

## Experience With Manual Vacuum Aspiration in Jos, Nigeria

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### Abstract

**Context:** The equipment for manual vacuum aspiration (MVA) has been in use in our institution for more than 10 years and there is need for operations research on its use.

**Objective:** To evaluate the indication for use of the MVA equipment, the complications, and any other problems arising from its use.

**Method:** This is a descriptive study of the cases that were admitted in our facility between January 1992 and December 2002, and had MVA performed on them for various indications. The records from the minor and major operating registers were collated and analyzed for the number, the ages, indications, anaesthetic methods used and any complications arising in patients who had the procedure.

**Results:** There were 307 (21.5%) manual vacuum aspirations among 1,428 gynaecological patients seen during the period. The women on whom the instrument was used were all in their peak reproductive period with a mean of 27.6 years. Incomplete abortion was the indication for manual vacuum aspiration in 85.3% of the cases, missed abortion in 7.8%, and the evacuation of molar pregnancies in 6.2%. Sedation with Pentazocine (30mg) was the mode of pain control in all cases of incomplete abortion (85.3%). All cases of incomplete abortion spent less than 24 hours on admission for evaluation, basic investigation and definitive treatment with the Karman's syringe. The procedure was well tolerated by all the patients. There were no recorded major morbidities following the procedure.

**Conclusion:** Manual vacuum aspiration (MVA) with the use of the Karman's Syringe has been accepted as the predominant method of treatment of incomplete abortions in our centre. It was found to be simple, safe and cost-effective. It has eliminated the admissions of the patients to the ward for more than 24 hours, thereby drastically reducing costs from hospital bed charges.

**Key words:** Karman's Syringe, Manual Vacuum Aspiration (MVA), Abortion. [Trop J Obstet Gynaecol, 2004;21:100-103]

### Introduction

One of the clearest indications of un-met need for family planning services is the high worldwide incidence of abortion, particularly of un-safe abortion<sup>1</sup>. Abortion care has been defined as appropriate and timely treatment for abortion complications; options for safe, voluntary abortion; and comprehensive family planning counseling and services to reduce the need for abortion. Abortion accounts for a significant degree of maternal deaths in developing countries such as Nigeria, and similar reports are obtained from all over Africa<sup>2,3,4,5,6</sup>.

Suction curettage can be performed using various devices, including the Novak curette, Vabra aspirator, Karman's cannula, or newer systems with in-built vacuum bottles or hand pumps<sup>13,14</sup>. The manual vacuum aspiration is an innovative technology devised for uterine evacuation and endometrial sampling. To achieve this, flexible plastic cannulae of sizes 4 to 12 are utilized with a 60 cc syringe and a locking valve. Manual vacuum aspiration has been recommended by the World Health Organization (WHO) for safe and effective uterine evacuation<sup>10,11</sup>. Suction curettage is significantly faster and safer than sharp curettage for emptying the contents of the uterus. Analgesia or analgesia is optional, cervical dilation usually not required and operating time is brief<sup>12,13</sup>.

In 1992, the Department of Obstetrics and Gynaecology of the Jos University Teaching Hospital benefited from a training course in manual vacuum aspiration for resident doctors at the Ahmadu Bello University Teaching Hospital, Zaria, sponsored by International Projects Assistance Services (IPAS). This paper evaluates the contribution of manual vacuum aspiration to the management of incomplete abortions in Jos since the training.

### Materials and Methods

A total of 1,428 gynaecological cases were admitted to the gynaecological ward for various gynaecological problems in Jos University Teaching Hospital between January 1992 and December 2000. Out of these, 307 (21.5%) had manual vacuum aspirations performed for various reasons. Data analysed were collected mainly from the minor operations register of the maternity theatre. The department still performs all evacuations of the uterus for incomplete abortions and other gynaecological procedures in the main operating theatre purely due to the lack of space in the gynaecological clinic.

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## Results

Between January 1992 and December 2000, a total of 1,428 gynaecological cases were admitted to the gynaecological ward for various gynaecological problems in Jos University Teaching Hospital. Out of these, 307 (21.5%) had manual vacuum aspirations performed for various reasons.

