birth carries significant socioeconomic burden. The cost of preterm birth estimated by Khan et al was 15,688 pounds up to 34 weeks and 12,104 pounds for up to 37 weeks.<sup>(3)</sup> It is therefore important that asymptomatic high risk women and symptomatic women in threatened preterm labour are identified early to allow preventive interventions and management strategies, to reduce the incidence of perinatal mortality and morbidity.

## Materials and Methods

The study was conducted from March 2019 to September 2019 in all patients who presented with preterm premature rupture of membranes and were admitted in labour room of LALLA DED hospital. Those patients who had medical comorbidities like PIH, pre eclampsia, eclampsia, diabetes mellitus; obstetrical complications like polyhydramnios, placental abruption, malpresentations, cephalo pelvic disproportion and fetal complications like congenital anomalies and IUGR were excluded from the study.

A detailed history of the patients under study was recorded followed by general, systemic and obstetric examination. Those patients who gave history of leaking with clear fluid on speculum examination along with decrease in AFI on obstetric ultrasound were considered to have PPRM. Patients who had signs of infection as depicted by fever (body temperature >38C) with one or more of the following:

uterine tenderness, fetal/maternal tachycardia, foul smelling amniotic fluid draining per vaginum, in the absence of any other reason for fever were put on broad spectrum antibiotics.

All baseline investigations along with obstetric ultrasound were done.

All these patients were observed for the mode of delivery, APGAR score of the baby, and postnatal maternal and neonatal outcomes.

## Results

A total of 2116 patients were admitted during this study period, out of which 382 patients were confirmed as PPRM leading to the prevalence of 18%.

**Table 1:** Demographic characters of cases in the study

Demographic characters	number	%age
Age wise distribution:		
20-24yrs	217	56.8%
25-29yrs	94	24.6%
30-35yrs	47	12.3%
>35yrs	24	6.2%
Gestational age:		
28wks-31wks 6days	94	24.60%
32wks-34wks6days	128	33.50%
Upto 37weeks	160	41.88%
Parity:		
primi	229	59.94%
multi	153	40.05%
Antenatal checkups		
Booked cases	234	61.25%
Unbooked cases	135	35.34%
Socioeconomic status:		
low	284	74.34%
high	98	25.65%

Table 1 depicts majority of patients presenting with PPRM were young with age less than 35 years. It was more frequent in gestational age between 32wks to 37wks. PPRM was more frequent among low socioeconomic class (74.34%) compared to higher class 25.65%. PPRM was more frequent among primigravidas (59.94%)

**Table 2:** Obstetrical History

history	number	%
1.h/o bacteriuria	48	12.56%
2.h/o bac vaginosis	186	48.6%
3.h/o bleeding pv	88	23%
4.h/o one two or more preterm deliveries	62	16.2%
5h/o instrumental deliveries	69	18%
6 h/o early pregnancy losses	58	15.1%

Table 2 shows the relationship between associated history and PPRM. 48.6% patients had Infection of the genital tract antenatally. Recurrent urinary tract infection in the antenatal period was linked with 12.56% PPRM cases. History of first and second trimester vaginal bleeding was seen in 16.2% PPRM cases. In our study it was seen that there was very less 18% association of PPRM with h/o previous preterm deliveries also. h/o previous spontaneous or induced abortion was seen in 15.1% cases.

**Table 3:** Mode of delivery

Type of delivery	number	%
Vaginal delivery	237	62%
Instrumental delivery	38	10%
LSCS	107	28%

Table 3 shows the labour outcome in these cases. Majority underwent vaginal delivery (62%), while LSCS rate was 28% followed by instrumental delivery (10%).

**Table 4:** Postnatal maternal and fetal outcome

	Number	%
Maternal infection present	71	18.6%
Fetal infection present	132	34.6%
Low birth weight	257	67.3%
Intrapartum death	24	6.2%
Neonatal death	55	14.3%
Maternal deaths	0	0%

Table 4 shows the maternal and fetal outcomes in these patients. 18.6% mothers developed infection and required broad spectrum triple antibiotic cover. 34.6% babies needed antibiotic and NICU admission in view of sepsis. the rate of Low birth weight babies in our study was as high as 67.3%. Also there was an incidence of 6.2% intrapartum deaths and 23.8% neonatal deaths which is a very high figure. However there was no maternal death noted in this study.

## Discussion

THE prevalence of PPRM in this study was 18% which is much higher than reported from England (1%),<sup>(4)</sup> united states (1-2%)<sup>(5)</sup>, Canada 2-3%,<sup>(6)</sup> punjab 5.4%<sup>(7)</sup> Abbottabad 9.6%<sup>(8)</sup>. In present study the different demographic variables were observed. The commonest age group was 20-24 years (56.8%). which correlated well with

kodkany DS et al and Devi A et al.<sup>(9-10)</sup> although most of the studies show that risk of PPRM increases with age. In our study only (6.2%) patients were more than 35 years of age. The incidence of PPRM was high in cases belonging to, low socioeconomic background explaining the nutritional deficiencies, less hygiene, less frequent health care visits during antenatal period which are similar to as reported in other studies<sup>(11-13)</sup>. In present study increased cases of PPRM were observed in primigravidas than multigravidas which is again contrary to many studies in which multiparas were seen more associated to PPRM. The incidence of PPRM was also seen higher in unbooked cases compared to booked cases which is statically similar to findings in many studies all over the world<sup>(14)</sup>. In present study association of PPRM between genitourinary infections, antepartum haemorrhage and previous history of abortion was also seen. So routine check up is highly needed to treat these infections during antenatal period. Similar findings were seen in many studies done in india.<sup>(15)</sup>

In our study only 16.2% patients had h/o previous preterm deliveries. this incidence is higher than reported by Tahir et al 14.7%<sup>(16)</sup> and Charles J et al 14.7%<sup>(17)</sup> but lesser than reported by J Ayub Coll Abbottabad<sup>(8)</sup>.

Caesarean section rates in our study were 28% which is similar to findings of Swathi pandey et al<sup>(18)</sup> but higher than study reported from Punjab<sup>(7)</sup>, and still lower than the study reported by Charles et al<sup>(17)</sup> in which the incidence of caesarean section was 58.7%. In present study caesarean section was mainly done for fetal distress followed by non progression of labour, while as in the above mentioned study caesarean section was done before labour.

In this study there were large number of low birth weight babies putting a burden on neonatal facilities. The number of low birth weight babies in this study were 67.3% which is very high as compared to Unites states and California cohorts<sup>(5)</sup>.

Perinatal mortality in this study was 14.2%(142/1000) which is lower than noted by Tahir et al but higher than reported by Multer et al 9.3% (19S) and Charles et al<sup>(17)</sup>. Foetal deaths in our study were reported to be as high as 6.2% as against the usual incidence of 1% of patients with PPROM. In our study maternal morbidity was 18.6% and all these patients were given broad spectrum antibiotics thus reducing the risk of endometritis and chorioamnionitis.

### Conclusion

PPROM is one of the important and leading cause of preterm births resulting in increased fetal morbidity and mortality. Hence it is advisable to develop the scoring system involving demographic risk factors with previous history and emphasising the routine antenatal checkups to identify high risk cases and to treat them before rupture of membranes leading to the improvement in neonatal mortality and morbidity.

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