



MISCARRIAGE IN A TERTIARY HEALTH CENTRE IN NORTHERN NIGERIA: A REVIEW OF PROFILE, CAUSES AND OUTCOME

1Dr. Ahmed Yakubu, *2Dr. Garba Jamila Abubakar, 3Prof. Panti Abubakar Abubakar, 4Dr. Nasir Asma'u Muhammad, 5Prof. Tunau Karima Abubakar and 6Dr. Ibrahim Rukayya

1FWACS, Department of Obstetrics and Gynaecology, Usmanu Danfodiyo University, Sokoto, Sokoto State/ Usmanu Danfodiyo University Teaching Hospital, Sokoto, Sokoto State.

2*MSc, FWACS, FMCOG, Department of Obstetrics and Gynaecology, Usmanu Danfodiyo University Teaching Hospital, Sokoto, Sokoto State.

3MPH, FMCOG, FWACS, FMAS, FICS, Department of Obstetrics and Gynaecology, Usmanu Danfodiyo University Teaching Hospital, Sokoto, Sokoto State/ Usmanu Danfodiyo University Teaching Hospital, Sokoto, Sokoto State.

4FWACS, FMCOG, Department of Obstetrics and Gynaecology, Usmanu Danfodiyo University Teaching Hospital, Sokoto, Sokoto State.

5FWACS, MPH, FMCOG, Department of Obstetrics and Gynaecology, Usmanu Danfodiyo University, Sokoto, Sokoto State/ Usmanu Danfodiyo University Teaching Hospital, Sokoto, Sokoto State.

6FWACS, Department of Obstetrics and Gynaecology, Usmanu Danfodiyo University Teaching Hospital, Sokoto, Sokoto State.

*Corresponding Author: Dr. Garba Jamila Abubakar

MSc, FWACS, FMCOG, Department of Obstetrics and Gynaecology, Usmanu Danfodiyo University Teaching Hospital, Sokoto, Sokoto State.

Article Received on 23/08/2021

Article Revised on 13/09/2021

Article Accepted on 03/10/2021

ABSTRACT

Background: Miscarriage is one of the unfortunate outcomes of early pregnancy associated with significant emotional and psychological trauma. Aim: To identify the common causes and complications of miscarriages managed at Usmanu Danfodiyo University Teaching Hospital, Sokoto. Methodology: This was a retrospective cross-sectional study of cases of miscarriage managed at Usman Danfodiyo University Teaching Hospital, Sokoto between January 2013 and December 2014. The case files were retrieved and relevant information obtained. Data analysis was done using SPSS version 21. Level of significance was set at p < 0.05. Results: The most common type of miscarriage was incomplete miscarriage (59.7%). The cause of miscarriage was not identified in majority of cases (45.3%). However, the most common identified cause was malaria in 39.7% of the subjects followed by urinary tract infection (UTI) in 14.4% of the subjects. There was significant association between malaria and parity, P < 0.001. It was found that malaria was the commonest cause of miscarriage among nulliparae (49.7%). Most of the subjects (79.2%) did not have any complication. However, the commonest complication observed was anaemia, which was identified in 17% of the cases. Conclusion: Malaria was the commonest identified cause of miscarriage; hence there should be prompt diagnosis and treatment of malaria among pregnant women in order to avoid the deleterious effect on pregnancy.

KEYWORDS: Miscarriage, Profile, Causes, Outcome.

INTRODUCTION

Miscarriage is one of the unfortunate outcomes of early pregnancy that causes considerable distress and has adverse effect on the quality of life of many women. [1] Abortion is referred to as the termination of pregnancy before the age of fetal viability which is taken as 24 weeks in some developed countries and 28 weeks in underdeveloped countries. [2, 3] Viability is gestational age at which the fetus is adjudged to be capable of independent existence and is defined by World Health Organization as 22 completed weeks from date of onset of last menstrual period or fetal weight of less than 500gram. [4] Abortion may occur spontaneously and is referred to as miscarriage or it may be artificially

induced and is termed induced abortion. [3, 4] Miscarriage is the spontaneous loss of a pregnancy prior to viability, which is taken legally a gestation date of 23 weeks 6 days in the UK or 28 weeks in most developing countries including Nigeria. [1, 3, 4] Beyond this gestational age, fetal demise is classified as stillbirth. [3]

