

Haemorrhages in the Last Trimester of Pregnancy: Epidemiological, Clinical, Therapeutic and Prognostic Aspects in a Level II Maternity Unit in Conakry (Guinea)

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Abstract

Introduction: The objective of this study was to contribute to the study of hemorrhages in the last trimester of pregnancy at the maternity ward of the Coyah Prefectural Hospital. **Methodology:** This was a prospective descriptive study lasting one (1) year from January 1, 2021 to December 31, 2021. **Results:** During this study period, 4151 deliveries were recorded, including 225 cases of third-trimester hemorrhage, or 5.42%. The epidemiological profile was that of a woman in the age group of 25 - 29 years from the rural area (82.67%), married (76.89%), not in school (73.78%) evacuated (63.56%). Retroplacental hematoma was the primary cause of these hemorrhages with 52% of cases. The mode of delivery was dominated by the upper route with a rate of 88%. Anemia (43.56%) followed by hemorrhagic shock (13.78%) were the most frequent maternal complications with maternal and fetal lethality which were 1.78% and 50.67%. **Conclusion:** Last trimester hemorrhage remains one of the main emergencies in obstetric practice. It represents a significant cause of maternal and fetal mortality in developing countries. Early, multidisciplinary management with close collaboration between obstetricians, pediatricians, anesthesiologists, intensive care specialists, and biologists would improve maternal-fetal prognosis.

Keywords

Pregnancy, Hemorrhage, Last Trimester, HRP, PP, RU, Management, Prognosis

1. Introduction

Obstetric hemorrhage in the last trimester of pregnancy corresponds to bleeding externalized by the vaginal route during the last trimester of pregnancy, from the 28th week of amenorrhea (WA). It constitutes an obstetric emergency with a risk of maternal and fetal morbidity and mortality [1] [2]. They occur in 2% to 5% of pregnancies [3]. The etiologies (placenta previa, retroplacental hematoma, uterine rupture, decidual hematoma and Benckiser hemorrhage) can be severe, endangering the life prognosis of the mother and child [1]. Medical management (oxygenation, macromolecule perfusion and blood transfusion) is essential whatever the etiology, for the restoration and maintenance of blood volume, associated with obstetric treatment [4]. In developed countries, maternal mortality linked to hemorrhage has become rare, even in severe forms, thanks to rapid and appropriate treatment. Thus:

In France, obstetric hemorrhage represented 1.9% of admissions to intensive care [5], with a rate of 16.3% of maternal deaths linked to antenatal hemorrhage [6]. In developing countries, more precisely in sub-Saharan countries where health coverage is insufficient [7], obstetric hemorrhage remains today the leading cause of maternal death with a rate of 24.5% [6]. Among them, that of the last trimester constitutes a daily concern in current practice encompassing a range of obstetric pathologies whose delay in management could be detrimental for the mother and the fetus [8]. Their sudden nature, the insufficiency and/or lack of prenatal monitoring, the delay and/or absence of diagnosis, the insufficiency or unavailability of resuscitation means (blood and blood products) give to the hemorrhages of the last trimester all their seriousness [9]. The frequency of hemorrhages in the last trimester of pregnancy varies from one country to another.

In Morocco, Izrar N [10] recorded a frequency of 0.65% of hemorrhage in the last trimester of pregnancy with maternal and fetal mortality rates of 1.81% and 20%.

In Tunisia, Adnaoui F [11] reported a rate of 2.69% of cases of hemorrhage in the last trimester of pregnancy.

In Mali, Haidara M *et al.* [12] reported in 2020 a rate of 2.69% of cases of obstetric hemorrhage.

In Guinea, a study carried out by Baldé AA [13] in 2020 at the Ignace DEEN National Hospital reported a frequency of 7.3% of hemorrhage in the last trimester of pregnancy with maternal and fetal lethality rates of 3.5% and 47.6%.

The seriousness of maternal and fetal complications linked to obstetric hemorrhages motivated the realization of this study, the objective of which was to contribute to the study of hemorrhages in the last trimester of pregnancy in the maternity ward of the Prefectural Hospital of Coyah.

2. Methodology

2.1. Type and Duration of Study

This was a prospective descriptive study lasting one (1) year, from January 1, 2021 to December 31, 2021.

2.2. Study Population

Our study focused on all pregnant women admitted for hemorrhage in the last trimester of pregnancy to the maternity ward of the Coyah Prefectural Hospital.

