

# Hemorrhages in the First Trimester of Pregnancy: Etiological Aspect and Management at the Maternity Ward of the Ignace Deen National Hospital of the University Hospital of Conakry

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**How to cite this paper:** Diallo, F.B., Bah, E.M., Keita, M., Barry, M.S., Balde, A.A., Balde, M.D., Balde, I.S. and Sy, T. (2022) Hemorrhages in the First Trimester of Pregnancy: Etiological Aspect and Management at the Maternity Ward of the Ignace Deen National Hospital of the University Hospital of Conakry. *Open Journal of Obstetrics and Gynecology*, 12, 719-730.

<https://doi.org/10.4236/ojog.2022.128063>

**Received:** June 30, 2022

**Accepted:** August 9, 2022

**Published:** August 12, 2022

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## Abstract

**Aims:** Hemorrhages in the first trimester of pregnancy constitute a public health problem in developing countries with maternal mortality which is still very high. This is the most common reason for consultation in early pregnancy. The objectives of this study were to describe the sociodemographic characteristics of the patients, identify the etiologies, describe the management and evaluate the maternal prognosis in patients presenting with hemorrhage in the first trimester of pregnancy. **Methods:** This was a descriptive-type prospective study lasting 12 months from January 1 to December 31, 2020, carried out at the maternity ward of Ignace Deen National Hospital. **Results:** During the study period, we recorded 163 cases of hemorrhage in the first trimester of pregnancy out of 5478 deliveries, *i.e.* a frequency of 2.97%. The main incriminated etiologies were spontaneous abortion (46.62%), ectopic pregnancy (28.22%), hydatidiform mole (16.56%), threatened abortion (5.52%) and pregnancy stopped (3.06%). The socio-demographic profile of the patients was that of a woman in the age group of 26 - 30 years (33.12%), married (79.14%), with secondary level (35.58%), exercising a liberal profession (36.19%) and nulliparous (60.12%). More than half of the patients came directly from home (57.66%) with metrorrhagia (44.78%) and abdominal pain (33.12%) as reasons for consultation. The gestational age between 7-11SA was more represented (82.82%). Manual intrauterine aspiration (58.89%) and salpingectomy (28.22%) were the most practiced therapeutic procedures. We transfused 10.42% of patients and 20.85% received medical treatment. The

maternal prognosis was good in 47.87%. The main complications recorded were anemia (38.65%) and the state of shock (10.42%). **Conclusion:** Hemorrhages in the first trimester of pregnancy represent an important cause of maternal morbidity in developing countries. The improvement of the maternal prognosis would pass by the early consultation in front of any case of pregnancy.

### Keywords

Pregnancy, First Trimester Hemorrhage, Etiologies, Management, Ignace Deen, Guinea

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## 1. Introduction

First trimester metrorrhagia is the most common reason for consultation in early pregnancy. They create uncertainty as to its evolution [1].

They are present in 25% of pregnancies [2] [3] [4]. Among them, 50% of these pregnancies progress to term [5] and 50% will end in spontaneous abortion, which corresponds to about one in six pregnancies [2] [3]. Among these pregnancies that evolve, we observe a perinatal mortality rate multiplied by 1.3 to 5 and a prematurity rate multiplied by 1.2 to 2.3. These are therefore high-risk pregnancies [5].

Any pregnancy that bleeds in the first trimester is an ectopic pregnancy (EUG) until proven otherwise. In addition to this cause, the other etiologies are spontaneous miscarriage in the first trimester, threatened miscarriage in the first trimester, cervical pathologies and more rarely a hydatidiform mole [6].

The risk factors for this metrorrhagia are maternal age, primiparity, history of metrorrhagia in the first trimester, threat of premature delivery, premature rupture of membranes (RPM), placental abruption and perinatal mortality [7] [8]. Socio-economic level, medically assisted procreation (MAP), smoking and body mass index (BMI) could also be risk factors for bleeding and pregnancy complications [8].

The diagnosis is based on the clinic, the biology with the quantitative assay of the  $\beta$  component of the plasma chorionic gonadotropin hormone ( $\beta$  HCG) and on pelvic ultrasound, preferably endovaginally [5]. Management depends above all on the hemodynamic impact and the etiological diagnosis [5].

