

## Sonography in the Etiological Assessment of Hemorrhages during the 1st Trimester of Pregnancy at the Fertilia Medical Clinic in Bamako

Mamadou Dembélé<sup>1,3\*</sup>, Alassane Kouma<sup>1</sup>, Mamadou N'diaye<sup>1</sup>, Zoumana Cheick Berete<sup>2</sup>, Souleymane Sanogo<sup>1</sup>, Ousmane Traoré<sup>1</sup>, Issa Cissé<sup>1</sup>, Bandiougou Doucouré<sup>3</sup>, Youssouf Yalcouyé<sup>3</sup>, Adama Diaman Keita<sup>1</sup>, Siaka Sidibe<sup>1</sup>

<sup>1</sup>Faculty of Medicine and Odonto-Stomatology of Bamako (FMOS), Bamako, Mali

<sup>2</sup>Department of Education and Research in Public Health (DERSP), Bamako, Mali

<sup>3</sup>Fertilia Medical Clinic

DOI: [10.36347/sjmcr.2023.v11i09.015](https://doi.org/10.36347/sjmcr.2023.v11i09.015)

Received: 03.08.2023 | Accepted: 05.09.2023 | Published: 09.09.2023

\*Corresponding author: Mamadou Dembélé

Faculty of Medicine and Odonto-Stomatology of Bamako (FMOS), Bamako, Mali

### Abstract

### Original Research Article

**Background:** Haemorrhage in the 1st trimester of pregnancy is bleeding occurring in pregnant women before 15 weeks of amenorrhea (SA). About 25% of pregnancies bleed in the first trimester and nearly half end in a birth pit. The objective of our study was to study the sonographic etiologies of hemorrhage in the 1st trimester of pregnancy. **Subjects and Methods:** This was a cross-sectional and prospective, multicenter 24-month study, carried out between January 2018 and January 2020, which involved 379 pregnant women who were between 07 and 14 weeks of amenorrhea (SA) and who presented with haemorrhage. The data collected were obtained from the ultrasound reports and a series of questions asked either of the patient or her companions. Data were entered and analyzed on SPSS version 26.0. **Results:** In our study, we performed 10,890 ultrasounds, of which 379 women had bleeding during the 1st trimester of pregnancy, i.e. 3.48%. The average age was 26 years with extremes ranging from 17 to 44 years. 202 patients or 53.3% were between 20 and 30 years old. 121 patients or 32% were multi gestures. 100 patients or 26.4% were pauciparous. The clinical information prompting an ultrasound was abdominal pain + metrorrhagia in 269 cases (71%). The sonographic etiologies were trophoblastic detachments with (45%); threatened abortion (27%), ectopic pregnancy (08.50%), pregnancy stopped (05.5%), clear egg (09%), mole (1.2%), retained placenta (2.2%), no cause (1.6%). **Conclusion:** Ultrasound is an examination of choice in the etiological diagnosis of first trimester metrorrhagia by the precision of embryonic vitality, the intra or extra uterine nature of pregnancy, the complete or incomplete nature of an abortion or molar pregnancy. It was invaluable for the etiological assessment of bleeding in the first trimester of pregnancy and allowed adequate management.

**Keywords:** Ultrasound, Hemorrhage, First Trimester, Pregnancy.

Copyright © 2023 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY-NC 4.0) which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

## INTRODUCTION

First trimester bleeding is bleeding of genital origin occurring in a pregnant patient before 15 weeks of amenorrhea (WoA). They are a frequent reason for consultation in gynecology and obstetrics departments. They are relatively common since they affect one in four women in early pregnancy. For a majority of people, the very idea of bleeding during this period means the end of the pregnancy. However, this fatal outcome only occurs in 50% of cases [1]. This therefore means that one in two women who have bled, and a fortiori one in seven pregnant women, will see their pregnancy prolonged. This will then be marked by anxieties and concerns from the first weeks and at every moment until birth.

In a woman in period of genital activity, the first cause of bleeding is the pathology of the first trimester of pregnancy. Pregnancy is sometimes ignored however, it will be necessary to systematically evoke it in front of abnormal periods, the sympathetic signs of pregnancy and to have recourse to the slightest doubt to additional examinations (ultrasound or dosage of BHCG).

It is estimated that 20-30% of all early pregnancies result in metrorrhagia [2]. During the first pregnancy 15% of women have a miscarriage between 5-8 Week of Amenorrhea [3]. One in four pregnancies bleeds. On 25% of pregnancies that bleed; there are 13% ongoing pregnancies, 11% terminated pregnancies, 1% extra uterine pregnancy (EUP), 0.1% molar pregnancy [4].

