

## Contribution of Ultrasound in the Management of Haemorrhages in the Third Trimester of Pregnancy at the Kalabancoro Reference Health Center, Mali 2023

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### Abstract

**Introduction:** Haemorrhages in the third trimester of pregnancy are nowadays a frequent situation that can jeopardize the maternal-fetal prognosis. Given its scale and degree of seriousness, this work was initiated to assess the contribution of ultrasound in its management. **Material and Methods:** This was a descriptive cross-sectional study with retrospective data collection which took place at the Kalabancoro Reference Health Center from May 1, 2022 to October 31, 2022. Its objective was to study the contribution of ultrasound in the management of haemorrhage in the third trimester of pregnancy. **Results:** During the study, 154 cases of haemorrhage in the third part of pregnancy out of 2,546 pregnancies were recorded, representing a frequency of 3.4%. The average age of the patients was  $27 \pm 3.5$  years with extremes of 16 and 38 years. Married women were the most represented with 84.4%. Out-of-school women were the most represented, accounting for 63.6% of cases. Multiparous women were the most represented with 39.6% cases. Arterial hypertension was the most common medical history, i.e. 66.6%. Bleeding during pregnancy was the most frequent reason for consultation with 87.6%. Retroplacental hematoma was the predominant etiology, i.e. 67.5%. In utero fetal death was found in 54.5% of cases. **Conclusion:** The contribution of ultrasound was very important in the therapeutic decision-making. Emergency caesarean section was performed in 66.7% of cases.

**Keywords:** Haemorrhage in the third trimester of pregnancy, ultrasound, management, Kalabancoro, Mali.

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### INTRODUCTION

The birth of a child is an event celebrated in a family. In Africa, and particularly in Mali, the stability

of a household depends on children. However, for thousands of women around the world, this birth is a personal hell that can cost them their lives [1].

Haemorrhages in the 3<sup>rd</sup> trimester of pregnancy are nowadays a frequent situation that can jeopardize the maternal-fetal prognosis. According to RIVIERE, pregnancy and childbirth have been a mortal risk since the beginning of time [2]. While the risk is reduced in developed countries, it remains high in developing countries where health coverage is inadequate.

According to WHO statistics, about 525,000 women die per year worldwide during pregnancy, childbirth or postpartum, leaving behind 1,000,000 orphans [1].

In developing countries, this mortality is even higher, reaching 15 to 20 times the number of deaths recorded in developed countries. This mortality is unevenly distributed between the north and the south: 1,020 per 100,000 live births in West Africa, while it is 2 per 100,000 live births in developed countries [3].

Thus, in France, third-trimester haemorrhages, along with immediate postpartum hemorrhages, were the leading cause of maternal death with a rate of 17% and, for the same period, in the United Kingdom and the United States, the 4<sup>th</sup> leading cause of death with a rate of 5% [4].

In developed countries, even though maternal mortality has been divided by a hundred during the 20th century, it has stagnated at 10 deaths per 100,000 births since the 1980 [4].

The incidence of hemorrhages in the third trimester of pregnancy varies from 3% to 5% in developed countries: in France, as well as AYOUBI in 2000 [5].

In London, a study carried out by DEREK in 1981 found a rate ranging from 3 to 6% [6]. In Africa, SEPOU found a significantly higher rate in Central Africa, 6.25%, while in Benin AKPOVI noted a rate of less than 2.42% [7]. In Mali, at the Gabriel Touré hospital, a study done by F Kané in 2021 found 67 cases of hemorrhages in the third trimester of pregnancy out of a total of 2,568 deliveries, which represents 2.6% of deliveries. The same author finds that hemorrhages in the third trimester of pregnancy represent 18.7% of the causes of maternal death with maternal and fetal fatality

rates of 4.54% and 5.57% respectively. In 2009 at the Sominé Dolo Hospital in Mopti, they represented the 2<sup>nd</sup> cause of maternal death after eclampsia, and the first cause in 2008 with postpartum hemorrhages [8].

In Mali, according to EDSM-VI, in 2018, more than 10000 women aged 15-49 were surveyed and the maternal mortality ratio is estimated at 325 maternal deaths per 100,000 live births [9].

