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## Premature rupture of membranes before full pregnancy term

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### Abstract

**Introduction:** premature rupture of membranes before pregnancy full term is a rupture of the amnion and chorion occurring before 37 gestational weeks of and before the onset of labor.

**Objective:** study premature rupture of membranes before full term

**Patients and Method:** This was a prospective, descriptive study covering a period of seven (07) months, from December; 1<sup>st</sup> 2020 to June, 30<sup>th</sup> 2021 performed in N'Djamena Mother and Child University hospital (NMCUH). We included in this study all patients admitted for Preterm premature rupture of membranes (term less than 37 SA). Studied variables were: clinical epidemiology, prognosis, treatment.

**Results:** During the study period, we recorded 73 cases of premature rupture of membranes before full term among 2048 deliveries giving a frequency of 3.6%. Patients who came to us on their own represented 67.1%. Loss of amniotic fluid was the main reason for consultation in 95.9%. Patients with a gestational term of less than 34 weeks accounted for 68.5%. Patients were placed in the Trendelenburg position in 93.2%. Corticosteroid therapy was instituted in 75.3%. All patients had received antibiotic therapy. Tocolysis using nifedipine was carried out in 90.4% of patients. The decision to allow the pregnancy to progress was taken in 86.3% of pregnant women. Patients that have given birth prematurely represented 72.6%. Chorioamnionitis was the main complication before childbirth, reported in 13.7%. On the maternal side, one case of endometritis was noted (1.4%).

**Conclusion:** Premature rupture of membranes before full term is a frequent and serious complication of pregnancy, causing maternal and fetal complications.

**Keywords:** Premature rupture of membranes, before term NMCUH N'Djamena

### Introduction

Premature rupture of the membranes before full term is a rupture of the continuity between the amnion and chorion that occurs before 37 gestational weeks and before the onset of labor <sup>[1]</sup>.

Epidemiological data on its frequency varies. In France, the incidence is between 2% and 3% before 37 gestational weeks and less than 1% before 34 gestational weeks <sup>[2]</sup>. In Africa, Moroccan <sup>[3]</sup> and Malian <sup>[4]</sup> authors reported respectively frequencies of 0.37% and 1.72%.

Considering the etiology, several factors are incriminated, but infection remains the main cause <sup>[1]</sup>. The opening of the amniotic membrana is a situation likely to lead to both maternal and fetal complications <sup>[4, 5]</sup>. Premature rupture of the membranes before full term is more deleterious for the fetus, taking into account the association of infection and prematurity, which is legion <sup>[4]</sup>.

It is a major problem for the practitioner because of the fear of complications, which worst the fetal prognosis <sup>[4, 6]</sup>.

In Chad, premature rupture of membranes before full pregnancy term remains a frequent situation during pregnancy. No previous series has studied this subject, that is why we initiated this one aiming to study the management of Premature rupture of the membranes before full in N'Djamena Maternal and Child University Hospital.

### Patients and Method

This was a prospective, descriptive study covering a period of seven (07) months, from December, 1<sup>st</sup> 2020 to June, 30<sup>th</sup> 2021. Consent patients admitted to the gynecological-obstetric emergency department of N'Djamena Maternal and Child University Hospital for premature rupture of membranes before full pregnancy term were included (gestational term less than 37SA). Studied variables were: epidemiological, clinical, prognostic and therapeutic. Data were

entered using Word and analyzed using SPSS version 18.

## Results

### Frequency and age

During the study period, we recorded 73 cases of premature rupture of membranes before full pregnancy term out of 2048 deliveries, giving a frequency of 3.6%.

**Table 1:** Age group

Age (Year)	n	%
16 – 25	40	54.8
26 – 34	27	37
≥35	6	8.2
Total	73	100

The age group from 16 to 25 represented 54.8%. The average age was 26.43, ± 2,3 years with extremes of 16 and 41 years.

### Mode of admission and delay of consultation

In 67.1% patients were not referred.

Forty patients (54.8%) had had the delay consultation less than 6 hours after the rupture of membrana. The remaining had had the delay less than 12 hours (45.2%)

### Reason for consultation

Loss of amniotic fluid was the main reason for consultation with 95.9% (n=70) followed by bleeding with 4.1%.

### Term of pregnancy

Patients with pregnancy term less than 34 days accounted for

68.5%. The remainder had pregnancies term between 34 gestational weeks-and 36 gestational weeks + 6 days.

### Etiological factors

Urinary tract infection was the most common etiology with 26.3% (n=19), followed by hydramnios and twin pregnancy with respectively 11% and 6.8%.

### Temperature

Patients with a temperature between 37.5 and 38.5 represented 47.9%. Four patients (5.5%) had a temperature ≥ 38.6%.

Fetal status: one fetus died in utero.

The PH was alkaline in all cases.

