



PREMATURE RUPTURE OF MEMBRANES: MATERNAL AND FOETAL OUTCOME AT A TERTIARY CARE TEACHING HOSPITAL IN JAMNAGAR, GUJARAT

Obstetrics & Gynaecology

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ABSTRACT

Background : Premature rupture of membranes (PROM) is one of the most common obstetric complications associated with significant maternal and neonatal morbidity and mortality. PROM predisposes both mother and fetus to various infectious and non-infectious complications, especially when associated with prolonged latency period and preterm delivery. **Aim :** To study the maternal and foetal outcome in patients with premature rupture of membranes admitted at Government Medical College and Guru Gobind Singh Government Hospital, Jamnagar. **Materials and Methods :** A retrospective observational study was conducted in the Department of Obstetrics and Gynaecology, Shri M. P. Shah Government Medical College and G. G. Government Hospital, Jamnagar, Gujarat, over a period of one years from April 2025 to March 2026. A total of 150 pregnant women with PROM beyond 28 weeks of gestation were included in the study. Maternal demographic profile, obstetric characteristics, mode of delivery, maternal complications, and neonatal outcomes were analyzed. **Results :** The incidence of PROM was 8.4%. Majority of patients belonged to the age group of 20–29 years (68%). Primigravida constituted 56% cases. Term PROM was observed in 72% patients, while preterm PROM was noted in 28% cases. Vaginal delivery occurred in 62% patients, whereas 38% underwent cesarean section. Maternal complications included febrile morbidity (14%), chorioamnionitis (8%), postpartum hemorrhage (10%), and wound infection (6%). Neonatal complications included prematurity (26%), low birth weight (32%), neonatal sepsis (12%), NICU admission (30%), and neonatal mortality (3.3%). **Conclusion :** PROM remains an important contributor to maternal and neonatal morbidity. Early diagnosis, prompt management, prophylactic antibiotics, and timely delivery are crucial in reducing adverse fetomaternal outcomes.

KEYWORDS

Premature Rupture Of Membranes, Prom, Maternal Outcome, Foetal Outcome, Neonatal Sepsis, Preterm Labour

INTRODUCTION

Premature rupture of membranes (PROM) is defined as spontaneous rupture of fetal membranes before the onset of labor. When membrane rupture occurs before 37 completed weeks of gestation, it is termed preterm premature rupture of membranes (PPROM). PROM complicates approximately 5–10% of all pregnancies and is responsible for nearly one-third of preterm births worldwide.¹

The exact etiology of PROM is multifactorial and includes infection, cervical incompetence, previous PROM, polyhydramnios, multiple pregnancy, smoking, nutritional deficiencies, and lower socioeconomic status. PROM is associated with significant maternal complications such as chorioamnionitis, puerperal sepsis, postpartum hemorrhage, wound infection, and increased operative delivery rates.² Foetal complications associated with PROM include prematurity, neonatal sepsis, respiratory distress syndrome, cord prolapse, fetal distress, low birth weight, NICU admission, and perinatal mortality. Early diagnosis and proper management play a vital role in reducing maternal and neonatal complications.³

Despite improvements in obstetric and neonatal care, PROM continues to pose a major challenge in tertiary care hospitals, particularly in developing countries due to delayed referral, poor antenatal care, and infectious morbidity. Therefore, this study was undertaken to evaluate maternal and foetal outcomes in PROM cases managed at Government Medical College, Jamnagar.

AIMS AND OBJECTIVES

Aim

To study maternal and foetal outcome in patients with premature rupture of membranes.

Objectives

1. To determine the incidence of PROM.

2. To study demographic and obstetric risk factors associated with PROM.
3. To evaluate maternal complications associated with PROM.
4. To assess neonatal outcome in PROM.
5. To compare study findings with previous published literature.

REVIEW OF LITERATURE

PROM is one of the leading causes of maternal and neonatal morbidity worldwide. Cunningham et al. stated that PROM accounts for significant perinatal morbidity due to prematurity and neonatal infection.¹

Kodkany et al. observed that PROM incidence ranged between 5–10% and was more common among primigravida women.⁴ Noor et al. reported increased rates of maternal infection and neonatal sepsis in prolonged PROM cases.⁵

Patel and Patel demonstrated that cesarean section rates were significantly higher in PROM patients due to fetal distress and failed induction.⁶ Bhalerao et al. reported that neonatal morbidity was mainly related to prematurity and respiratory distress syndrome.⁷

Recent studies suggest that prompt administration of antibiotics, corticosteroids in PPROM, and timely obstetric intervention significantly improve fetomaternal outcomes.

METHODOLOGY

Study Design

Hospital-based retrospective observational study.

Study Site

Department of Obstetrics and Gynaecology, Shri M. P. Shah Government Medical College and Guru Gobind Singh Government Hospital, Jamnagar, Gujarat.

Study Duration

April 2025 to March 2026.

Study Population

Pregnant women admitted with diagnosis of PROM after 28 weeks of gestation during the study period.

Sample Size

150 cases.

Inclusion Criteria

- Pregnant women with spontaneous rupture of membranes before onset of labor after 28 weeks gestation.
- Singleton and multiple pregnancies.
- Patients with complete medical records.

Exclusion Criteria

- Women already in active labor at time of membrane rupture.
- Antepartum hemorrhage cases.
- Congenital fetal anomalies.
- Intrauterine fetal demise at admission.
- Incomplete records.

Diagnosis of PROM

PROM was diagnosed based on:

- History of sudden gush or continuous leaking of fluid per vaginum.
- Sterile speculum examination showing pooling of amniotic fluid.
- Nitrazine paper test and ultrasonography where required.