Faced with the extent and degree of severity of hemorrhages in the 3<sup>rd</sup> trimester of pregnancy, we initiated a study whose objective was to study the contribution of ultrasound in the management of hemorrhage in the third trimester of pregnancy.

## MATERIALS AND METHODS

This was a descriptive cross-sectional study with retrospective data collection at the Kalaban-Coro Reference Health Center over a period from May 1<sup>st</sup> 2022 to October 31, 2022, either a period of 6 months.

It concerned all pregnant women received in the ultrasound room for haemorrhage from the uterine cavity during the third trimester of pregnancy.

All pregnant women in the 3<sup>rd</sup> trimester of pregnancy who received an ultrasound room and who did not have hemorrhage from the uterine cavity during the study period were excluded from the study.

Data collection was carried out from operative report registers, ultrasound reports and patient records.

Data entry and processing were carried out using Microsoft Word and Excel 2016.

## RESULTS

### Frequency:

During the study period, 154 cases of haemorrhage in the 3<sup>rd</sup> trimester of pregnancy were recorded at the Kalaban Coro Reference Health Center on 2,546 pregnant women, a frequency of 6.04%.

### Socio-demographic data:

- Age:

**Table I: Distribution of patients by age group**

Age range	Number	Percentage %
< 19 years old	20	13
19 -24 years old	23	15
25- 29 years old	33	21,4
30- 34 years old	26	16,8
<b>&gt; 34 years old</b>	<b>52</b>	<b>33,8</b>
Total	154	100

The age group over 34 years old was the most represented with 33.8% of cases.

The mean age was 27 ± 3.5 years with extremes of 16 and 38 years.

- **Profession:**

**Table II: Distribution of patients by profession.**

Profession	Number	Percentage %
<b>Housewife</b>	<b>114</b>	<b>74</b>
Merchant	15	9,8
Student	11	7,1
Dressmaker	10	6,5
Teacher	4	2,6
Total	154	100

Housewives were the most represented with 74% of women.

- **Educational status:**

**Table III: Distribution of patients by school status**

School status	Number	Percentage %
<b>Not in school</b>	<b>98</b>	<b>63,6</b>
Educated	56	36,4
Total	154	100

In our study, about 63.6% of the cases were women who were out of school.

**Clinical data:**

- **Reason for Consultation:**

**Table IV: Distribution of patients by reason for consultation**

Reason for consultation	Number	Percentage %
<b>Bleeding during pregnancy</b>	<b>135</b>	<b>87,6</b>
Contractions/bleeding	19	12,4
Total	154	100

Bleeding during pregnancy was the most common reason, accounting for 87.6% of cases.

- **Parity:**

**Table V: Distribution of patients according to parity**

Parity	Number	Percentage %
Nulliparous	20	13
Primiparous	12	7,8
Pauci parries	45	29,2
<b>Multiparous</b>	<b>61</b>	<b>39,6</b>
Large multiparous	16	10,4
Total	154	100

Multiparous women were the most represented with 39.6% of cases.

- **Medical History:**

**Table VI: Distribution of patients according to medical history**

Medical History	Number (n=51)	Percentage %
<b>High Blood Pressure</b>	<b>34</b>	<b>66,6</b>
Diabetes	8	15,6
Sickle-cell anemia	8	15,6
Toxoplasmosis	1	2,2
Total	51	100

The majority of patients were hypertensive (66.6 %).

- **Surgical history**

**Table VII: Distribution of patients according to surgical history**

Surgical history	Number (n=30)	Percentage %
Caesarean section	22	73,3
Myomectomy	8	26,7
Total	30	100

Caesarean section was the most common surgical history, accounting for 73.3% of cases.

**Ultrasound data:**

- **Etiology of haemorrhage on ultrasound:**

**Table VIII: Distribution of patients according to the etiology of the haemorrhage on ultrasound**

Etiology of bleeding	Number	Percentage %
Retroplacental hematoma	104	67,5
Placenta Previa	39	25,3
Uterine rupture	11	7,2
Total	154	100

The most common etiology of haemorrhage was retroplacental hematoma, 67.5%.

