

Manual Vacuum Aspiration in the Treatment of First Trimester Miscarriages: Experience from a Northern Nigerian Teaching Hospital

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ABSTRACT

Background: Manual vacuum aspiration (MVA) is one of the most common gynaecological procedures in clinical practice. It provides a cheap, safe and effective means of reducing maternal morbidity and mortality.

Aim: The aim of the study is to review the effectiveness of manual vacuum aspiration in management of first trimester miscarriages in Aminu Kano Teaching Hospital, Kano.

Materials and method: This study was a two-year retrospective analysis (between 01/01/2017 to 31/12/2018) on the use of manual vacuum aspiration in management of first trimester miscarriages in Aminu Kano Teaching Hospital (AKTH), Kano. There were 154 cases of first trimester miscarriage during the study period but 104 case files were retrieved with complete information for analysis. Relevant data extracted were analysed using SPSS version 20.

Results: One hundred and four (104) cases were analysed within the study period. Seventy-eight (75%) of the patients were aged 20-34 years; 97 (93.3%) were married and 52 (50.0%) were multigravidas. MVA was performed mainly for incomplete abortion (N=74; 71.2%). Fifty-four (51.9%) of the procedures were done by registrars and 44 (41.3%) by house-officers. Ninety-one (87.5%) of the cases had no complication; post-abortion bleeding was documented in 9 (8.7%) cases. Only 68 patients presented with histology report during their follow up visit in gynaecology clinic. 97% out of this reported product of conception, while 3% reported molar gestation.

Conclusion: The most common indication for MVA in this study was incomplete abortion and most of the cases were not associated with any complication. MVA is very effective in management of first trimester miscarriage in our center. Histology report is however important as this will help to differentiate between gestational trophoblastic disease and incomplete miscarriage.

Keywords: Manual vacuum aspiration, Miscarriage, Effectiveness, AKTH.

INTRODUCTION

Manual vacuum aspiration is an innovative technology devised for uterine evacuation and endometrial sampling using Karman's syringe. To achieve this, flexible plastic cannulae of sizes of 4-12 mm are utilized with a 60 cc syringe and a locking valve. Suction curettage is significantly faster and safer than sharp curettage for emptying the contents of the uterus [1].

There is a substantial body of evidence that MVA can be performed by mid-level health care providers and is a valuable resource that can be used in a wide range of health care settings [2].

Abortion is the termination of pregnancy before fetal viability; [3] it may be spontaneous or induced. In Nigeria, abortion is the termination of pregnancy before 28 weeks from the last menstrual period [3]. Following the psychological association of the term "abortions" to mean induced abortions, they are now

referred to as miscarriages in clinical practice [4]. About 10-20% of all pregnancies end as miscarriages [3,4].

The use of Manual Vacuum Aspiration (MVA) is commonly indicated in the treatment of first trimester miscarriage in the medical practice especially in resource poor countries like Nigeria. A study conducted in a tertiary institution in northern Nigeria, between 1st January 2005 to 31st December 2007 showed that 251 MVA procedures were performed out of which 221 (88.0%) were due to incomplete miscarriages and only 7 (2.1%) had complications [5]. Other indications for MVA are suction evacuation for molar pregnancy and endometrial biopsy [6]. MVA is a safe and effective technique for uterine evacuation [1]. The WHO recommends MVA as the preferred surgical method of uterine evacuation for treatment of complications from unsafe abortion, incomplete abortion, missed abortion or induced abortion in early pregnancy [1]. Many studies have shown that MVA is safer than and as effective as, sharp curettage

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[7]. Early pregnancy failure occurs in 14-19% of recognized pregnancies [8]. Complication due to incomplete miscarriages is one of the leading causes of maternal morbidity and mortality in the developing countries, as a result of hemorrhage and infections. WHO estimated that 13% of pregnancy related deaths are due to complications of abortions [9].

In Nigeria, an estimated 20-40% of maternal deaths result from abortion complications with a procedure-related death rate of 680 per 100,000 abortions. Most of these deaths were due to illegally induced abortion, the third leading cause of maternal mortality [10].

