

PREVALENCE OF PREMATURE RUPTURE OF MEMBRANE IN PREGNANT WOMEN

Sohaila Rahimi ^{*1}

Ahmad Gul, Azami ^{*2}

Noreena Kamawal ^{*3}

1. Departement of Obs/Gyn, Midical Faculty, Nangarhar University, Afghanistan
2. Departement of Hystopathology, Midical Faculty, Nangarhar University, Afghanistan
3. Department of Obs/Gyn, Midical Faculty, Nangarhar University, Afghanistan

ABSTRACT

When spontaneous rupture of the amniotic membrane occurs before the beginning of the birth, it is called Premature Rupture of Membrane (PROM). if membrane rupture occurs after 37 weeks' gestation before the onset of labor, it is called Term PROM. And if it happens before 37 weeks, it is called Preterm Prom. If this happen 24 hours before birth, it is called Prolonged Premature Rupture of Membrane. The main purpose of the study is to find the Prevalence, causes and complications of PROM as well as witch group of women's are more susceptible to the disease in Afghanistan.

Material and Methods: this is cross-sectional study , conducted in Gynecology ward of Nangarhar University Teaching Hospital's from (23/9/2022-22/12/2022) on women who were admitted to this ward for childbirth .Data was collected using a structured questionnaire..

Findings: Premature Rupture of Membrane was observed in156 among the total 3481 population of Mother the main related risk factor was Multiparity and by large amount was acure in Full term pregnancy and large amount of them gave NVD. The main causes or PROM was Genital tract infection and the main second causes was UTI

Conclusion: The disease occurs in about 10% of all pregnancies. Therefore, it is necessary to recognize this type of pregnancy early to prevent maternal and fetal complications like premature birth, risk of ascending infections (Chorioamnionitis) especially if birth does not take place within 24 hours, as well as abruption of placenta, Oligohydrominiosis, Cord prolapsed, Prematurity and neonatal sepsis.

Keywords: Prevalence of Premature Rupture of membrane, Complications and Etiology.

Introduction:

If spontaneous Rupture of the amniotic membrane occur before the beginning of labor it is called premature rupture of the membrane. [4] The Prevalence of the PROM is high and cause more morbidities and mortalities in both mother and fetus. Globally PROM occur in 10% of pregnancies. so it is necessary to identify such pregnancies in time to prevent maternal and fetal complications. common complications of PROM are premature delivery, ascending infections (Chorioamnionitis) especially if labor doesn't occur within 24 hours, cord collapse, oligohydramnios, abruption of placenta.[5,6]

In management these women are recommend bed rest, evaluate the fetus and the mother time to time, if the duration of pregnancy is more than 37 weeks, we make a comprehensive birth plan and give induction, and if necessary KB5/ Antibiotics such as ampicillin, amoxicillin, and erythromycin should be given until delivery, and if the pregnancy period is less than 37 weeks, corticosteroids should be given for fetal lung maturity and prevention of hyaline membrane disease.[2,8] A cross-sectional study conducted in Mainland China in five specialized and one general hospital on 29,143 pregnancies was conducted in a period of five years from Jan 2003 to 2007-December. The incidence of PROM was 19.53%, the incidence of still birth among the PROM were 30.1%, neonatal death 17.8%, 62.5% neonates were suffering from pulmonary hypoplasia witch was the major cause of neonatal death. [11]

In a study conducted in the United States the incidence of neonatal death among PROM was 11.6%, RDS 15.1%, assist ventilation 25.9%, neonatal seizure 0.2%. In another cross sectional study that was conducted in 7 Agaries hospital in Egypt from July 2019-January 2020, which included 69 mothers with PROM. As a result, there were 46 women who delivered normal children with a good Apgar score (66.75%), 15 children needed oxygen (21.7%) and 8 children needed ventilator support (11.06%) and 8 mothers had past history of PROM (11.6%), 6 had multiple pregnancy (8.7%), 16 had an infection (23.2%), 12 had an antepartum Hemorrhage (17.45%) and 12 had chronic diseases (17.4%).[16] in a cross sectional study conducted between 5 July 2021-30 Aug. 2021 in Ambotown Hospital, Ethiopia the incidence of prom was 22.6%. [15]

Regarding the selection of research topic, we discussed with senior professors of Nangarhar medical faculty, study deferent articles in the same topic and we take benefit from library and web site of higher education of Afghanistan.