- **Type of placenta previa on ultrasound:**

**Table IX: Distribution of patients by type of placenta previa on ultrasound**

Placenta previa	Number (n= 39)	Percentage %
Total Coverage	19	48,7
Partial Covering	6	15,4
Marginal	9	23,1
Lateral	5	12,8
Total	39	100

The total covering placenta previa was the most common type, accounting for 48.7% of cases.

- **Fetal vitality on ultrasound in case of retroplacental hematoma:**

**Table X: Distribution of patients according to fetal vitality in the case of retroplacental hematoma**

Fetal vitality	Number	Percentage %
This	70	67,3
Absent	34	28,7
Total	104	100

Fetal vitality on ultrasound in the case of retroplacental hematoma was the most represented grade II among the 104 cases of retroplacental hematoma found, i.e. 67.3%.

**Pickup**

- **The route of delivery:**

**Table XI: Distribution of patients by route of delivery**

Route of delivery	Number	Percentage %
Caesarean section	124	80,5
Bass	30	19,5
Total	154	100

Caesarean section was the most common route of delivery, accounting for 80.5% of cases.

- **Immediate caesarean section after the ultrasound**

**Table XII: Distribution of patients according to the immediate performance of the caesarean section after the ultrasound (emergency caesarean section)**

Emergency caesarean section	Number	Percentage %
Yes	60	66,7
No	94	33,3
Total	154	100

Caesarean section was performed immediately after ultrasound in 66.7% of cases.

- **The type of intervention for uterine rupture.**

**Table XIII: Distribution of patients according to the type of intervention for uterine rupture**

Surgical management	Number (n=11)	Percentage %
Hysterorrhaphy	7	63,7
Hysterectomy	4	36,3
Total	11	100

Hysterorrhaphy was the most common type of intervention for uterine rupture, accounting for 63.7% of cases.

- **Blood transfusion:**

**Table XIV: Distribution of patients according to the performance of the blood transfusion**

Transfusion	Number	Percentage %
No	89	57,8
Yes	65	42,2
Total	154	100

Non-transfused patients were the most represented at 57.8%.

- **Fetal Prognosis**

**Table XV: Distribution of patients according to fetal prognosis**

Fetal prognosis	Number	Percentage %
Stillborn	84	54,5
Born alive	70	45,5
Total	154	100

We recorded 84 cases of death in utero, i.e. 54.5%.

- **Maternal complications:**

**Table XVI: Distribution of patients according to complications**

Complications	Number (n=72)	Percentage %
Severe anemia	65	90,2
Help syndrome	3	4,3
Deceased	4	5,5
Total	72	100

Severe anemia was the most common complication with 65 cases or 90.2%.

**Maternal prognosis:**

During the study, 4 cases of maternal deaths were recorded:

- 2 cases following uterine rupture.
- 2 cases related to SHER grade III retroplacental hematoma.

**DISCUSSION****Frequency**

During our study period, we collected 154 cases of hemorrhage in the 3<sup>rd</sup> trimester of pregnancy on 2,546 pregnant women seen in 06 months during the 3<sup>rd</sup> trimester, i.e. a frequency of 6.04%. This result is lower than those of Sanogo DS in 2012 in Mali and Sanogo B in 2010 in Mali, which reported a frequency of 6.33% and 7.5% [10, 11].

On the other hand, this result is higher than those of KAREMBERY PC in 2008 in Mali and Dembélé K in Mali in 2009, which reported a frequency of 3.21% and 2.47% [12, 13].

**Socio-demographic data**

**Age:** The mean age was  $27 \pm 3.5$  years with extremes of 16 and 38 years. This average age is similar to that of Sanogo DS in 2012 in Mali, Dembélé K in 2009 in Mali and KEÏTA I in 2008 in Mali, which found 28 years,  $26.72 \pm 7.8$  years and  $28 \text{ years} \pm 8.2$  years [10, 13, 14].

**Occupation:** Housewives were the most common occupation with a proportion of 74%. This rate is lower than that of Sanogo DS in 2012 in Mali and KEÏTA I in 2008 in Mali, which found 79.8% and 91.6% [10, 14].