Indeed, in the 1993 INSERM survey conducted by Bouvier et Coll. in France [5], out of 11 maternal deaths from obstetric hemorrhage, two were due to a cataclysmic rupture of an EP. This pathology has grown significantly over the past decade due to the resurgence of postpartum and postabortion infections and the frequent use of infertility treatment.

Hydatidiform mole or trophoblastic disease, related to ethnicity, is very common in Asia. In Japan the frequency of moles is 2/1000 pregnancies while in Europe and North America the frequency was only 0.6 to 1.1/1000 pregnancies [6], with a risk of degeneration of about 1/15000 pregnancies in western countries.

If in industrialized countries the incidence of trophoblastic disease has decreased significantly, the countries of southern Asia, Africa especially south of the Sahara continue to record a high rate of this pathology. Clandestine abortions represent a major public health problem in developing countries, responsible for 40 to 50% of suspicious deaths of young women [7]. In Gabon, the frequency of haemorrhages in the first trimester of pregnancy was 14.10% in 1989 [8].

In Mali, the frequency of first trimester hemorrhage at the CHU Gabriel Touré was 8.62% in 2010[9]. The pathologies of the first trimester are dominated by abortions, terminated pregnancies, extra uterine pregnancy and molar pregnancy. But the most common cause of first trimester breakthrough bleeding remains implantation bleeding [10]. Ultrasound is now the most widely used and best-suited complementary mode of exploration for the etiological diagnosis of first-trimester metrorrhagia [10].

Our study aimed to describe the sonographic etiologies of hemorrhage in the first trimester of pregnancy in several centers in Bamako. Few multicenter studies concerning these haemorrhages have been carried

out in Bamako, which justifies our study, which aimed to describe the sonographic etiologies of haemorrhages in the first trimester of pregnancy in several centers in Bamako.

## SUBJECTS AND METHODS

This was a cross-sectional and prospective, multicenter 24-month study, carried out between January 2018 and January 2020, which involved 379 pregnant women who were between 07 and 14 weeks of amenorrhea (SA) and who presented with haemorrhage. The data collected was obtained from the ultrasound reports and a series of questions asked either of the patient or her companions. Data were entered and analyzed on SPSS version 26.0.

**Exploration Techniques:** We used different types of ultrasound machines such as Voluson E8, Logic9 and Vivid3.

**Data Processing and Analysis:** The data collected on the technical sheets were entered and analyzed using SPSS 26.0 software.

## RESULTS

In our study, we performed 10,890 ultrasounds, of which 379 women had bleeding during the 1st trimester of pregnancy, i.e. 3.48%. The average age was 26 years with extremes ranging from 17 to 44 years. 202 patients or 48% were between 20 and 30 years old. 233 patients or 61.48% were multi gestures. 239 patients or 63.06% were pauciparous. The clinical information prompting an ultrasound was abdominal pain + metrorrhagia in 269 cases (71%). The sonographic etiologies were trophoblastic detachments with (45%); threatened abortion (27%), ectopic pregnancy (08.50%), pregnancy stopped (05.5%), clear egg (09%), mole (1.2%), retained placenta (2.2%), no cause (1.6%).

**Table I: Distribution of Patients According to Age Group**

AGE GROUP (YEARS)	NUMBER	PERCENTAGE
17– 19	101	26.65%
20 – 30	202	53.30%
31 – 40	69	18.20%
>40	07	01.84%
TOTAL	379	100%

The 20-30 age group was the most represented with 53.30%. Average age = 26 years  $\pm$ 5.5 years, Median age is 28 years, Extreme ages are 17 and 44 years old.

**Table II: Distribution of Patients According to Gesture**

GESTURE	NUMBER	PERCENTAGE
FIRST GESTURE	88	23.21%
*PAUCI GESTURE	25	06.60%
**MULTI GESTURE	233	61.48%
***GREAT MULTI GESTURE	33	08.71%
TOTAL	379	100%

\*Pauci gesture: at least one pregnancy. \*\*Multi gesture: at least three pregnancies. \*\*\*Great multi gesture: at least five pregnancies.

No link was found between multiple pregnancy and the occurrence of hemorrhage ( $p=1$ ).

**Table III: Distribution of Patients by Number of Deliveries**

NUMBER OF DELIVERIES	NUMBER	PERCENTAGE
NULLIPAROUS	47	12.00%
PRIMIPAROUS	44	11.61%
PAUCIPAROUS	239	63.06%
MULTIPAROUS	25	06.60%
GREAT MULTIPAROUS	24	06.33%
TOTAL	379	100%

The pauci pares were the most likely to have a first trimester hemorrhage with 63.06%. The link

between pauciparity and the occurrence of bleeding was not proven ( $p=1$ ).