Other available methods used in the treatment of first trimester miscarriage are; Misoprostol, a prostaglandin E1 analogue which can be used safely and effectively for medical evacuation. Dilation and curettage to remove retained tissue, which can be sharp using curette or suction using Norvak curette; a thin metallic tube with a side opening at the tip, suction with attached syringe can be applied to remove tissue and retained products.

Manual vacuum aspiration or conventional suction termination should be avoided at gestations below 7 weeks because failure rate is higher than in medical abortion. Conventional suction termination is an appropriate method at gestations of 7-14 weeks [6].

An estimated 10-20% of all pregnancies end up in miscarriages [3]. An estimated 20-40% of maternal deaths in Nigeria results from abortion complications with a procedure-related death rate of 680 per 100,000 abortions [10]. Therefore, the need to carry out a study on the use and effectiveness of MVA which is the WHO recommended surgical method of uterine evacuation for treatment of complications from unsafe abortion, incomplete abortion, missed abortion or induced abortion in early pregnancy [1]. Several studies on use of MVA have been carried out in Nigeria with some Northern parts of the country included, but none has been conducted in this centre, hence the need for this study. The results of which will help to improve our procedure and care given to patients with first trimester miscarriage in our centre and Nigeria as a whole.

AIM AND OBJECTIVES

The aim of the study is to review the effectiveness of manual vacuum aspiration in management of first trimester miscarriages in Aminu Kano Teaching Hospital, Kano.

To determine the common age group in which the procedure is performed.

To determine the common indications and complications of the procedure.

To make comparisons of the findings from this study with other similar studies performed elsewhere and provide necessary recommendations where necessary.

MATERIALS AND METHODS

This study was a two-year retrospective analysis (between 01/01/2017 to 31/12/2018) on the use of manual vacuum aspiration in management of first trimester miscarriages in Aminu Kano Teaching Hospital (AKTH), Kano.

The study was carried out in the department of Obstetrics and Gynaecology of Aminu Kano Teaching Hospital (AKTH) Kano, which is located in Kano, North-western Nigeria. It is one of the tertiary health facilities in Kano State and serves as a referral hospital to other hospitals and clinics. It also serves as a referral center of the neighboring states. It is a 299 bedded hospital. The hospital has over 13 departments. There are eight clinical departments which include Obstetrics and Gynaecology, Surgery, Internal medicine, Paediatrics, Psychiatry, Ophthalmology, Otorhinolaryngology and Maxillofacial departments. The para-clinical departments include: Haematology and Blood bank, Microbiology, Histopathology, Chemical pathology, Anaesthesia, Radiology, Physiotherapy and the Pharmacy. The other supporting departments are the Medical records, Social welfare, the Medical library, Laundry department and the Catering services. It is affiliated to the College of Medicine, Bayero University Kano. It is a site for undergraduate and post-graduate training.

The gynaecological emergency out-patient clinic is located in a very accessible part of the hospital within the gynaecological ward. The gynaecology ward has 32 beds. It also has a room for manual vacuum aspiration, another room for day care for cancer chemotherapy, a side laboratory, an utility room, a seminar room, fetal assessment unit, nurses' room and doctors' room. The ward looks after patients that are operated on both elective and emergency basis and also pregnant patients with complications when the gestational age is less than 26 weeks.

The patient's records (name and hospital number) were obtained from the MVA register, which was used to retrieve the case notes from the records department. Relevant information was obtained from the case notes and entered into a proforma. The relevant data included biodata, indications, complications etc. Attached appendix 1 is the sample of the proforma.

The data was analyzed using SPSS version 20. Data was presented in tables as frequencies, percentages, mean and standard deviation (SD).

RESULTS

There were 154 cases of first trimester miscarriages that had manual vacuum aspiration during the study period. Among the 154 cases, 104 (67.5%) case notes could be retrieved from the medical records department and these were the ones analyzed. fifty (32%) case notes could not be retrieved. Relevant data extracted were analyzed using SPSS version 20.

Among the 104 women whose case notes were retrieved, the mean age was 28.3 ± 6.0 years. The minimum age was 16 years, while the maximum age was 42 years (**Table 1**).

The highest percentage of women whose case notes were retrieved were between the ages of 25-29 years (36.5%) while the least were above the age of 40 years (6.7 %).

Approximately 68 (65%) of those who had MVA during the study period were Hausas. Other tribes constitute the remaining 42% (Kanuri, Babur, Igala, Ebira).

