Effectiveness of manual vacuum aspiration (MVA) in the management of first trimester miscarriage: experience in a specialist centre in North-Eastern Nigeria

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Abstract

Background: Safe management of abortion with an easy, simple and effective procedure is mandatory to minimise abortion related morbidities and mortalities.

Aim: To assess the pattern of presentation of cases of first trimester miscarriage and the value of manual vacuum aspiration (MVA) in the management of abortion.

Methods: Clinical records of 251 cases of miscarriage managed over a 3-year period 2005 - 2007 using MVA ipas aspirator were retrieved and information pertaining to age parity, gestational age at presentation, indication for MVA use, duration of hospital stay and complications encountered were retrieved for analysis and interpretation.

Results: A total of 1899 gynaecological procedures were carried out over the 3-year period, out of which 251 were MVA procedures performed for various first trimester miscarriages, accounting for 13.2 % of the total gynaecological admissions. Sixty one (24.3%) of the patients who benefited from MVA were in the 25-29 years age group, while those in the age 20-24 and 30-34 years group constituted 21.5% and 20.7% respectively. Grandmultiparas (53.7%) constituted the majority. The procedure was performed for 50.2% of the patients at 9-11 wks of gestation. Most (88.0%) of the patients had the procedure performed for incomplete abortion and while the remaining 12.0% were for check MVA after complete abortion and missed abortion. Most (67%) of the cases were perform as outpatient procedures. There were three maternal deaths which were not related to the procedure.

Conclusions: First trimester miscarriage appeared to be most common among grandmultipara and during the 9-11weeks of gestation. Most of the patients fell into the 25-29 years age group. It appears MVA is being effectively utilized in our centre.

Keywords: Manual vacuum aspiration, Miscarriage, Experience, North eastern Nigeria

Introduction

The United Nations millennium development goals adopted by 189 nations, include the goal of improving maternal health with the specific target of reducing the maternal mortality ratio (MMR) by three quarters between 1990 and 2015 [1]. This is expected to be achieved by minimising all preventable causes of maternal death which includes abortion and it s related complications. Every year, about 19-20 million abortions are done by individuals without the requisite skills, or in an environment below minimum medical standards, or both [2] and the

attendant consequences often lead to insurmountable morbidity and mortality. Abortion is the fourth leading cause of maternal death world wide [3]; 97% of this mortality occurs in developing countries, out of which Africa accounted for 44% [4]. The situation, particularly in Sub Saharan Africa is compounded by complex interplay of social and economic factors which make it almost impossible to cater for the health and social needs of our growing population. This manifests in the form of inadequate provision of contraception, high prevalence of unwanted pregnancy, high fertility rate, poverty, illiteracy, poor social amenities and a dwindling economy. Nigeria, with the highest population in Africa presents the worst scenario in terms of abortion and its accompanying complications [5]. Currently, abortion contributes 11-40% to maternal mortality in Nigeria [6-9].

The management and provision of high quality abortion care depends on the availability of safe and effective medical technology and the proficiency with which all members of the health care team at all levels of the system perform the tasks involved [10]. This cannot be guaranteed with certainty in view of the peculiarities of our environment earlier discussed. The advent of vacuum aspiration in the 1960s [11] revolutionized the primary prevention of complications in developing countries. Manual vacuum aspiration (MVA) was introduced in Nigeria by IPAS in 1987 through public Teaching Hospitals and the private sector [12]. It relies on the use of a simple syringe with a plunger to generate negative pressure for uterine evacuation, and plastic cannulas of varying sizes. The amount of negative pressure obtained with manual vacuum aspiration is similar to that generated with large, expensive, electrical pumps, which makes this method especially suited for use in clinics, offices, and low-resource settings. Manual vacuum aspiration also has the advantage that the syringe can be cleaned, disinfected high-level or sterilized and used repeatedly; similarly, cannulas can be discarded or re-used after appropriate disinfection or sterilization [2].

Manual vacuum aspiration is safer than sharp curettage for management of miscarriages, and the WHO recommends MVA as the preferred method for uterine evacuation before 12 weeks of pregnancy [13]. This method is faster, safer, more comfortable, and associated with shorter hospital stay than sharp curettage [14, 15]. Other advantages compared with sharp curettage are its ease of use as an outpatient procedure, the need for less analgesia and anesthesia. Besides its lower cost per procedure have been reported both in Nigeria[16,17] and in other part of the World [18]. In an environment like ours with limited skilled personnel, MVA can be used safely and effectively by mid-level health service providers, such as midwives [19,20].

This study aims to evaluate the use of MVA for the management of miscarriages in our environment where manpower and facilities are lacking and no formal training was offered to medical personnel who acquired the expertise on the job with little guide from experienced visiting senior colleagues over the years.