2.3. Selection Criteria

2.3.1. Inclusion Criteria

All pregnant women who experienced bleeding during the third trimester of pregnancy and who agreed to participate in the study were included in our study.

2.3.2. Non-Inclusion Criteria

Not all pregnant or parturient women who were admitted for haemorrhage in the last trimester of pregnancy and who did not agree to participate in the study were included in our work.

2.4. Sampling

We conducted an exhaustive recruitment of all pregnant women who met our selection criteria.

2.5. Collection Technique

The interview and clinical observations of the patients allowed us to collect the data necessary for the study using a survey form.

2.6. Analysis, Entry and Presentation of Data

Data entry and analysis were performed using Epi info software version 7.4.0. Quantitative variables were calculated as mean, standard deviation, and extreme. Qualitative variables were expressed as percentages.

The results were presented in text and table form using Microsoft Word, Excel and Power Point software from the Office 2016 Pack.

2.7. Ethical and Professional Consideration

After obtaining the free and informed consent of the patients, the information was used for purely scientific purposes with strict respect for anonymity and confidentiality.

3. Results

3.1. Frequency

During the study period, we recorded 225 cases of obstetric hemorrhage during the last trimester of pregnancy out of 4151 deliveries, *i.e.* a frequency of 5.42%.

3.2. Sociodemographic Characteristics

It was dominated by women in the 25 - 29 age group, housewives (78.67 %), from rural areas (82.67 %), married (76.89%) and uneducated (73.78%) (**Table 1**).

Table 1. Distribution of women according to sociodemographic characteristics.

Sociodemographic characteristics	Staff	Percentages
Age groups (years)		
≤19	23	10.22
20 - 24	49	21.78
25 - 29	69	30.67
30 - 34	59	26.22
≥35	25	11.11
Average age: 27.1 ± 5.9 years	Extremes: 15 and 40 years old	
Occupation		
Housewife	177	78.67
Liberal	11	4.89
Student	27	12.00
Employee	10	4.44
Marital status		
Bachelor	25	11.11
Bride	179	79.56
Divorcee	19	8.44
Widow	2	0.89
Educational level		
Not in school	166	73.78
Primary	28	12.44
Secondary	23	10.22
Superior	8	3.56
Origin		
Rural area	186	82.67
Urban area	39	17.33

3.3. Characteristics and Admission Method

The majority of patients were pauciparous (39.11%), evacuated (63.56 %) and with a full-term pregnancy (54.67 %). Retroplacental hematoma was the most recorded etiology (52%) (**Table 2** & **Table 3**).

Table 2. Distribution of patients according to obstetric characteristics and admission method.

Features	Staff	Percentage
Parity		
Primiparous	35	15.56

Continued

Pauciparous	88	39.11
Multiparous	73	32.44
Large multiparous woman	29	12.89
Admission mode		
Evacuated	143	63.56
Coming of her own accord	82	36.44
Gestational age		
28 - 32 weeks	68	30.22
33 - 36 weeks	34	15.11
37 - 42 weeks	123	54.67
Number of CPN		
0	24	10.67
1 - 3	167	74.23
4 and more	34	15.11
Etiologies		
HRP	117	52.00
PP	71	31.56
RU	37	16.44

Table 3. Distribution of patients according to clinical signs.

Clinical Signs	Causes			Total N = 225	
	HRP n = 117	PP n = 71	RU n = 37		
	Workforce %	Workforce %	Workforce %	Workforce %	
Abdominopelvic pain	109 93.16	41 57.75	35 94.59	185 82.22	
Pallor of the conjunctiva	78 66.67	31 43.66	25 67.57	134 59.56	
General condition	Good	45 38.46	44 61.97	12 32.43	101 44.89
	Bad	65 55.56	27 30.01	21 56.76	113 50.22
	Shock	7 5.98	0 0.0	4 10.81	11 4.89
Uterine contraction	77 65.81	48 67.61	2 5.41	127 56.44	

3.4. Diagnosis on Admission

Grade IIIa retroplacental hematoma (33.33%), placenta praevia (26.67%) and sub-peritoneal uterine rupture (11.11 %) (**Table 4**).

Table 4. Distribution of women according to diagnosis.