Most of the women were multiparous 52 (50.0%). Majority had secondary school leaving certificate as the highest level of education 40(38.5%).

Among the women majority 72(69.2%) were housewives,

15(14.4%) were civil servant, 12(11.5%) were traders and only 5(4.8%) were students (Table 1).

Most of the patients 54 (51.9%) had the procedure at 7-9 weeks of gestation and only 7 (6.7%) had it done at less than 7 weeks of gestation (Table 2).

MVA was performed mainly for incomplete abortion 74 (71.2%). Majority of the women had history of previous miscarriages 53 (50.6%).

Most of the women 91 (87.5%), who had MVA during the study period had no complications; post abortion bleeding was

Table 1: Socio-demographic characteristics.

Variable		Frequency	Percentage
Age	15-19	6	58.0
	20-24	16	15.4
	25-29	38	36.5
	30-34	24	23.1
	35-39	13	12.5
	>Or= 40	7	6.7
Total		104	100
Tribe	Hausa	68	65.4
	Yoruba	6	5.8
	Fulani	14	13.5
	Igbo	5	4.8
	Others	11	10.6
Total		104	100
Religion	Islam	85	81.7
	Christain	19	18.3
Total		104	100
Marital Status	Single	0	0
	Married	97	93.3
	Divorced	3	2.9
	Widow	4	3.8
Total		104	100
Education Level	Primary	15	14.4
	Secondary	40	38.5
	Tertiary	24	23.1
	Quranic	25	24.0
Total		104	100
Occupation	Housewife	72	69.2
	Student	5	4.8
	Civil Servant	15	14.4
	Trader	12	11.5
Total		104	100
Parity	Nullipara	21	20.2
	1-4	52	50.0
	>4	31	29.8
Total		100	104

Table 2: Clinical characteristics.

Variable		Frequency	Percentage
Gestational Age	<7	7	6.70%
	07-9	54	51.90%
	10-13	43	41.30%
Total		104	100
Indication	Incomplete	74	71.20%
	Inevitable	18	17.30%
	Missed	9	9.00%
	Check MVA	3	2.50%
Total		104	100
Previous Miscarriage	Yes	53	50.60%

	No	51	49.40%
Total		104	100
Complication	No Complication	91	87.50%
	Post-abortion Bleeding	9	8.70%
	Post-abortion Infection	3	2.90%
	Uterine adhesion	1	1%
	Uterine Perforation	0	0
	Others	0	0
Total		104	100
Blood Transfusion	Yes	7	6.70%
	No	97	93.30%
Total		104	100
Hospital admission	Yes	10	9.60%
	No	94	90.40%
Total		104	100
MVA done by	House Officer	44	41.30%
	Registrar	54	51.90%
	Senior Registrar	7	6.70%
Total		104	100
Histology Report	Yes	68	65.40%
	No	36	34.60%
Total 104		104	100

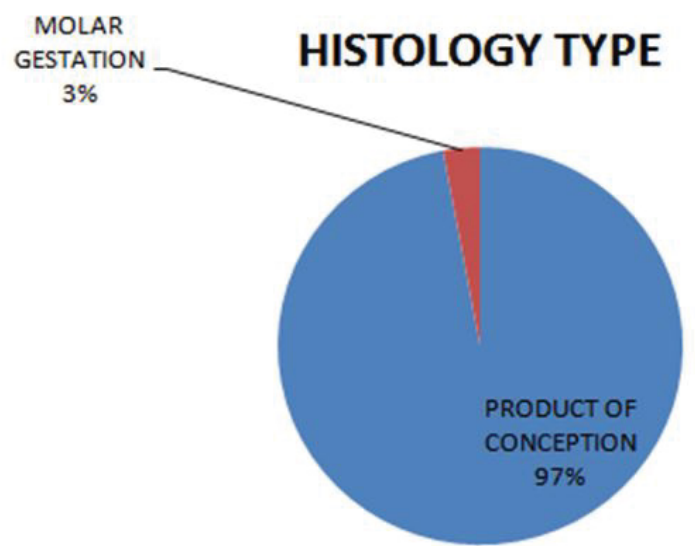


Figure 1: Histology report.

documented in 9 (8.7%) cases. 7 (6.7%) of the cases had blood transfusion.