In sub-Saharan Africa, maternal mortality is still very high, largely due to hemorrhages during the perinatal period [1]. Various studies show an incidence of metrorrhagia in the first trimester of pregnancy ranging from 21% to 27% [3]. In Western publications, the frequency of first trimester metrorrhagia varies between 11% and 35% [9] [10] [11]. In France, they concern 25% of women according to Benoist G in 2011 [12]. In Africa, respective frequencies of 2.96 and 4% have been reported in the Democratic Republic of Congo and Côte d'Ivoire [1] [13]. In Guinea, there are no recent data on this subject, yet they constitute a

major public health problem in our countries and deserve special attention from health personnel. Pregnancy is considered a premonitory sign of happiness in the home; its hemorrhagic form may turn this dream into a nightmare.

The high frequency of hemorrhage in the first trimester of pregnancy, the impact of the latter on maternal prognosis and the lack of recent data on this topic motivated the realization of this study. Thus, we set ourselves the following objectives: to determine the frequency of hemorrhages in the first trimester of pregnancy, to describe the socio-demographic characteristics of the patients, to identify the causes and contributing factors, to describe the management and to evaluate the maternal prognosis.

## 2. Patients and Methods

This was a descriptive-type prospective study lasting twelve (12) months from January 1, 2019 to December 31, 2020. Carried out at the maternity ward of the Ignace Deen National Hospital, CHU of Conakry, on continues series of 163 cases of hemorrhage in the first trimester of pregnancy. The study population consisted of all pregnant women admitted to the maternity ward of the Ignace DEEN National Hospital for hemorrhage in the first trimester of pregnancy during the study period. Were included in the study, all pregnant women admitted for a genital hemorrhage with a gestational age less than or equal to 15 WA and who agreed to participate in the study. Gestational age was determined from the date of the last menstrual period or from an early ultrasound.

We're not included in the study all pregnant women admitted for a genital hemorrhage whose gestational age is greater than 15 WA and those who did not agree to participate in the study. The sampling was exhaustive. The variables studied were sociodemographic (age, marital status, level of education, profession and parity), clinical (mode of admission, reasons for evacuation, surgical history, history of miscarriage, gestational age, probable etiologies of spontaneous abortion, location of ectopic pregnancy, functional signs, ultrasound data and definitive diagnosis), therapeutic (medical, obstetrical and surgical) and prognostic. The data were collected prospectively from data from clinical observations, direct interview of patients and verification of consultation books and consultation registers. These data were recorded in an electronic form, on a smart-phone using the KoboCollect v1.25.1 application. The data was analyzed using the Epi info software in its version 7.2. Tables and word processing were performed on Excel and Word 2016 software and compared to literature data. The research protocol was approved by the national ethics committee with informed consent.

## 3. Results

### 3.1. Frequency

During the study period, we recorded 163 cases of hemorrhage in the first trimester of pregnancy out of 5478 consultations, *i.e.* a frequency of 2.97%.

The main etiologies responsible for bleeding in the first trimester of pregnancy were spontaneous abortion 76 (46.62%), ectopic pregnancy 46 (28.22%), hydatiform mole 27 (16.56%), threat of abortion 9 (5.52%) and pregnancy stopped 5 (3.06%).

### 3.2. Sociodemographic Characteristics

The socio-demographic characteristics of the patients were dominated by women whose age is between 26 - 30 years (33.12%), married (79.14%), with secondary school education (35.58%), exercising a liberal profession (36.19%) and nulliparous (60.12%) (**Table 1**).

**Table 1.** Socio-demographic characteristics.

Socio-demographic characteristics	Effectives	Percentages
<b>Age</b>		
≤20	22	13.49
21 - 25	40	24.53
<b>26 - 30</b>	<b>54</b>	<b>33.12</b>
31 - 35	22	13.49
>35	25	15.33
<b>Extremes: 16 and 45 years old</b>		<b>Average: 27.64 years ± 6.9</b>
<b>Profession</b>		
Pupil/student	32	19.63
<b>Liberal</b>	<b>59</b>	<b>36.19</b>
Housewife	49	30.06
Employee	23	14.11
<b>Educational level</b>		
No schooling	48	29.44
Primary	24	14.72
<b>Secondary</b>	<b>58</b>	<b>35.58</b>
Superior	33	20.24
<b>Marital status</b>		
<b>Married</b>	<b>129</b>	<b>79.14</b>
Single	34	20.85
<b>Parity</b>		
<b>Nulliparous</b>	<b>98</b>	<b>60.12</b>
Primiparous	14	8.58
Pauciparous	33	20.24
Multipara	18	11.04