Objectives:

1- **Primary:** To identify the prevalence of PROM.

2- **Supportive:** to study causes of PROM, method of delivery, indication of C/S in these patients, evaluation of these pregnancies and comparison with other global journals.

Review of the medical literature:

When spontaneous rupture of the amniotic membrane occurs before the beginning of the birth, it is called Premature Rupture of Membrane (PROM). If membrane rupture occurs after 37 weeks' gestation before the onset of labor, it is called Term PROM. And if it happens before 37 weeks, it is called Preterm Prom. If this happens 24 hours before birth, it is called Prolonged Rupture of Membrane ⁽²⁾. The disease occurs in 10% of all pregnancies ⁽⁹⁾. The exact cause is not known but the incidence of the PROM is high in following conditions: increase susceptibility of membrane to rupture, increase extensibility of membrane, polyhydramnios, incompetence of cervix, multiple pregnancy, infections (like Chorioamnionitis, UTI, infection of the lower genital tract) ⁽³⁾. The diagnosis is made by the drainage of fluid from the vaginal canal and accumulating in the posterior fornix, but it can be confused with hydorrhoea of pregnancy and urinary incontinence. To confirm the diagnosis of PROM following tests or advised;

1-Speculum examination: in this test the drainage of amniotic fluid from cervix can be seen clearly.

2-Nitrozin test: A special paper that contains nitrozin is placed in accumulated fluid in the posterior fornix. If the yellow color of the paper changed to blue, it confirms the presence of amniotic fluid (the PH of amniotic fluid is alkali ^(3,4)).

3-Ferning test: vaginal secretions are examined under microscope ⁽²⁾.

4-Ultrasound: determines the amount of amniotic fluid and condition of fetus.

5-Lab investigation: complete blood count, urine culture and analysis, microscopic examination and culture of vaginal swab and echocardiograph for the evaluation of fetal condition.

Risks: If membrane rupture occurs near to term the risks increase however, if membrane rupture occurs early the chance of premature delivery increases. PROM increases risk of ascending infections (Chorioamnionitis) especially if rupture occurs 24 hours before delivery, premature cord prolapses, oligohydramnios, abruption of placenta and neonatal sepsis. ⁽⁵⁾

Management: Only the speculum examination is not sufficient for the diagnosis, the condition of the cervix should also be examined, and to avoid repeated vaginal examinations, the

patient should be advised to rest completely, and a sterile vaginal pad should be placed until fluid leakage is observed ^[5]. Then the following situations should be taken into consideration: age of the fetus, whether mother is in labor or not, presence of evidence of sepsis, mother's pulse, temperature and FHR should be assessed every 4 hours ^[3]

Term PROM: If the mother is not in labor and there is no evidence of infection or fetal distress, she should be admitted to the hospital and kept under observation. In 90% of cases, spontaneous labor starts after 24 hours, but if it doesn't start in 24 hours, induction with oxytocin is performed, which can only be performed if its indicated ^[2].

Preterm PROM: In this case, it is important to prevent infection. These patients should be managed in a well-equipped hospital. If gestational age is 34 weeks or more, death of the fetus due to prematurity is less common ⁽⁷⁾. Depending on species of infection, labor starts spontaneously within 48 hours, if not it can be induced by oxytocin. If GA is less than 34 weeks, the patient must be treated conservatively ^[1,2]. Prophylactic antibiotics such as Ampicillin, Amoxicillin, and Erythromycin can be given until delivery, Corticosteroid is given to prevent RDS in neonate ^[3,5,6].