Diagnosis		Staff	Percentage
Retroplacental hematoma (HRP) n = 117 (52%)	HRP grade I of sheer	7	3.11
	HRP Grade II of sheer	33	14.67
	HRP Grade IIIa of sheer	75	33.33
	HRP Grade III b of sheer	2	0.89
Placenta previa (PP) n = 71 (31.56%)	PP covering	60	26.67
	Non-covering PP	11	4.89
Uterine rupture (UR) n = 37 (16.44%)	RU frank	12	5.33
	Subperitoneal RU	25	11.11
Total		225	100

Text 1: During our study, **84.89%** of patients did not benefit from obstetric ultrasound.

3.5. Support

Cesarean section was the most frequently performed delivery method (88%), and 43.56 % of patients received blood transfusion (**Table 5**).

Table 5. Distribution of women according to therapeutic attitude.

Therapeutic attitude	Causes			Total N = 225
	HRP n = 117	PP n = 71	RU n = 37	
	Workforce %	Workforce %	Workforce %	Workforce %
High road	10388.03	5881.69	37.100	198.88
Low way	1411.97	1318.30	0.00	27.12
Oxygen therapy	32.56	0 0	25.41	52.22
Hospitalization	97.69	1521.13	00.0	2410.67
Hemostasis hysterectomy	32.56	0 0.0	12.7	41.78
Blood transfusion	5446.15	1622.54	2875.68	9843.56

3.6. Maternal Complications

Anemia (43.56%) and hemorrhagic shock were the most frequent maternal complications in this series (13.78%) (**Table 6**).

Table 6. Distribution according to maternal complications.

Complications nursery schools	Causes			
	HRP n = 117	PP n = 71	RU n = 37	Total N = 225
	Workforce %	Workforce %	Workforce %	Workforce %
Hemorrhagic shock	1512.82	34.22	1335.14	3113.78
Anemia	5950.42	1723.94	2259.46	9843.56
CIVD	21.71	00.0	12.70	31.33
Bladder injury	00.0	00.0	1	10.44
Parietal suppuration	21.71	00.0	00.0	20.89

Text 2: During our study, we recorded 4 cases of maternal death out of a total of 225 cases of hemorrhage in the last trimester of pregnancy, *i.e.* a lethality of 1.78%.

3.7. Fetal Complications

They were dominated by stillbirth (50.67%) and 33.33% by acute fetal distress (Table 7).

Table 7. Fetal prognosis.

Prognosis fetal	Staff	Percentage
Alive GOOD carrying	36	16.00
Born with SFA	75	33.33
Stillborn	114	50.67
Total	225	100

4. Discussions

4.1. Frequency

The frequency found in our study (5.42%) is lower than that found by BALDE AA at the IGNACE DEEN national hospital in 2020 which reported 7.3% [13] of cases of hemorrhage in the last trimester of pregnancy, a rate higher than that of BARRY KM who reported in the same department 10 years ago 2.2% [14].

This high frequency could be explained by the fact that the Coyah prefectural hospital is a level II reference structure in our country's health pyramid.

These results also demonstrate that these hemorrhages are still current, despite the progress made in the field of maternal and child health.

4.2. Sociodemographic Aspects

1. Age

Concerning age, our result is comparable to those of HANS AR in Madagascar

and AIDA AM in Benin which reported a predominance of the 25 - 29 age group with respective frequencies of 29.54% [15] and 32% [16].

This result could be explained by the fact that this age group corresponds to the period of genital activity [17].

2. Marital status

The majority of patients were married (79.56%) in our study, a result identical to that of LANKOANDE M who found that more than half of the patients were married (67.2%) [18].

Marital status alone does not appear to explain the causes of hemorrhages [17].

3. Level of education

Unschooling women paid the heaviest price for all etiologies with a frequency of 73.78%. This result could be explained by the level of education of the Guinean population with 57% illiterate, including 69% of the female sex with a schooling rate of 31% against 55% for boys according to EDS Guinea 2018 [19]. This low rate of education among women could contribute to poor access to prenatal care, but also to poor adherence to treatment, and to a lack of awareness of danger signs which could lead to late consultation in a complicated state. This result is higher than that of Baldé AA at the IGNACE DEEN national hospital in 2020 which had reported 50.1% [13] of uneducated women in his series.

4. Profession

Housewives were the most represented in this series. The incidence of this socio-professional category could be linked to illiteracy and the effect of low socio-economic level as highlighted by RABARIKOTO HFF *et al.* in Madagascar [20].