The rate of miscarriage varies with gestational age of the pregnancy and maternal age. [3] The overall rate is 20% of pregnancies. [1, 3] First-trimester miscarriage occurs within the first 12 weeks of gestation and accounts for the majority while second-trimester miscarriages are less common and accounts for 1-4% of all miscarriages. [3] Miscarriage accounted for 13.2% and 19.4% of all

gynaecological admission in north eastern and south eastern Nigeria respectively.^[5, 6] It also occurred in 1 in 24 deliveries in north central Nigeria.^[7]

Abortion is one of the commonest gynaecological admissions in the study area and there is limited published data on the possible causes in this region. In addition, miscarriage has deleterious emotional and psychological trauma, hence, there is need to identify the common preventable causes in order to minimize its occurrence. Recognizing and addressing the common causes will also improve pregnant women care and management. Improvement in the diagnosis and management of early pregnancy loss is therefore of vital importance, in order to reduce the incidence of the associated psychological morbidity of miscarriage. This study was conducted in order to identify the common causes and complications of miscarriages managed at Usman Danfodiyo University Teaching Hospital.

MATERIALS AND METHODS

This was a retrospective cross-sectional study on cases of miscarriage managed Usmanu Danfodiyo University Teaching Hospital (UDUTH), Sokoto between 1st January 2013 and 31st December 2014. UDUTH is a tertiary health centre located in Sokoto, North-Western Nigeria. It provides tertiary health care delivery, training and research. It receives patients from Sokoto metropolis, Zamfara, Kebbi, Niger states and neighboring parts of Niger republic.

All women that had spontaneous abortion during the study period were included. Women that had induced, therapeutic or septic abortion were excluded in the study. The list of cases of abortion during the study period was obtained from medical record office and gynaecological ward admission record. The case files were retrieved from the central library and relevant information on socio-demographic characteristics, parity, number of previous miscarriage and complications were obtained. The total number of gynaecological admission during the study period was also obtained. The information obtained was analyzed using SPSS version 21. The specific types of abortion for each year were obtained in percentage. Tables and figures were used to display the results. Chi square test was used to test the association between parity and causes of miscarriage. It was also used to test the association between the trimester of miscarriage and cause of miscarriage. The level of significance was set at $p < 0.05$.

RESULTS

During the two-year study period, there were 587 cases of miscarriage out of 2,058 gynaecological cases managed; thus, giving a miscarriage rate of 28.5%. Among the total number of cases of miscarriage (587) during the study period, 494 (84.2%) cases were traced and included in the study.

The mean age of the subjects was 26 ± 5.8 and the range was 16 to 44 years. Majority of the patients (34.8%)

were in the age group of 25-29 years and 96.4% were married. Majority of the patients were Hausa/Fulani (79.4%) and Muslims (84%). Most of the subjects (39.7%) had no formal education. This is shown in Table 1.

Table 1: Socio-demographic characteristics of the cases (n = 494)

Characteristics	Number of subjects	Percentage
Age		
Less than 20 years	33	6.7
20 to 24 years	165	33.4
25 to 29 years	172	34.8
30 to 34 years	63	12.7
35-39 years	36	7.3
40 years above	25	5.1
Ethnicity		
Hausa/Fulani	392	79.4
Igbo	27	5.5
Yoruba	19	3.8
Others	56	11.3
Occupation		
House wife	397	80.4
Civil servant	40	8.1
Business	18	3.6
Student	39	7.9
Religion		
Islam	415	84.0
Christianity	79	16.0
Marital status		
Married	476	96.4
Single	18	3.6
Educational status		
No formal education	196	39.7
Primary	51	10.3
Secondary	190	38.5
Tertiary	57	11.5

As depicted in Table 2, the most common type of miscarriage was incomplete miscarriage (59.7%) while the least was complete miscarriage (4.9%).

Table 2: Types of miscarriages identified during the study period (n= 494).

Type of miscarriage	n (%)
Incomplete miscarriage	295 (59.7)
Complete miscarriage	24 (4.9)
Missed miscarriage	57 (11.5)
Threatened miscarriage	73 (14.8)
Inevitable miscarriage	45 (9.1)
Total	494 (100)

The cause of miscarriage was not identified in majority of cases (45.3%). However, the most common identified cause was malaria in 39.7% of the subjects followed by urinary tract infection (UTI) in 14.4% of the subjects. This is shown in figure 1.