A cross-sectional study conducted in Mainland China in five specialized and one general hospital on 29,143 pregnancies was conducted in a period of five years from Jan 2003 to 2007-December. The incidence of PROM were 19.53%, the incidence of still birth among the PROM were 30.1%, neonatal death 17.8%, 62.5% neonates were suffering from pulmonary hypoplasia which was the major cause of neonatal death ⁽⁹⁾. In a study conducted in the United States the incidence of neonatal death among PROM was 11.6%, RDS 15.1%, assist ventilation 25.9%, neonatal seizure 0.2%. In another cross sectional study that was conducted in 7 Agaries hospital in Egypt from July 2019-January 2020, which included 69 mothers with PROM. As a result, there were 46 women who delivered normal children with a good Apgar score (66.75%), 15 children needed oxygen (21.7%) and 8 children needed ventilator support (11.06%) and 8 mothers had past history of PROM (11.6%), 6 had multiple pregnancy (8.7%), 16 had an infection (23.2%), 12 had an antepartum hemorrhage (17.45%) and 12 had chronic diseases (17.4%). in a cross sectional study conducted between 5 July 2021-30 Aug. 2021 in Ambotown Hospital, Ethiopia the incidence of prom was 22.6% ⁽¹⁸⁾. Regarding the selection of research topic, we discussed with senior professors of Nangarhar medical faculty, study deferent articles in the same topic and we take benefit from library and web site of higher education of Afghanistan.

This is a cross-sectional study conducted in the Department of Obstetrics and Gynecology at Nangarhar University Teaching Hospital during the period of three months (1/7/1401-1/10/1401) on all the patients who were admitted for childbirth. All patients are registered, a complete history is taken, and then a physical examination is carried out. diagnosis is made after ultrasound and laboratory tests. After that, PROM patients are excluded from all patients. The data are Analyzed by SPSS.

Material and methods

This is a cross-sectional study conducted in the Department of Obstetrics and Gynecology at Nangarhar University Teaching Hospital during the period of three months (23/9/2022-22/12/2022) on all the patients who were admitted for childbirth. All patients are registered, a complete history is taken, and then a physical examination is carried out. diagnosis is made after ultrasound and laboratory tests. After that, PROM patients are excluded from all patients. The data are Analyzed by SPSS.

Inclusion criteria:

- 1-all women who suffer from PROM.
- 2-all women with PROM and had a normal vaginal delivery.
- 3-all women with PROM and had cesarean suction.

Exclusion criteria: All women who had PROM but gestation age was less than 20 weeks.

Limitation:

Since our country Afghanistan has been struggling with civil wars for the past three decades, it is clear that our country has been affected by these wars and is facing economic, health, transportation, scientific and social problems. The biggest impact has been shown in the field of health. The health services are not reaching the people properly due to the lack of security in the rural and remote areas of our country, i.e. the lack of health personnel and health clinics, which is itself a threat to people's lives. Mothers do not attend regular ANC visits and do not visit the hospital for delivery, or these patients may not register or agree to the study, all of which create limitations in the study.

Conclusion:

This is a cross-sectional study in which the patients who were admitted in Nangarhar Teaching Hospital's Obstetrics and Gynecology Department for childbirth. Ultrasound and laboratory tests are performed to diagnose their pregnancy and a questionnaire is filled out from them. The data were collected by specialist and trainee doctors, on duty doctors and midwife of gynecology and obstetrics department of Nangarhar University

teaching hospital and organized by assist prof drs Noreena Kamawal. The data analysis, literature review and discussion and correction was done by assistant Prof Suhaila Rahimi and assistant Prof Ahmad Gul Azami. Results of the study are summarized in the following tables and graphs.