5. Provenance

The patients from rural areas were more frequently represented (82.67%).

This result would be linked to the low socio-economic level and the insufficiency of adequate health structures with qualified human resources [21].

6. Mode of admission

Compared to the mode of admission, the evacuated patients were the most numerous (83.78%). In our study this frequency is close to that reported by SANOGO SD who found 73.4% [21]. This is due to the status of first reference of level II of the health pyramid of our country.

7. Parity

In our sample the pauciparous were the most represented, with a frequency of 39.11%. Our result is lower than that of SANOGO B which reported 53.7% [22] and higher than that of SANGARE D which reported a rate of 15.70% [23]. This observation could be explained by the fact that in our series, pauciparous women represent the most frequent parity layer.

4.3. Clinical Aspect

1. Gestational age

This is an important parameter from the maternal-fetal prognosis point of view. In our study, 54.67% of our patients bled between the 37th and 42nd weeks of

pregnancy. Our rate is lower than those of FANE M and DIAKITE R in Mali who found the same proportion (73%) in women who bled between 37 - 42 weeks and 35 - 42 weeks [24] [25]. On the other hand, our rate is comparable to that obtained by BALDE AA who found 56.6% [13] for the same gestational age group. This is explained by the fact that most of these metrorrhagia were triggered by uterine contractions at the end of pregnancy [26].

2. Prenatal consultation

Poor prenatal consultation is a factor predisposing pregnancy to hemorrhages in the last trimester of pregnancy.

Good prenatal monitoring makes it possible to identify risk factors for the occurrence of last trimester hemorrhages and sometimes even to identify placenta previa before the bleeding occurs.

In our series, 15.11% of pregnant women had 4 or more prenatal consultations, however, 10.67% did not have any prenatal consultations. Our result is lower than that of DIOP BD *et al.* in Senegal who reported that 29.5% of patients had 4 or more prenatal consultations [27]. This could be explained by the low level of education of women leading to a lack of awareness of the benefits of prenatal consultations. However, pregnancy monitoring is a primordial and indispensable element; apart from its role of screening and treatment of any illness associated with pregnancy, prenatal consultations must make it possible to detect certain risk factors that expose women to obstetric complications or that can worsen the prognosis [10].

3. Associated clinical signs

In the majority of cases, functional and physical signs allowed for the clinical diagnosis. Metrorrhagia, considered the main functional sign, was present in all patients. Most of these metrorrhagia were triggered by uterine contractions at the end of pregnancy.

Specifically, the most frequently found associated clinical sign was abdominopelvic pain in retroplacental hematoma (93.16%) and uterine rupture (94.59%).

4. Final diagnosis

The most frequently retained diagnosis was retroplacental hematoma (52%) followed by placenta previa (31.56%). Retroplacental hematoma was dominated by Sher grade IIIa (33.33%). Our result is comparable to that of Nisar S *et al* at the maternity ward of Skim Soura Hospital in India [28].

5. Ultrasound data

In third trimester hemorrhages, ultrasound has a dual diagnostic and prognostic interest.

The achievement rate in our study (15%) is comparable to that of BALDE A.A. who reported 16% in his medical doctoral thesis [13].

Unfortunately, in our developing countries, performing ultrasound is very difficult due to the lack of equipment and the average cost of an obstetric ultrasound, which is around 100,000 GNF (10 US dollars), while 50% of Guineans live below the minimum poverty line with a national income per capita of less than 1 US

dollar per day [29].

4.4. Etiology

1. Retroplacental hematoma:

In our series, HRP occupies the first place among the different causes of hemorrhage in the last trimester of pregnancy with 52.00%. The same results have been reported by different African authors: COULIBALY Y in Mali (50%) [30], DIOP BD *et al.* in Senegal (62.66%) [27] and FANE M. in Mali (43.2%) [24]. On the other hand, these rates are higher than those of SEPOU A. *et al.* in Central Africa and MANUELA GM in France who reported 20.3% [30] and 41% [31] respectively.

These relatively significant differences can be explained by the existence of early prevention of this pathology, often secondary to vascular-renal syndromes, namely the search for and management of its main risk factors during prenatal monitoring [32].