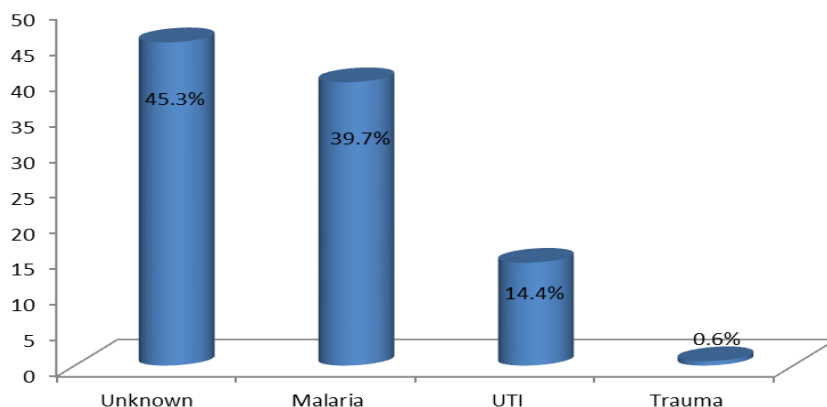


Figure 1: Identified causes of miscarriage.

The association between parity and causes of miscarriage is shown in Table 3. There was significant association between the parity and cause of miscarriage. It was found that malaria was the commonest cause of

miscarriage among nullipara (49.7%) while among the multipara and grand multipara; the cause was not identified in majority of the cases (54% and 55.8% respectively).

Table 3: Association between parity and causes of miscarriage.

Parity	Causes				χ^2	P value
	Unknown n (%)	Malaria n (%)	UTI n (%)	Trauma n (%)		
Nullipara	50(28.6)	87 (49.7)	38 (21.7)	0	39.5	$P < 0.0001$
Multipara	121 (54.0)	73 (32.6)	27 (12.1)	3 (1.3)		
Grand multipara	53 (55.8)	36 (37.9)	6 (6.3)	0		

The association between the trimester of miscarriage and cause of miscarriage is shown in Table 4. Among those with first trimester miscarriage, the cause was unknown in 43.9% of the subjects while 54.5% of second trimester miscarriages were unknown. Malaria accounted for

39.5% of first trimester miscarriage and 40.9% of second trimester miscarriage. However, there was no significant association between trimester of miscarriage and cause of miscarriage.

Table 4: Association between trimester of miscarriage and cause of miscarriage.

Trimester	Causes				χ^2	P value
	Unknown n (%)	Malaria n (%)	UTI n (%)	Trauma n (%)		
First trimester	188(43.9)	169 (39.5)	68 (13.9)	3 (0.7)	7.3	$P = 0.071$
Second trimester	36 (54.5)	27 (40.9)	3 (4.5)	0		
Grand multipara	53 (55.8)	36 (37.9)	6 (6.3)	0		

The treatment options used in the cases were medical, surgical and expectant management. The surgical management using manual vacuum aspiration was the most commonly used treatment option in 80% of the subjects.

As could be inferred from Table 5, most of the subjects (79.2%) did not have any complication. However, the commonest complication encountered was anaemia which occurred in 17% of the cases. Sepsis and shock were found in only 2.0% and 1.8% of the subjects respectively.

Table 5: Complications identified (n=494).

Complication	Number of subjects	Percentage
Anaemia	84	17.0
Sepsis	10	2.0
Shock	9	1.8
No complication	391	79.2

DISCUSSION

The findings from this study revealed that miscarriage constitute a large percentage of total gynaecological admission during the study period. The overall rate of 28.5% during the study period is much higher than 13.2% and 19.4% reported in Maiduguri and Imo respectively.^[5, 6] Incomplete miscarriage (59.7%) was the commonest type of miscarriage in this study which is consistent with reports in other parts of Nigeria.^[5, 6, 7] It constituted 75% of the cases in Imo,^[6] 42.1% in Ilorin^[7] and 88% of cases in Maiduguri.^[5] A much higher percentage of incomplete abortion (80%) was reported in Kenya.^[14] Complete abortion was the least of all the types of miscarriage that presented during the study period (4.9%) which was comparable to 3.2% in Ilorin.^[7] This may be because most cases of complete abortion do not present to the hospital when the bleeding has ceased.

The finding from this study that most respondents were in their twenties contradicts the findings that miscarriage is more with advanced maternal age.^[12] Similar finding was also reported in Imo,^[6] north central Nigeria^[7] and north eastern Nigeria^[5] where miscarriage was more prevalent among those less than 35 years. It has been documented in literature that miscarriage tends to increase with increase in maternal age and there is a substantial increase after the age of 35 years.^[4] These older women have higher incidence of non-disjunction and balanced translocation.^[4] The finding in this study could be because the most common identified cause was malaria and Primigravida are more at risk of malaria due to loss in acquired immunity.