**Table IV: Distribution of Patients According to Etiology on Ultrasound**

DIAGNOSIS	NUMBER	PERCENTAGE
TROPHOBLASTIC DETACHMENT	171	45.00%
THREAT OF ABORTION	102	26.91%
CLEAR EGG	34	08.97%
ECTOPIC PREGNANCY	32	08.44%
TERMINATED PREGNANCY	21	05.54%
PLACENTAL RETENTION	08	02.11%
HYDATIFORM MOLE	04	01.05%
NO ETIOLOGY	07	01.84%
TOTAL	379	100%

Trophoblastic detachment was the most represented etiology with 45%.

## DISCUSSION

### 1. Frequency

In our study, we performed 10,890 ultrasounds, of which 379 women had bleeding during the 1st trimester of pregnancy, i.e. 3.48%. This frequency is respectively lower than that of Traoré O. *et al.*, [11], which was 6.58%, that of Gakou M [12] who found 04.78%. This frequency would be much higher if the night duty was provided with ultrasound.

### 2. Age

The most affected age group was 20 to 30 years old with 61.48%. This age group corresponds to the optimal period of fertility. This score is lower than that of Mokoko G. *et al.*, [13], who found 84% among 25-30 year olds in his series but higher than that of Balayira M [14], who found 40.86% among 20-29 year olds.

### 3. Gesture

61.48% of our respondents were multi-gestures but no correlation was established between multi-gestures and the occurrence of first-trimester hemorrhage ( $p=1$ ). Cecile Larrieu-Sans [15], found that first trimester hemorrhage was much more common in women with multiple pregnancies with 62.7%. The same observation was made by Leroy B. *et al.*, [16], and Wood F [17]. In their studies with 61.33% and 60.14% respectively.

### 4. Parity

The pauci pares represented 63.06% of our sample. Although no relationship was found between parity and 1st trimester hemorrhage, Coulibaly N, SACKO K. and KHOULALI K [18-20], found more pauci pares with 1st trimester hemorrhage. They respectively found 60.7%, 57.75% and 49.25%

### 5. Etiology:

Ultrasound has been invaluable in etiological research.

#### 5.1. Trophoblastic Detachments

With 45%, they occupy the first place of the causes of hemorrhage in the first trimester of pregnancy in our study series. NLOME NZE AR and COL. [8], Traoré O. [11], V. BOCO, J. [21], found opposite results. In their studies, it is rather the threat of abortion that was representative with more than 22% of cases.

#### 5.2. Threat of Abortion

It is, along with trophoblastic detachments, one of the most frequent causes of haemorrhage in the 1st trimester of pregnancy. It occupies the second cause of the hemorrhages of the 1st trimester in our series with 26.91%. Our study reveals an abortion threat rate of 26.91%. CAMARA L. [22], found 17.66%.

#### 5.3. Clear Egg

It is generally the witness of a chromosomal aberration, most often triploidy. We found 34 or 08.97%. Camara L. [22], found 08.15% egg clear in his study. Traore O. *et al.*, [11], found 7.82% of clear egg cases in 2022. Advanced age, i.e. over 35 years, favors the occurrence of clear egg cases according to Suresh K [23].

#### 5.4. Ectopic Pregnancies

Our study reported 32 cases or 08.44%. This score is comparable to those of Belley Priso E. *et al.*, [9], who found 08.51% and Paspulati RM [24], with 09.82%. They are more and more numerous because of the use of certain contraceptives and the recurrence of salpingitis.

#### 5.5. Hydatiform Mole

We found 01.05% of cases of molar pregnancy. Adjidei O [25], in Abidjan found a much higher score with 08.45%, similarly Correa P Diadhio F, Diop P, M, Chignara P.A and Cherbonnel G.M [26], found 07.45% in Dakar. Although it is one of the main causes of bleeding in the 1st trimester of pregnancy, it was extremely rare in our study. It is important to note that to a lesser extent (01.84%) no ultrasound cause was found for the bleeding.

## CONCLUSION

Ultrasound occupies a primordial place in the etiological diagnosis of first trimester bleeding because it makes it possible to diagnose pregnancy, specify its intra or extra uterine nature, judge vitality, trophoblastic integrity, complete or incomplete an abortion and finally it eliminates any other cause of bleeding that is not related to the pregnancy itself. It is important to note that despite the precision of the ultrasound and the dexterity of the sonographers, we found no cause for some bleeding, i.e. 01.84%