### Management

All patients were hospitalized and placed in the Trendelenburg position in 93.2% (n=68)

### Corticosteroid therapy

Corticosteroid therapy was instituted in 75.3% of cases (n=55).

### Antibiotic therapy

All patients had received antibiotic therapy consisted essentially with ampicillin and metronidazole

### Tocolysis

Tocolysis using nifedipine was carried out in 90.4% of patients (n=66). The remainder (9.6%) received phloroglycinol.

### Obstetric decision

**Table 2:** Obstetrical decision

Obstetrical decision		n	%
Shorten the pregnancy from the outset		10	13.7
Allowing the pregnancy continuation	Continuation to term	10	13.7
	Premature delivery	53	72.6
Total		73	100

The decision to allow the pregnancy to progress was taken in 86.3% of pregnant women. Of these, 72.6% had given birth prematurely.

### Mode of delivery

Parturient have given birth vaginally in 91.8% (n=67) of cases.

### Complications

**Table 3:** Distribution of maternal complications before childbirth

Complications before child birth	n	%
Chorioamnionitis	10	13.7
Anamnios	1	1.4
No complication	62	84.9
Total	73	100

Chorioamnionitis was the main complication before childbirth, reported in 13.7% of cases.

### Complications after child birth

The main fetal complications were prematurity (72.6%), followed by perinatal mortality and neonatal infection (4.1% and 13.7% respectively).

On the maternal side, one case of endometritis was noted (1.4%).

### Discussion

During our study period, we recorded 2048 deliveries, including 73 cases of premature rupture of membranes before full pregnancy term, giving a frequency of 3.6%. This frequency is close to that reported by Rakotozanyb *et al.* [5] in Madagascar in 2019 (4%). This rate could be explained by the high frequency of urogenital infections in our country due to poor intimate hygiene among women.

Considering the infectious factor, we noted 26.3% of patients with urinary tract infection. This rate is lower than that of Rakotozanyb *et al.* [5] in 2019, who reported 47.1% of patients with urinary tract infections. This rate could be explained by the frequent attendance of pregnancy surveillance in the surrounding health center by the women this allows the use of antibiotic therapy during pregnancy which reduce the occurrence of urinary tract infections. In this study antibiotic therapy consisted with the ampicillin at a dose of 2g by venous route every 12 hours was systematic in all patients. In Mali in 2019, Mama [7] instituted ampicillin-based antibiotic prophylaxis at a dose of 1g every 8 hours by the venous route, followed by oral treatment in 58.7% of cases. Mercer [8] categorically demonstrated that systematic antibiotic therapy instituted as soon as premature membrana rupture is diagnosed lengthens the latency period before birth and reduces maternal-fetal infection. This can be explained by the fact that antibiotic prophylaxis reduces neonatal and maternal morbidity.

With regard to tocolysis, we prescribed nifedipine for 66 patients (90.4%). Tocolysis was indicated in 90.4% of patients. It is recommended by Rakotozonnanyb *et al.* [5] in Madagascar in 2019 in case of uterine contractions but no consensus has been established [9]. This could be explained by the fact that tocolysis is not systematic in all patients.

Considering the corticosteroid therapy, 75.3% of patients had received dexamethasone-based corticosteroid therapy at a dose of 6mg repeated 12 hours (For 24h) for pulmonary maturation. This rate is higher than Xiao *et al.* [10] who reported 75%. This high rate may be explained by the fact that corticosteroid therapy is indicated before 34 weeks' amenorrhoea.

Regarding the mode of the labor onset, we obtained 91.8% of spontaneous induction of labor. This result is higher than that of Keita [11] in Mali in 2000 who found 70% spontaneous induction of labor. This high rate of spontaneous induction of labor can be explained by the fact that premature membrana rupture leads to the release of prostaglandins from the amniotic fluid which act on the cervix (Ripening of the cervix), by stimulation due to endogenous prostaglandin E2 secretion, leading to the post-pituitary secretion of oxytocin via endogenous prostaglandins. The women went into labor spontaneously within 48 hours of the water breaking in 91.8% of cases.

We noted that 91.8% delivered by vagina and 8.0% by caesarean section. This result is close to the 91.1% found in Mali in 2016 [4]. Andriamady *et al.* [12] noted 20.9% of caesarean sections in their study. This can be explained by factors like: fetus presentation, uterus scared, parity and the quantity of amniotic water. Some situation don't allow the attempt of vagina delivery. With regard to complications before childbirth, we diagnosed 13.7% of chorioamnionitis. This rate of chorioamnionitis is lower than those reported by Monperrus *et al.* [13], who noted 24.7% of chorioamnionitis. This low rate in this study is linked with the systematic use of antibiotic. The strategy reduces the possibility of the occurrence of infection like chorioamnionitis.