The finding in this study that miscarriage was more in multipara did not support the theory that grand multiparity is associated with relative increase in miscarriage.^[4] It was also identified from this study that most of the subjects (61.5%) did not have previous miscarriage even though it has been documented that the number of previous miscarriage and outcome of last pregnancy are associated with recurrence of miscarriage.^[4] The rate of miscarriage tends to be higher after a miscarriage or stillbirth than after a live birth.^[4]

Chromosomal abnormalities have been found to be responsible for most cases of first trimester^[4] miscarriage which may be responsible for the finding in this study where the cause was not known in most of the subjects. However, it may be that the cause was not investigated via chromosomal studies. Among the subjects where the cause was identified, malaria was the most common identified cause of miscarriage in this study. It has been documented that any severe maternal infection can cause miscarriage because pyrexia causes increased uterine activity.^[4]

There was significant association between the cause of miscarriage and parity; the most common cause of miscarriage in nullipara was malaria. There is decline in cell mediated immunity among pregnant women and

they experience both increased parasitaemia and clinical disease with increased susceptibility to infections controlled by cell mediated immunity.^[4] The breakdown of malarial immunity is more marked in first pregnancies and thus nulliparous are more vulnerable to severe malaria and their fetuses are more vulnerable.^[4] Malaria often causes anaemia, increased uterine activity, abortions, preterm labour, fetal distress, stillbirth and low birth weight.^[4]

In this study, 86.6% of miscarriages occurred in the first trimester and is similar to previous reports where more than 80% of miscarriage occurs in the first trimester.^[3, 4] However; further analysis did not reveal significant association between the cause of miscarriage and the trimester at which the miscarriage occurred. This is in line with previous finding that miscarriages occurring in first and early second trimester (up to 16 weeks) have similar causes including chromosomal anomalies and febrile illnesses.^[4] The finding that most cases had no complication might indicate that prompt and adequate care was instituted. However, anaemia was found to be the commonest complication which may be due to late presentation by the patients.

In conclusion, this study has found that miscarriages accounted for a high percentage (28.5%) of all gynaecological admission during the study period. The miscarriage was more among multipara and malaria was the most common identified cause. There was significant association between the cause of miscarriage and parity; with malaria as the commonest cause in nullipara and unknown causes in multipara and grand multipara. It is recommended that there should be prompt diagnosis and treatment of malaria among pregnant women in order to avoid the deleterious effect on pregnancy. There is also need to do further investigations in order to identify other causes of the miscarriage.

REFERENCES

1. National Institute for Health and Care Excellence (NICE) Clinical guideline. Ectopic pregnancy and miscarriage: Diagnosis and initial management. NICE guideline 2012; 1-38. Available at nice.org.uk/guidance/cg154.
2. Otubu JAM. Miscarriage. In: Agboola A (Ed) Text book of Obstetrics and Gynaecology for Medical Students. 2nd Ed. Heinemann Educational Books Nigeria limited, 2006; 95-100.
3. Stalder CM. Spontaneous miscarriage. In: Edmond DK. (Ed) Dewhurst's Textbook of Obstetrics and Gynaecology. 8th Ed. West Sussex, UK: John Wiley and Sons Ltd, 2012; 53-59.
4. Klufio CA, Coleman J. Abortion. In: Kwawukume EY, Ekele BA, Danso KA, Emuveyan EE, (Eds) Comprehensive Obstetrics in the Tropics. 2nd Edition Accra: Assemblies of God, 2015; 289-308.
5. Kullima AA, Kawuwa MB, Mairiga AG, Bako B, Audu BM, Bimba J. Effectiveness of manual vacuum aspiration (MVA) in the management of

- first trimester miscarriage: experience in a specialist centre in North-Eastern Nigeria. *Port Harcourt Med J*, 2009; 3(3): 54-58.
6. Ojiyi EE, Dike EI. Experience with manual vacuum aspiration at the Imo State University Teaching Hospital, Orlu, Nigeria. *Port Harcourt Med J*, 2012; 6(1): 23-27.
 7. Adeniran AS, Fawole AA, Abdul IF, Adesina KT. Spontaneous abortions (miscarriages): analysis of cases at a tertiary centre in North Central Nigeria. *J Med Trop*, 2015; 17: 22-6.
 8. Gebreselassie H, Gallo M F, Monyo A, Johnson BR. The magnitude of abortion complications in Kenya. *BJOG*, 2005; 112: 1229–1235.
 9. Griebel CP, Halvorsen J, Golemon TB, Day AA. Management of spontaneous abortion. *Am Fam Physician*, 2005; 72: 1243-50.