**Declaration of Conflict of Interest:** The authors declare that they have no conflict of interest.

## BIBLIOGRAPHIC REFERENCES

- Salama, S., Fuchs, F., Donnadiou, A-C., Frydman, R. Metrorrhagia in the first trimester of pregnancy. [Accessed 2022-06-09]. Available from URL: <http://www.scribd.com/doc/49609510/Out-2>.
- Michel, B., Dominique, D. (1995). Haemorrhage in the first trimester of pregnancy, diagnostic orientation and treatment. *Review of the practitioner (Paris)* 45,875P.
- Keita, M. (2006). Epidemio-clinical and therapeutic aspects of ectopic pregnancies at the reference health center of the commune IV of Bamako, Med thesis, 258.
- Lansac, J. P., Lecomte. Diagnosis and action to be taken in the face of a bleeding pregnancy in the first trimester, gynecology for the practitioner 4th ed, P 240.
- Bouvier, M. h., Hatton, F. (1994). Measurement of maternal mortality, Difficulty and evolution over twenty years. In: Bouvier – coll. MH, vatnoux N, Breat Geds, maternal deaths in France, Analyzes et prospectives paris: *Inserm*, 7-22.
- Traore, A. M. (2001). Contribution to the study of haemorrhages in the first trimester of pregnancy in the obstetrics gynecology department CHU Gabriel Toure: About 350 cases. *Med thesis*. N014
- Meirik, O. (1981). Ectopic pregnancy during 1961–78 in Uppsala County, Sweden: impact of demographic factors on overall incidence. *Acta Obstetricia et Gynecologica Scandinavica*, 60(6), 545-548.
- Nlomé-Nzé, A. R., Picaud, A., Mbadinga, A., Ogowet, N., & Engongah-Beka, T. (1991). Clandestine Abortions at Libreville: Real Public Health Problem. *Black Africa Medicine*, 38, 223-227.
- Diakite, M. K. (2020). Contribution of ultrasound in the etiological diagnosis of haemorrhages in the first trimester of pregnancy at the Nianankoro Fomba hospital in Ségou about 109 cases, Medical thesis, Bamako.
- Belley Priso, E., Moifo, B., Zeh, O. F., Nana Njamien, T., Foumane, P., Nguemgue, C., ... & Mboudou, E. (2010). Apport de l'échographie en urgence dans la prise en charge des métrorragies du premier trimestre de la grossesse. *J Afr Imag Med*, 3(3), 187-196.
- Traore, O. Echographic aspects of the etiologies of haemorrhage in the first trimester of pregnancy in Bamako.
- Gakou, M. (2019). Obstetrical emergencies at the Cs ref of commune V about 300 cases. Medicine thesis. Bamako.
- Mokoko, G. (1985). Spontaneous abortions: socio-psychological aspect. Thesis Med Dakar.
- Balayira, M. (1991). Spontaneous abortions descriptive study about 150 cases collected at the Gabriel Toure Hospital in Bamako, *Thesis Med*, N°6.
- Cecile, Larrieu-Sans. (2011). Metrorrhagia in the first trimester of pregnancy: Obstetrical and neonatal complications, midwifery end-of-cycle memory.
- Leroy, B. (2020). Metrorrhagia of the first trimester of pregnancy: Place of imaging, Thesis, Nantes.
- Wood Fancy. (2021). Metrorrhagia in the first trimester of pregnancy, risk factors, 110p, London.
- Coulibaly, N. Study of haemorrhages in the first trimester of pregnancy in the gynecology and obstetrics department of the reference health center of commune V in the district of Bamako about 336 cases, Medical thesis, Bamako 2006 no. M219.
- Sacko, K. (2010). Molar pregnancy in the gynecology-obstetrics department of the CHU GABRIEL TOURE from 2003-2007, Medical thesis, Bamako, n° M123.
- Khoulali, K. (2013). Hydatidiform mole in the Gynecology-Obstetrics Department. Mohammed VI University Hospital. Marrakech Thesis N° X/.
- Boco, V., Akpovi, J., Takpara, I., Latoundji, M. C., Lantokpode, J. C., & Perrin, R. (1997). Interest of Ultrasound in Metrorrhagia of the First Trimester Pregnancy. *Medicine d'Afrique Noire*, 44, 97-100.
- Camara, L. (2008). Contribution to the management of haemorrhages in the 1st trimester of pregnancy at

- the reference health center of the commune IV of Bamako. *Medicine thesis*. 171.
23. Suresh, K. (2018). First Trimester Haemorrhage of Pregnancy: *Ultrasound Appearance in Bombay*, 115p.
  24. Paspulati, R. M., Bhatt, S., & Nour, S. (2004). Sonographic evaluation of first-trimester bleeding. *Radiologic Clinics*, 42(2), 297-314.
  25. Adjidei, O. (1971). Hydatidiform mole in Ivory Coast about 70 observations. PhD thesis Abidjan, 24.
  26. Correa, P. D. F., Diop, P. M., Chignara, P. A & Cherbonnel, G. M. (1974). Clinical aspect of trophoblastic tumor in Dakar. *Bull, soc Afr-Lang-franc*, 19.