Table-1: number and percentage of PROM in pregnant women in 3 months admitted in NUTH

Pregnant woman	Number of woman under study	Percentage of woman under study
Without PRO	3481	95,71%
With PROM	156	4,28%
Total	3637	100%

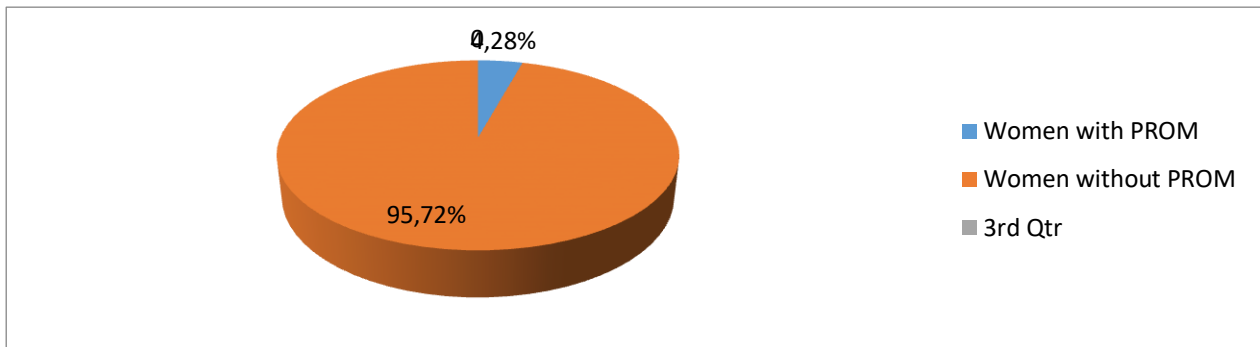


Table 2: Number and percentage of mothers with PROM according to parity.

Woman with PROM	Numbers	Percentage
Primigravida	60	38,46%
Multigravida	96	61,53 %
Total	156	100%

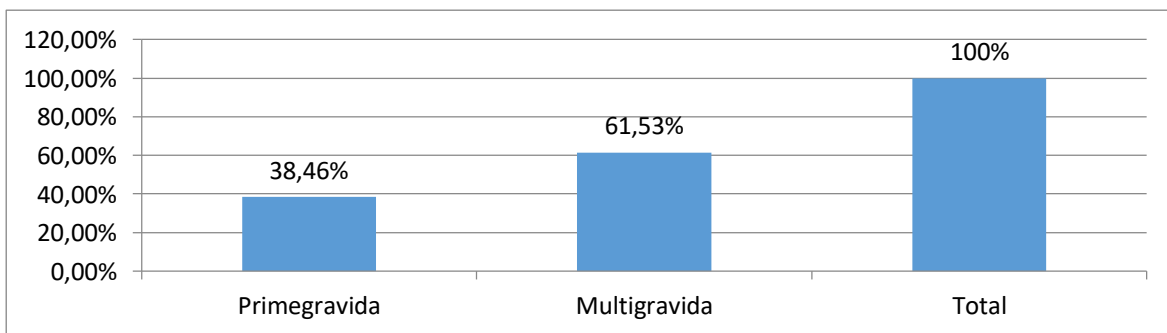


Table 3: Number and percentage of mothers with PROM according to gestational age.

Gestational Age	Number	Percentage
25 Weeks	3	1,92%
26Weeks	1	0,64%
30 weeks	5	3,20 %
32 Weeks	4	2,56%
34 weeks	2	1,28%