**School Status:** In our study, 63.6% of women were out of school. This rate is higher than that of M Haidara *et al.*, who found that out-of-school patients accounted for 54.4% [15].

**Clinical data**

**Reason for consultation:** Bleeding during pregnancy was the most common, i.e. 87.6% of cases. This rate is

higher than that of Sanogo DS in 2012 in Mali, which found 62.8% [10].

**Parity:** Multiparous women were the most represented with 39.6% of cases. Sanogo DS in 2012 in Mali, Karembry PC in 2008 in Mali and M Haidara *et al.*, found that multiparous, pauci parous and multiparous were the most represented (32%, 40.3% and 58.8% [10, 12, 15].

#### Ultrasound Data

**Retroplacental hematoma:** The retroplacental hematoma with 104 cases out of 154 or 67.5%, was the most predominant etiology, of which 67.3% of cases were SHER grade II and 28.7% SHER grade III. This rate is higher than those of M Haidara *et al.*, and Sanogo B in 2010 in Mali, which reported 50% and 32% [15, 11].

**Placenta previa:** It was the second most common bleeding in the third trimester of pregnancy in our series with 25.3% of cases. This rate is higher than that of Dembélé K in 2009 in Mali, which found 21% [11]. On the other hand, this rate is lower than those of Sanogo DS, KEÏTA I and M Haidara *et al.*, in Mali which had found 42.6%; 30.1% and 48.2% [10, 14, 15].

**Uterine rupture:** Uterine rupture, which has almost disappeared in studies in well-medicalized countries, is still present in developing countries. In our study, it was 7.2%. This rate is higher than that of Mr. Haidara who found 1.8%.

On the other hand, this rate is lower than those of Sanogo DS in 2012 in Mali and Dembélé K in Mali, which found 26.6% and 12% [10, 13].

#### Pickup

##### Route of delivery:

Childbirth is a crucial moment in the management of 3rd trimester hemorrhages. Faced with this obstetric emergency, the attitude of our department was to perform caesarean section to save the mother and the child. Caesarean section was performed in 80.5% of cases. This rate is higher than those of Karembry PC in Mali, which found 60.4% of cases.

Caesarean section was performed immediately after ultrasound in 66.7% of cases. This rate is lower than that of Mr. Haidara who found 93.4%. This difference can be explained by the etiological contexts in the two studies.

**Blood transfusion:** in our study, 42.2% of parturients were transfused and the number of units of blood (500ml blood bag) varied from 1 to 06. This rate is higher than that of Sanogo B in 2010 in Mali and Karembry PC in 2008 in Mali, which found 11.76% and 10.4% of parturients transfused.

#### Prognosis

**Fetal prognosis:** We recorded 84 cases of stillbirth, i.e. 54.5%. This rate is higher than that of Keita I in 2008 in Mali, which found 47%. On the other hand, this rate is lower than that of Dembélé K in 2009 in Mali, which found 58.8%.

#### Maternal prognosis:

The maternal prognosis is linked to the cause, severity and duration of the haemorrhage. This prognosis is all the better when the diagnosis has been early, and the treatment is quick and effective. Maternal mortality remains a problem of concern in developing countries.

Faced with the high maternal mortality, the high authorities of Mali have taken certain measures such as the establishment of the referral system – evacuation, the creation of the mini blood bank and the free caesarean section.

There were four (04) cases of maternal deaths, a rate of 2.59%.

- 2 cases related to uterine rupture.
- 2 cases of retroplacental hematoma grade III of SHER.

This rate is lower than that of Karembry PC in 2008 in Mali, which found a maternal death rate of 18.2%.

## CONCLUSION

This study showed that bleeding is a significant part of obstetric complications during the third trimester of pregnancy. The most predominant etiology was retroplacental hematoma with a rate of 67.5%.

The contribution of ultrasound was very important in the therapeutic decision-making. Emergency caesarean section was performed in 66.7% of cases.

#### Authors' Contribution.

All authors participated either in the patient's care or in the writing of the manuscript. They all approved the final version of the manuscript.

**Conflict of Interest:** None

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