The procedures were carried out mostly by registrars 54 (51.9%) and house officers 44 (41.3%) during the study period.

Only 68 (65.4%) patients presented with histology report during their follow up visit in gynaecology clinic. Ninety-seven percent of this, reported product of conception, while 3% reported molar gestation (Figure 1).

DISCUSSION

Early pregnancy loss is a common experience for women; approximately one in four women will experience a miscarriage in her lifetime [11]. For women undergoing early pregnancy loss, manual vacuum aspiration is one of the treatment options [11]. MVA has been reported to be safe and effective for this indication [7,11].

The women treated with MVA during the study period had

their age ranging from 16 to 42 years with a mean age of 28.3. This finding was similar to the findings in studies conducted in Aberdeen in UK [12], Malawi in East Africa [13], Imo state [14], Jos [1], and Maiduguri [15] in Nigeria. From this study most of the women were within their active reproductive age group of 20-34 years. This was similar to the findings in studies conducted in Jos [1], Maiduguri [5,15] and Sokoto [2].

A large proportion of women in this study were married (93.3%). This might probably be due to the fact that most unmarried women visit private clinics, which might be as a result of fear of stigmatization owing to our cultural and religious belief and also the restrictive abortion law in Nigeria.

Most of the women (50%) from this study were para 1-4, this is similar to findings in a study carried out in Ilorin [4] (45.5%), while 31% of the women from this study were grand-multipara, this is similar to a study carried out in Sokoto [2] where 21.4% of women were grand-multipara, but is in contrast to findings obtained from similar studies carried out in Enugu [9] and Imo [14], where 53% and 53.1% of women were grand-multipara respectively.

The advocated optimum use of Manual Vacuum aspiration using IPAS Karman's syringe and cannula are for early pregnancy miscarriages less than 12 weeks [7]. Most of the women in this study had MVA done at gestational age 7-9 weeks (51.9%). The commonest indication for MVA in this study was incomplete miscarriages (71.2%), studies done in Imo [14] (75.6%), Jos [1] (85.3%), Maiduguri [15] (88.1%) and Sokoto [1] (75.8%) reported similar findings.

The risk of infection following management for miscarriage has been an issue of concern; some centers use prophylactic antibiotics while others do not. In our center routine prophylactic antibiotics is given following MVA. This is because tubal blockage from post-abortal sepsis is a major reproductive health problem in developing countries like ours. In this study, complications of post-abortum bleeding were seen in 8.7% of the cases and post-abortum genital infection in 2.9% of the cases. This is slightly higher than findings in a similar study in Maiduguri [5], where each occurred in less than 1%. However, majority of the patients had no post-abortum complications (87.5%) which is similar to the findings in studies conducted in Ilorin [4] (84.7%) and Sokoto [2] (86%).

In this study, more than half (53%) of the women had history of previous miscarriage. This was higher than the finding in a study conducted in Ilorin (37%) [4]. This finding might be as a result of previous miscarriage being a risk factor for subsequent miscarriages in future.

Most (90.4%) of the procedures were done on outpatient basis, and is similar to the findings in most studies [2,4,14]. Those whose hospital stay was for more than a day was necessitated by their clinical condition such as severe anaemia requiring blood transfusion.

Most of the procedures were done by registrars (51.9%) and house officers (41.3%). This is similar to the finding in study conducted in Sokoto [2]. This finding is most likely as a result of the registrars and house officers being the first contact to patients in gynaecological emergency unit.

Only 68 (65.4%) patients presented with histology report

in their follow up gynaecologic clinic. Out of the 68 histology reports, 97% reported the histology to be product of conception, while 3% reported molar gestation. This finding is similar to the findings in a study in Ilorin [4]. Post evacuation histology specimen and report is the standard practice to confirm diagnosis and it helps in excluding ectopic pregnancy in which only decidua will be seen as well as unsuspected gestational trophoblastic disease [16].

CONCLUSION

This study shows that MVA is a safe and effective technique in the management of first trimester miscarriages in our centre. The most common indication being incomplete miscarriage and most of the cases were not associated with any complication. The importance of having post-abortum specimen for histology and retrieval of histology report should be emphasized to healthcare workers and patients in order to ensure optimum patient care.

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