35 Weeks	10	6,41%
Full term pregnancy	131	83,97%
Total	156	100%

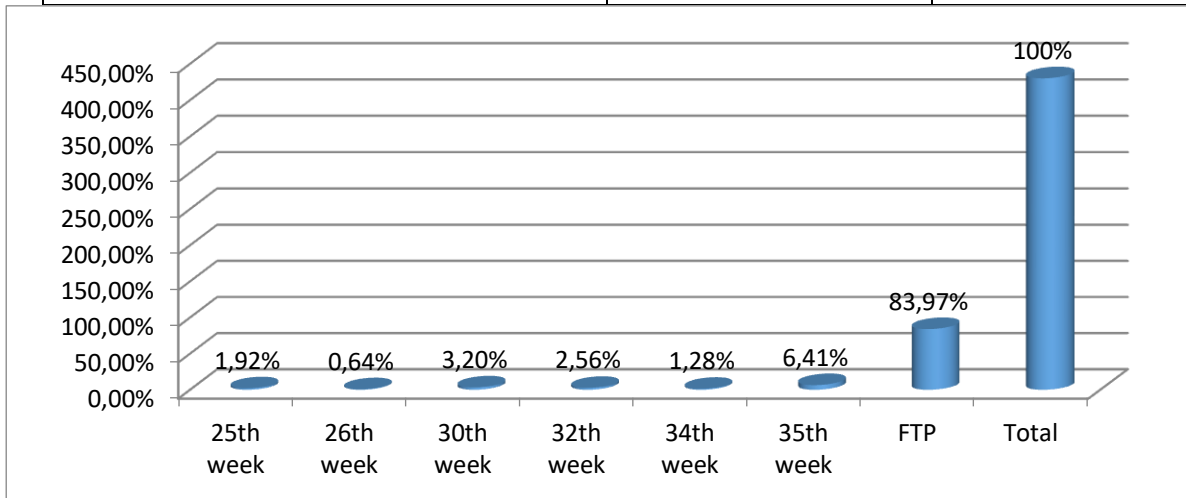


Table 4: Number and percentage of mothers with PROM according to delivery type.

Kind of Delivery	Number	Percentage
NVD	136	87,17%
C/S	20	12,8%
Total	156	100%

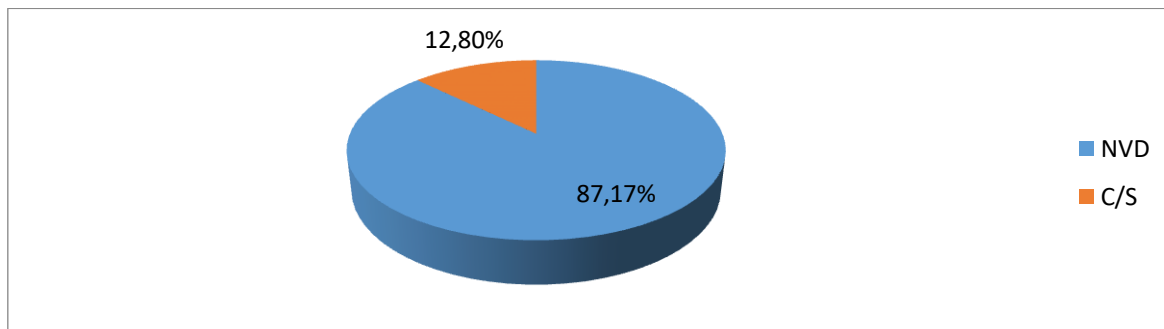
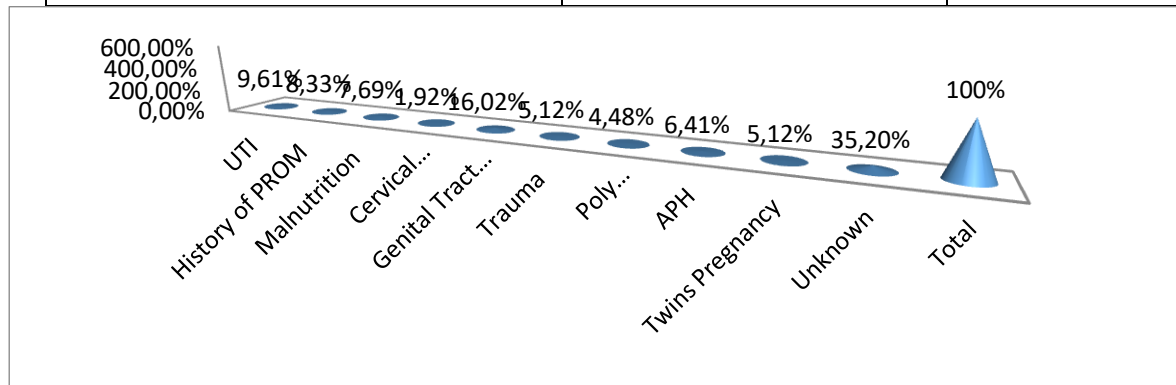


Table 5: Number and percentage of mothers with PROM according to etiology.