### 3.3. Clinical Aspect

More than half of the patients (57.66%) came directly from their homes against 42.33% who were evacuated. In our series, metrorrhagia (44.78%), abdominal pain (33.12%) and dizziness (15.95%) were the main reasons for evacuation. The majority of patients had no history (71.77%) against 28.22% of patients who presented a surgical history which is represented by appendectomy (18.40%), myomectomy (6.13%), caesarean section (2.45%) and salpingectomy (1.22%). In our sample 22.69% of patients had a history of miscarriage, whether spontaneous or induced. Most of the patients bled between 7 and 11 weeks of amenorrhea with a respective proportion of 82.82%. Urogenital infection was the most frequently found probable cause 47 (61.84%). The other causes were represented by malaria 17 (22.36%), uterine myoma 8 (10.52%), and trauma 4 (5.26%). In our series, the majority of ectopic pregnancies were located at the ampulla level with 38 (82.60%), followed by that located at the isthmic and interstitial level with respective proportions of 5 (10.86%) and 3 (6.52%). The most frequently found sign was abdominopelvic pain with 54 (33.12%). Metrorrhagia considered the main functional sign was present in most patients. More than 7 out of 10 patients had benefited from an obstetrical ultrasound on admission (72.39%). The most frequently retained diagnosis was spontaneous abortion at 46.62% followed by ectopic pregnancy at 28.22% (**Table 2**).

**Table 2.** Clinical characteristics of patients.

Clinical characteristics of patients	Effectives	Percentages
<b>Mode of admission</b>		
<b>Evacuated</b>	<b>69</b>	<b>42.33</b>
Came from home	94	57.66
<b>Reasons for evacuation</b>		
<b>Abdominal pain</b>	<b>54</b>	<b>33.12</b>
<b>Métrorrhagia</b>	<b>73</b>	<b>44.78</b>
Vertigo	26	15.95
Physical asthenia	13	7.97
Hustle	3	1.84
Loss of consciousness	5	3.06
<b>Surgical history</b>		
<b>None</b>	<b>117</b>	<b>71.77</b>
Appendectomy	30	18.40
Myomectomy	10	6.13
Caesarean section	4	2.45
Salpingectomy	2	1.22
<b>History of miscarriage</b>		
<b>Yes</b>	<b>37</b>	<b>22.69</b>
Nope	126	77.30

**Continued**

<b>Probable etiology of spontaneous abortion</b>		
Malaria	17	22.36
Myoma	8	10.52
<b>Urogenital infection</b>	<b>47</b>	<b>61.84</b>
Trauma	4	5.26
<b>Localization of ectopic pregnancies</b>		
Isthmic	5	10.86
<b>Ampulla</b>	<b>38</b>	<b>82.60</b>
Interstitial	3	6.52
<b>Gestational age</b>		
≤ 6 WA	20	12.26
<b>7 - 11 WA</b>	<b>135</b>	<b>82.82</b>
12 - 15 WA	8	4.90
<b>Obstetric ultrasound</b>		
<b>Yes</b>	<b>118</b>	<b>72.39</b>
Nope	45	27.60
<b>Frequent diagnostic</b>		
<b>Spontaneous abortion</b>	<b>76</b>	<b>46.62</b>
Ectopic pregnancy	46	28.22
Hydatiform mole	27	16.56
Threat of abortion	9	14.28
Stopped pregnancy	5	3.06

**3.4. Management**

In our series, 20.85% of patients had received medical treatment based on progesterone for threatened abortion, anti-anemic, anti-D serum for rhesus-negative women. Antibiotic therapy was systematic and 10.42% of patients had received a blood transfusion for severe anemia after laparotomy for a ruptured GEU. Regarding the management of spontaneous abortions, the hydatidiform mole and the pregnancy stopped; manual intrauterine aspiration was performed in 58.89% of patients and a cleansing was done in a proportion of 4.90%. All cases of EUG benefited from surgical treatment by laparotomy during which a salpingectomy was performed. A preventive hysterectomy was performed in 4 (14.82%) patients who had presented with a gestational trophoblastic tumor and 66.66% of the patients had benefited from post molar monitoring with the quantitative determination of the level of  $\beta$ HCG plasma.

**3.5. Prognosis**

Maternal morbidity was 52.13% in our sample. Anemia was the most common

complication at 38.65% followed by state of shock at 10.42%. The maternal prognosis was good in 47.87%. We did not record any maternal deaths in our study.