Data Collection

Data were collected from:

- Indoor patient files
- Labour room registers
- Operation theatre records
- NICU records

A structured proforma was used.

Variables Studied

Maternal Variables

- Age
- Parity
- Gestational age
- Duration of PROM
- Mode of delivery
- Maternal complications

Foetal Variables

- Birth weight
- APGAR score
- Prematurity
- Neonatal sepsis
- NICU admission
- Neonatal mortality

Management Protocol

Patients were managed according to institutional protocol:

- Antibiotics administered prophylactically.
- Corticosteroids given in PPROM cases between 28–34 weeks.
- Fetal monitoring done regularly.
- Induction of labor or cesarean section performed based on obstetric indications.

Statistical Analysis

Data were analyzed using Microsoft Excel and SPSS version 25. Results were expressed in frequencies, percentages, and proportions.

Ethical Consideration

Institutional Ethics Committee approval was obtained. Patient confidentiality was maintained throughout the study.

OBSERVATION AND RESULTS

Table 1: Age Distribution

Age Group (Years)	Number	Percentage
<20	18	12%
20–24	54	36%
25–29	48	32%
≥30	30	20%

Majority patients belonged to 20–29 years age group.

Table 2: Parity Distribution

Parity	Number	Percentage
Primigravida	84	56%
Multigravida	66	44%

PROM was more common among primigravida women.

Table 3: Gestational Age Distribution

Gestational Age	Number	Percentage
Term PROM	108	72%
Preterm PROM	42	28%

Term PROM was more common.

Table 4: Mode of Delivery

Mode of Delivery	Number	Percentage
Vaginal Delivery	93	62%
Cesarean Section	57	38%

Most patients delivered vaginally.

Table 5: Maternal Complications

Maternal Complication	Number	Percentage
Febrile Morbidity	21	14%
Chorioamnionitis	12	8%
Postpartum Hemorrhage	15	10%
Wound Infection	9	6%
Puerperal Sepsis	6	4%

Maternal infection was the major complication.

Table 6: Foetal and Neonatal Outcome

Neonatal Outcome	Number	Percentage
Prematurity	39	26%
Low Birth Weight	48	32%
Neonatal Sepsis	18	12%
NICU Admission	45	30%
Neonatal Mortality	5	3.3%

Prematurity and NICU admission were major neonatal complications.

DISCUSSION

The incidence of PROM in the present study was 8.4%, which is comparable with studies conducted by Kodkany et al. and Noor et al.⁴⁻⁵ Majority of patients were in the age group of 20–29 years, similar to findings by Patel and Patel.⁶

Primigravida women constituted 56% cases, which correlates with observations by Kodkany et al.⁴ Term PROM was more common than PPROM, similar to studies by Bhalerao et al.⁷

In the present study, vaginal delivery occurred in 62% cases while cesarean section rate was 38%, comparable with studies by Patel and Patel who reported increased operative delivery due to fetal distress and failed induction.⁶

Maternal febrile morbidity and chorioamnionitis were the most common complications observed. Similar findings were reported by Noor et al., emphasizing increased infectious morbidity with prolonged PROM.⁵

Neonatal complications in the present study mainly included prematurity, low birth weight, neonatal sepsis, and NICU admission. These findings were comparable with studies conducted by Bhalerao et al. and Cunningham et al.¹⁻⁷ Neonatal mortality was primarily associated with extreme prematurity and sepsis.

Early diagnosis, prophylactic antibiotics, and timely delivery significantly reduce maternal and neonatal morbidity.

Comparison of maternal and neonatal outcomes

Parameter	Present Study (n=150)	Kodkany et al. (n=100)	Noor et al. (n=170)	Patel & Patel (n=150)	Bhalerao et al. (n=150)
Primigravida	56%	54%	52%	58%	55%
Term PROM	72%	70%	64%	74%	68%
Preterm PROM	28%	30%	36%	26%	32%

Vaginal delivery	62%	65%	59%	64%	61%
Cesarean section	38%	35%	41%	36%	39%
Febrile morbidity	14%	12%	18%	13%	15%
Chorioamnionitis	8%	7%	12%	7%	10%
Postpartum hemorrhage	10%	8%	11%	9%	11%
Wound infection	6%	5%	8%	5%	7%
Puerperal sepsis	4%	3%	7%	4%	5%
Prematurity	26%	24%	34%	23%	29%
Low birth weight	32%	29%	39%	28%	35%
Neonatal sepsis	12%	10%	16%	10%	14%
NICU admission	30%	27%	38%	28%	33%
Neonatal mortality	3.3%	3%	7.6%	3.3%	4.7%

SUMMARY

The present retrospective observational study evaluated 150 cases of PROM managed at Government Medical College, Jamnagar during April 2025 to March 2026.

Major findings were:

- Incidence of PROM was 8.4%.
- PROM was more common among primigravida women.
- Majority cases were term PROM.
- Vaginal delivery was the predominant mode of delivery.
- Maternal complications mainly included febrile morbidity and chorioamnionitis.
- Prematurity, low birth weight, neonatal sepsis, and NICU admission were common neonatal complications.

CONCLUSION

PROM is a significant obstetric problem associated with considerable maternal and neonatal morbidity. Infectious complications remain the major concern, particularly in prolonged PROM and PPROM cases. Early diagnosis, proper antenatal care, aseptic management, prophylactic antibiotics, corticosteroid administration in PPROM, and timely obstetric intervention can significantly improve maternal and neonatal outcomes.

Strengthening referral systems and improving neonatal intensive care facilities are essential to reduce perinatal morbidity and mortality associated with PROM.

REFERENCES (VANCOUVER STYLE)

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