2. Placenta previa (PP):

It represents the second cause in our series with a proportion of 31.56%. This result is different from those of MBONGO J A. *et al.* and LANKOANDE M who had reported that Placenta Praevia was the first cause of hemorrhages in the last trimester of pregnancy with respective frequencies of 56.1% [4] and 42.6% [19].

3. Uterine rupture:

It occupies the third place in our study with a frequency of 16.44%, which is clearly lower than those of SANOGO SD in Mali and LANKOANDE M in Burkina Faso with respective frequencies of 24.6% [21] and 26.6% [18], but largely higher than that of MBONGO J A. in Brazzaville (5.1%) [4]. The lowest frequency was observed in France with 0.7 to 3.5% [33].

This difference could be explained by the fact that uterine rupture has become rare if not exceptional in highly medicalized countries, whereas it is still a current issue in our country where health coverage is still insufficient on the one hand, and on the other hand, multiparity, dystocic labor in these parturients and unfavorable socio-economic status which are risk factors associated with uterine rupture.

4.5. Therapeutic Aspects

1. Mode of delivery

Childbirth is a crucial moment in the management of third trimester hemorrhages. Cesarean section was the most commonly adopted therapeutic approach in our series, with a frequency of 88%. Our rate is higher than those of AIDA AM and KAREMBERY PC *et al.* who reported 46% [16] and 60.3% [34] of cesarean sections respectively.

This high frequency of cesarean sections is not surprising since the main etiologies of these hemorrhages are the cause of cesarean sections. The seriousness of obstetric complications was the real reason for this high cesarean section rate.

2. Medical treatment

It was based essentially on resuscitation (oxygen therapy, macromolecule infusion and blood transfusion) and symptomatic treatment (analgesics, antihypertensives) also antibiotic therapy. In our series 43.56% of our parturients were transfused. Our rate is higher than that of COULIBALY Y who reported 34.2% of cases [30].

4.6. Prognostic Aspect

A. Maternal prognosis: The maternal prognosis being linked both to the cause and severity of the hemorrhage as well as to its duration of evolution, it is all the more improved when the diagnosis is early with rapid and effective management [24].

1. Morbidity: in our study the most frequently encountered maternal complications were anemia (43.56%) followed by hemorrhagic shock (13.78%). Result contrary to that of KAREMBERY PC [34] who reported in his study that infection (23.3%), coagulopathy (18.2%) and hypovolemic shock (18.2%) were the most frequently occurring complications.

2. Maternal mortality: The problem of maternal mortality arises mainly in developing countries. Ignorance, illiteracy and poverty are the main contributing and aggravating factors [14].

In our series, we recorded 4 cases of maternal death, representing a lethality of 1.78% for all etiologies. Our case fatality rate is lower than that of DIOP BD *et al.* in Senegal who reported 4.9% [27].

B. Perinatal prognosis: it remains poor, despite considerable progress in the field of resuscitation, the care of premature babies and the caesarean technique [19]. The severity of this prognosis could be explained by the seriousness of the hemorrhages and the weakness of the technical platform for the care of newborns.

Haemorrhages in the last trimester of pregnancy remain very fetical. The proportion of stillbirths recorded in our sample was higher than that of TRAORE O *et al.* who found 21.9% [35].

This very high mortality rate is mainly linked to the delay in treatment but also to the etiology and the weakness of the technical platform for the treatment of newborns.

Limitations: The limitations of this study may lie in the fact that these results cannot be extrapolated to the national scale, because our study site is a level II structure of the country with difficult access to ultrasound and a lack of specialist physicians in anesthesia, intensive care and neonatology.

5. Conclusions

Haemorrhages in the last trimester of pregnancy were very common in the department. This is a serious and dreaded accident, especially since it is unpredictable and represents a significant cause of maternal morbidity and mortality in the absence of rapid and adequate treatment. The epidemiological profile was that of

a young married woman, uneducated, housewife from the rural area, evacuated. Among the various causes of these haemorrhages, retro-placental haematoma remains the most severe cause.

Cesarean section was performed in the majority of cases. Anemia followed by hemorrhagic shock were the main maternal complications; hence there is the need for accurate and rapid diagnosis, early, multidisciplinary management and close collaboration between obstetrician, pediatrician, anesthesiologist, intensive care specialist and biologist, to improve maternal-fetal prognosis. Reducing maternal mortality would require the availability of blood products, a central barometer for management in our context.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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