## 4. Discussion

### 4.1. Frequency

Our frequency of 2.97% is significantly lower than that reported in the literature which varies from 11% to 35% [9] [10] [14]. This difference would be related on the one hand to a low attendance of cases of hemorrhage of the first trimester of pregnancy in the emergency room of the maternity of the national hospital Ignace Deen apart from extreme emergencies where the vital prognosis is engaged and on the other Apart from under-reporting, some patients are seen in doctors' offices and discharged directly with their prescription. In our context, patients only consult when the situation is serious, whereas in the West, the slightest vaginal bleeding during pregnancy pushes patients to urgently consult a health facility.

### 4.2. Etiologies

Spontaneous abortion is the leading cause of first trimester bleeding (46.62%) in our study. Our rate is lower than that of Birindwa E K who reported 65.7% miscarriage at the Kamenge University Hospital in Bujumbura [1]. This rate is higher than those of Cisse CT and al. in Senegal and Kamga D V T in Cameroon who had reported respective frequencies of 16% and 24.2% of abortions [15] [16].

Regarding ectopic pregnancy, we recorded 46 cases out of 5478 deliveries, *i.e.* a rate of 0.84%. This frequency is lower than that of Sy T, which reported 1.47% ectopic pregnancy in the same department in 2009 [17]. The reduction in our frequency would be explained by the improvement in the management of sexually transmitted infections (STIs) and genital infections; the result of sensitizing women to follow an adequate treatment in case of STIs and also their prevention.

In our series, the hydatiform mole represented 0.49%. Our frequency is identical to that of Boufettal H and al. reporting a frequency of 0.4 per 1000 pregnancies of partial hydatiform moles in Morocco [18]. Our result would be explained by the low socioeconomic level of the patients, with bad climatic conditions and living in an agricultural environment.

The threat of abortion ranked fourth among the various causes of hemorrhage in the first trimester of pregnancy in our series, *i.e.* a frequency of 5.52%. A finding different to ours with a very high frequency (29.60%) was reported in Mali in the study by Dembele WD in 2021 [19]. This disparity could be explained by the fact that in our series, most cases of threatened abortion are received and managed in the various consultation offices without being notified.

Regarding arrested pregnancies, our rate (3.06%) is significantly lower than that of Dembele WD reporting 13.90% of arrested pregnancies in Mali [19]. Our

frequency would be due to the under-notification of indications for manual intra-uterine aspiration (AMIU) and cases of the onset of arrested pregnancies by misoprostol, some of which could have a gestational age less than or equal to 15 WA.

### 4.3. Sociodemographic Characteristics

Hemorrhages in the first trimester of pregnancy occur at any age. Pregnant women in the 26 - 30 age group were the most affected overall with 33.12%. Result identical to that of Birindwa E K and al. who had found a high frequency for the same age group [1]. Women with a liberal profession were the most affected (36.19%). The achievement of this socio-professional category could be linked to illiteracy and the effect of the low socio-economic level. Women who had a secondary level paid the heaviest price for all etiologies with an average of 35.58%. On the other hand, in Cécile's study, more than half of the patients had a higher level [20]. Our result could be explained by the level of education of the Guinean population with 57% illiterate, 69% of whom are female with an enrollment rate of 31% against 55% among boys according to EDS Guinea 2018 [21]. The majority of patients were married (79.14%) in our series. In Cécile's study, those who lived in concubinage were the most frequent (46.0%) [20]. This high frequency of married women in our sample could be explained by socio-cultural and religious reasons in our society that do not allow procreation outside the marital home. Hemorrhage in the first trimester of pregnancy appears as a pregnancy pathology that spares no parity. More than half of the patients were nulliparous (60.12%). A different result to ours was reported by France with a frequency of 40.1% in pauciparous [20].

### 4.4. Clinical Aspect

Regarding the mode of admission 42.33% of patients were evacuated in our series. Bahij Y had found the same results with 42.9% [22]. Our result can be explained by the fact that our service is the only level 3 reference center receiving all obstetric emergencies from level 2 health structures in the city of Conakry and those of neighboring prefectures, since the closure of the sister maternity of Donka for renovation reasons.

Regarding the reasons for evacuation, our results corroborate those of Nayama M in Niger who reports in his study that 100% of patients had pelvic pain and 80.4% metrorrhagia. More than 10% of patients were in a state of shock on admission, an alarming and dramatic situation described by many African authors [23], hence the importance of sensitizing patients and medical staff to the early diagnosis of pregnancy and the importance of prompt management in the event of symptoms suggestive of a complication.

In our series 22.69% of patients had a history of miscarriage. This result can be superimposed on the 25.3% reported in Senegal by Cisse CT and al [15]. However in the same department in 2009 Sy Telly and al. reported a higher frequency of induced abortion (41.1%) compared to spontaneous abortion [17].