Materials and Methods

Clinical case records of 251 patients with miscarriage managed over a 3-year period from January 2005 to December 2007 both as an outpatient and inpatient using MVA ipas aspirator were retrieved from the medical record library. The total number of gynaecological admissions over the same 3-year period was also recorded. Information pertaining to their age, parity, gestational age at presentation, indication for MVA use, duration of hospital stay and complications encountered were retrieved for analysis and interpretation. The anonymity and

confidentiality of the subjects were preserved. The data was managed using SPSS for windows software version 11.

Results

A total of 1899 gynaecological admissions were recorded over the 3-year period from January 2005- December 2007, of which 251(13.2%) were for MVA procedures carried out for first trimester miscarriages. The age range was 14-42 years and the median was 23.05 years. Table 1 illustrates the age group distribution, gravidity and the gestational age at presentation of the patients. Sixty one (24.3%) of the patients who benefited from MVA were in the age group 25-29, 54(21.5%) and 52 (20.7) of patients were in the age group 20-24 and 30-34 respectively. The least number of procedures was performed in patients less than 20 years.

Grandmultipara accounted for the highest number of cases (53.7%), followed by primigravidae (18.3%). Multipara in the 4th pregnancy presented with the least number of cases, 8.4%. Most (50.2%) of the patients had the procedure at 9-11 weeks of gestation and 25.5% and 24.3% had it at 8 weeks and 12-14 weeks respectively.

Indications for the use of MVA, duration of hospital stay and complications encountered are shown in Table 2. Most (88%) of the patients had the procedure for incomplete abortion and the remaining 12% were for check MVA after complete abortion and missed abortion. Post abortion bleeding and genital infection were noticed in less than 1% of the patients each and maternal deaths were found in 3(1.2%) of the cases. MVA was done for 168(67.0%) of the cases as out-patient cases while 46(18.2%) of the patients were admitted for one day. A high proportion (14.8%) of the cases required hospitalisation for 2-4 days to stabilise their clinical conditions. All the patients had the procedure under 30mg pentazocine intramuscular injection cover as analgesia. The three maternal deaths were not related to the procedure.

Table 1. Age distribution, gravidity and gestational age at presentation

Age(years)	No	%
<20	40	16.0
20-24	54	21.5
25-29	61	24.3
30-34	52	20.7
35 & above	44	17.5
Total	**251**	**100**
Gravidity		
1	46	18.3
2	25	10.0
3	24	9.6
4	21	8.4
5	42	16.6
6	26	10.4
7 +	67	26.7
Total	**251**	**100**
Gestational age(wks)		
< 8	64	25.5
9-11	126	50.2
12-14	61	24.3
Total	**251**	**100**

Table 2. Indications, complications and duration of hospital stay

Indications	No of patients	%
Incomplete abortion	221	88
Checked MVA	18	7.2
Missed abortion	12	4.8
Total	**251**	**100**
Complications		
Post abortion bleeding	2	0.8
Genital infection	2	0.8
Maternal death	3	1.2
Duration of hospital stay		
Out patients	168	67.0
1 day	46	18.2
2 days	15	6.0
3 days	12	4.8
4 days	10	4.0
Total	**251**	**100**

Discussion

The patients who had MVA procedures over the 3 year study period accounted for 13.2% of the total gynaecological admissions. This figure is lower than 25.5% earlier reported from Jos [21]. About 66% of the beneficiaries were in their active reproductive age period (20-34 years). This is not surprising as fertility is higher during this period. More than half of the procedures were done for women in their 5th 7th pregnancy. This also is not surprising as there was an association between higher parity and early pregnancy complications.

The advocated optimum use of Manual Vacuum aspiration using IPAS Kerman's syringe and cannula are for early pregnancy miscarriages less than 12 weeks [13]. More than 75% of the cases presented in this report were between 7-11 weeks. The commonest indication for the use of MVA was evacuation of incomplete abortion (88.0%). Mutihir [21] had earlier reported similar findings.

Complications of bleeding and post abortal genital infection each occurred in less than 1% of cases which is similar to an earlier report by Trupin [22]. The three maternal deaths seen were as a result of overwhelming sepsis and acute renal failure before presentation to the hospital. Most (67%) of the procedures were done on outpatient bases as has been earlier reported [20,23]. Those whose hospital stay was for more than a day was necessitated by their clinical condition on presentation that warranted resuscitation before the definitive uterine evacuation. The predominant use of pentazocine for analgesia was informed by good analgesic effect experienced and level of cooperation of the patients exhibited during the procedure. This mode of analgesia in combination with diazepam was the commonest practice for manual vacuum aspiration in Jos [21].

Conclusions

First trimester miscarriage appeared to be most common among grandmultipara and during the 9-11weeks of gestation. Most of the patients fell into the 25-29 years age group. It appears MVA is being effectively utilized in our centre . Effective use of a simple and safe procedure that can be handled by the less technically skilled personnel is an important step toward reduction in maternal morbidity and mortality from abortion and abortion related complications, particularly in low resources setting such as ours.

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