In terms of fetal prognosis, prematurity accounted for 94.5% of cases. This result is higher than those of Jihad in Morocco in 2019 [14] and Ouattara *et al.* [15] in Burkina Faso in 2015 who found respectively 17.61% and 6.1%. This could be explained by the pregnancy term used in our study, whereas their study concerns premature membrana rupture in general.

In This study, 90.4% of patients had benefited from tocolysis. Thus, with a view to improving the neonatal prognosis in cases of preterm premature membrana rupture, corticosteroid therapy and antibiotic therapy are systematically indicated in our context. On the other hand, the use of tocolysis is controversial; it is recommended by kayan *et al.* [2] in France in the event of uterine contractions, but no consensus has been established [8]. In this study, the neonatal death rate was 4.1%, which is lower than the rate of 29.1% reported by Rakotozonnanyb *et al.* [5] in Madagascar in 2019. However, this rate is higher than the American data, which shows a neonatal mortality rate of 0.3% [16]. This rate is linked to the delay in screening and early diagnosis of infections. In this study, the maternal prognosis was generally favourable, as no deaths were recorded.

## Conclusion

Premature rupture of membranes before full pregnancy term is a frequent and serious complication of pregnancy, causing maternal and fetal complications. The main complications are prematurity and infection, which are associated with significant mortality and morbidity.

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There is no conflict of interest

All authors agree to the submission of this paper

All authors participated in the design of this paper

## References

1. Boukoub N. Outpatient management of premature rupture of the membranes: Experience of the gynaeco-obstetrics department. Marrakech: Faculty of Medicine and Pharmacy of Marrakech; c2017.
2. Kayen G, Schmittz T, Sentilhes I, Senat MV, Tessier V. Premature rupture before term. Recommendation for clinical practice drawn up by the French National College of Obstetricians and Gynaecologists. CNGOF. 2018;46(12):998-1003.
3. Mohamedi H. Premature rupture of membranes in the second trimester of pregnancy [thesis: med.]. Morocco: Faculty of Medicine and Pharmacy of Morocco; c2018.
4. Catt E, Paul C, Earn P. Preterm premature rupture of membranes: A comparison of inpatient and outpatient care. *Obstet Gynecol Can.* 2016, 1-8.
5. Rakotozonnany B, Rasoanandrianina BS, Rakotomalala NZ, Rakotonirina M, Ranaivosoa M, Randriambololona DMA, *et al.* Bacteriological profile and prognostic factors of premature rupture of membranes before 37 weeks of amenorrhoea in two maternity units in Antananarivo. *J Malg Gynecol Obstet.* 2019;10:2519-7290.
6. Morion L. Management of premature rupture of the membranes. *Rev Sage-Femme.* 2013;12:56-62.
7. Mama KS. Fetal-maternal prognosis of premature rupture of membranes [thesis: Med]. Bamako: University of Science, Technology and Engineering of Bamako; c2017.
8. Mercer BM. Is there a role for tocolytic therapy during conservative management of preterm premature rupture of the membranes? *Clin Obstet Gynecol.* 2007;50(2):487-96.
9. Muris C, Girard B, Cerfeuil C, Doring L, Herlicoviez M, Deyfus M. Management of premature rupture of the membranes before 25 days. *Eur J Gynaecol Obstet.* 2007;131:163-168.
10. Xiao ZH, Xing L, Fing Y. Outcome of premature infants delivered after prolonged premature rupture of membranes before 25 weeks of gestation. *Eur J Obstet Gynecol Reprod Biol.* 2000;90(1):67-71.
11. Kéita MA. Premature rupture of membranes: epidemiological, clinical and therapeutic aspects in the gynaecological-obstetric department of the reference health centre of commune V. [med thesis]. Bamako: University of Science, Technology and Engineering of Bamako; c2022.
12. Andriamady RCL, Rasamoelisoa JM, Ravaonarivo H, Ranjalaly RJ. Premature rupture of membranes seen at the Befelatanana Maternity Hospital, University Hospital of Antananarivo in 1998. *Arch Inst Pasteur Madagascar.* 1999;65(2):100-102.
13. Monperus M, Felib K. Premature rupture of membranes before term in Nice. *J Jourdain.* 2008;13:32-8.
14. Jihad B. Premature rupture of membranes in 408 cases [Thesis: Med]. Casablanca: Mohamed V Faculty of Medicine; c2019.
15. Ouattara A, Ouedraogo CMR, Ouedraogo A, Kain DP, Moukengue BP, Komboigo E, *et al.* Factors associated with preterm birth in urban Africa: about a case-control study at the Chu-Yo and the Saint Camille Medical Center in Ouagadougou. *Ann Soggo.* 2016;26(11):1-5.
16. Ancel PY, Mnhna BDA tghyiiiir epidemiology of premature

rupture of membranes. Risk factors and health consequences: maternal, neonatal and early childhood morbidity and mortality. J Gynecol Obstet Biol. 2009;56:607-12.

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