The gestational age group from 7 to 11SA was the most represented in our sample with a proportion of 82.82%. Indeed, this is the period during which the maternal-fetal circulation is established, but also a period of organogenesis when the pregnancy is particularly sensitive to aggressions and therefore, they are more likely to bleed. Our results are close to those found by some authors [1] [20] [22].

The functional and physical signs made it possible in the majority of cases to make the clinical diagnosis. Metrorrhagia associated with abdominopelvic pain was the most frequent clinical signs. Bahij Y in his study found the same results [22].

In our sample 72.39% of patients had benefited from an obstetric ultrasound. This result is clearly superior to that of Cisse CT and al. who reported a frequency of ultrasound examinations of 59.7% in their study of abortions in the first trimester of pregnancy [15]. Ultrasound is an adjunctive exploration for confirmation of the diagnosis and decision-making for optimal care in the face of any case of first trimester hemorrhage. Ultrasound showed 33.81% incomplete abortion, 21.60% ectopic pregnancy and 18.76% hydatiform mole. This result can be superimposed on that of Nayama M and al. who recorded in their study 16.9% of ectopic pregnancy diagnosed on ultrasound [23]. Of the 27 cases of hydatiform mole, 26 were diagnosed on ultrasound, *i.e.* a proportion of 96.29%. Rate higher than that of Boufettal H in Morocco who had reported 87.05% of hydatiform mole diagnosed on ultrasound [18].

Ampullary localization of ectopic pregnancy was the most common (82.60%) in our series. This observation is similar to data from the literature [17] [24].

The most frequently retained diagnosis was spontaneous abortion (46.62%) followed by ectopic pregnancy (28.22%). Our result corroborates with that of Birindwa E K at the University Hospital of Kamenge in Burundi [1].

With regard to care, in our series 20.85% of patients had received medical treatment based on progesterone, anti-anemic, anti-D serum with antibiotic therapy which was systematic and 10.42% of patients had benefited from a blood transfusion for severe anemia after a laparotomy for a ruptured ectopic pregnancy.

Regarding the management of spontaneous abortions, hydatidiform moles and terminated pregnancies, manual intrauterine aspiration (MVA) was performed in more than half of the patients (58.89%). Our result corroborates that of Cisse C T and al in Senegal [15]. MVA is an effective and safe method; complications related to the procedure are rarely reported in the literature, whether they are hemorrhages, uterine perforation or cervical trauma [25]. It is therefore a method suitable for developing countries because it improves access to post abortion care. On the other hand, in Tsuela study, all molar pregnancies benefited from uterine evacuation by curettage under an infusion of 5% glucose solution containing 50 IU of oxytocin and monitoring of the regression of the plasma  $\beta$  HCG level was established [26]. A preventive hysterectomy was performed in 4 (14.82%) patients who had presented a gestational trophoblastic tumor and 66.66% of the pa-

tients had benefited from post molar monitoring with quantitative determination of the plasma  $\beta$ HCG level in our series.

All cases of ectopic pregnancy benefited from surgical treatment by laparotomy during which a salpingectomy was performed. Our result was superimposable to those reported by Sy T and al. in the same department in 2009 [17]. The high rate of radical treatment in our series was due to the late consultation of patients at the hemoperitoneum stage, making tubal plastic surgery difficult. For Murray in Canada, medical treatment and conservative laparoscopic surgery are the best management methods for ectopic pregnancy [27]. Despite the high cost of installing an endoscopy unit, the laparoscopic approach is currently the gold standard for the treatment of ectopic pregnancy [28].

Regarding the threat of spontaneous miscarriage (FCS) according to Beucher G and al. there is no proven effective treatment for the threat of FCS. Rest, sexual abstinence and the prescription of progesterone have not proven to be beneficial [25].

#### 4.5. Prognosis

The anemic complications and state of shock found in our series are less important than those reported by Sy T and al. in the same department in 2009 [17]. No deaths were recorded in our study.

### 5. Conclusion

Hemorrhages in the first trimester of pregnancy constitute a public health problem in developing countries with a frequency of 2.97% of consultations in the service. The main etiologies encountered were spontaneous abortion, GEU and hydatidiform mole. Anemia and state of shock were the most frequent complications. Improving the maternal prognosis of patients who bleed in the first trimester of pregnancy would require early consultation, rapid diagnosis with adequate care and the availability of blood products and derivatives.

### Conflicts of Interest

The authors declare that they have no conflict of interest.

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