Risk factor of PROM	Number	Percentage
UTI	15	9,61%
History of PROM	13	8,33%
Malnutrition	12	7,69%
Cervical incompetency	3	1,92%
Genital tract infection	25	16,02%
Trauma	8	5,12%
Polyhydramnios's	7	4,41%
APH	10	6,41%
Twins	8	5,12%

Unknown	55	35,25%
Total	158	100%



Discussion:

Rupture of membranes before birth is risky for both mother and child, which is a major cause of disability and death of the mother and the fetus. In this study conducted in NUTH (23/9/2022-22/12/2022) we achieved such a result that in these three months, 3,637 patients were admitted to the hospital for delivery, among these patients 156 were suffering from PROM (4.28%). From this group, 60 women (38.46%) were primigravida and 96 women (61.53%) were multigravida.

According to gestational age, the number of mothers who were 25 weeks pregnant were 3 (1.92%), mothers who were 26 weeks pregnant were 1 (0.64%), mothers who were 30 weeks pregnant were 5 (3.205), there were 4 (2.56%) mothers who were 32 weeks pregnant, 2 (1.28%) were 34 weeks pregnant. Those who were 35 weeks pregnant were 10 (6.41%), those who were full-term were 131 (83.98%) of all PROM patients.

According to the type of birth 136 mothers (87.17%) were those who had normal births and 20 mothers (12.8%) were those who had C/S. Finally, in terms of causes, 15 mothers (9.61%) had UTI, 13 mothers (8.33%) had post history of PROM, 12 patients (7.69%) had malnutrition, 3 patients (1.925) had cervical insufficiency, 25 mothers (16.02%) were those who had genital tract infection, 8 patients (5.12%) had PROM due to trauma, 7 patients (4.48%) had polyhydramnios, 10 patients (6.41%) had APH, 8 (5.12%) patients had twin pregnancy and 55 (35.25%) patients who had PROM with unknown cause.

Table 6: Our study is somewhat different from other countries that is mentioned in table 6.



Patient don't have PRO	Patient with PROM	Total no of pat	Parameters
(95.71%)3481	156(4.28%)	3637	Our study
	19.53%	29143	China
(95.71%)3481	156(4.28%)	3637	Our study
	22.6%		Ethiopia
C/S	Normal vaginal delivery	PROM	
(12,8%)20	(87.17%)136	156	Our study
	66.57%	69	Egypt
Egypt	Our study		Risk factors
19.6%	(8.33%)13		Hx of PROM
(8.79%)6	(5.12%)8		Twins pregnancy
(23.2%)16	(16.02%)25		Infections
17.45%	(6.41%)10		APH
17.4%	(35.25%)55		Others

Suggestions:

1- As PROM causes major problems in both mothers and their fetus, it is necessary to all young doctors and health care workers to have enough information about the disease.

2- All health centers should have laboratory tests such as Hb, Rh factor, Blood group, Coombs test, Hct and ultrasonography facilities.

3- In all MCH centers, regular and accurate examinations should be carried out during the antenatal period, so that some infections or the conditions that causes PROM can be prevented.

4- By organizing seminars and workshops young doctors should be given information about PROM.

5- With the help of radio, television, internet sites, magazines and other news sources, all mothers should be informed to visit the clinic for prenatal check-ups and do all the necessary tests.

6- Health funding agencies are requested to increase the quantity and quality of laboratories in hospitals to carry out accurate and advanced tests.

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