Table 1 shows the age distribution of the patients who benefited from the procedure. The age range was from 15-48 years with a mean age of 27.13. Majority (71.7%) of them were women of the active reproductive age group of 20-34 years.

**Table 1: Age distribution of patients undergoing manual vacuum aspiration**

AGE IN YEARS	NUMBER OF PATIENTS	%
<15	0	0.0
15-19	35	11.4
20-24	66	21.5
25-29	100	32.6
30-34	54	17.6
35-39	40	13.0
>39	12	3.9
TOTAL	307	100.0

(Age range = 15-48 years, mean age 27.6 years)

Table 2 shows that this instrument was used in 85.3% of the cases for the treatment of incomplete abortions, in our centre. It was also found to be a reliable instrument for the evacuation of blighted ovum from the endometrial cavity in 7.2% of cases. Molar pregnancies were also effectively evacuated with this simple equipment with no complications recorded.

**Table 2: Indications for use of manual vacuum aspiration**

INDICATION	NUMBER (%)
1. Incomplete abortion	262 (85.3)
2. Missed abortion/Blighted ovum	24 (7.8)
3. Molar pregnancy	19 (6.2)
4. 2 <sup>o</sup> Post Partum haemorrhage	2 (0.7)
TOTAL	307 (100.0)

Sedation with Pentazocine 30 mg plus diazepam 10 mg intravenously was the commonest method of pain relief for the procedure. Sedation was used in 95.5% of the patients for pain control. General anaesthesia was used in 5.2% of the cases. This was the anaesthetic method of choice in all molar pregnancies, and missed abortions where there was the need for rapid dilatation of the cervix for the introduction of the bigger cannula.

Conscious sedation was only reported in one case; where the patient only received counseling and reassurance for the procedure.

There were no recordable major complications with the use of the equipment. There was no maternal morbidity recorded. All the patients tolerated the procedure satisfactorily.

Patient stay in the hospital was no more than 24 hours in cases of incomplete abortions, which means that all these patients paid hospital bills that were for this period of time only. Patients with molar pregnancies and missed abortions stayed for the duration of 24-36 hours for observations and further investigations before discharge from the hospital.

## Discussion

Two residents from the department benefited from a training for the safe and effective use of the manual vacuum aspirator in the Ahmadu Bello University Teaching hospital in 1992. The predominant indication for its use was evidently seen to be in the management of incomplete abortions. Incomplete abortion describes the incomplete expulsion of the products of conception. It can follow either spontaneous or unsafe abortion. The retention of these products leads to complications of bleeding or infection. Removal of retained products of conception in incomplete abortion almost always controls bleeding and infection. Regardless of the initial event, spontaneous or unsafe, prompt and safe uterine evacuation of retained products of conception has to be performed to prevent infection.

The newly learnt technique of the use of the manual vacuum aspiration (MVA), typified by the Karman's syringe and cannulae, as the modern alternative to dilatation and curettage for the treatment of incomplete abortions, amongst others, was imbibed by our department following the training of two resident doctors in the procedure. Three hundred and seven (307) patients were treated with the MVA with their age ranging from 15 to 48 years with a mean of 27.13. This is the group of women in their active reproductive career in this environment.

The indication for the use of the instrument was incomplete abortion in 85.3% of the cases. It was also found to be useful in the management of missed abortions/blighted ova in our facility in as many as 7.8% of the cases. The syringe in combination with the wider cannulae, sizes 10 and 12 were the cannulae of choice for the evacuation of molar pregnancies, and were used in all cases constituting 6.2% of the use of the instrument. There was no record of the instrument having been used for endometrial sampling in this center. The manual vacuum aspiration uses suction to remove the molar vesicles or products of conception through a cannula. The MVA is specifically designed, creates a negative pressure of 1 atmosphere, and is preferred because of its simplicity, safety and efficacy in uterine evacuation<sup>8</sup>.

The control of pain, or pain reduction, for the procedure was relatively cheap for our patients. Pain reduction requires different strategies directed at different levels. Counseling of the clients took the centre stage for all the cases. To reduce the anxiety and pain experienced by women undergoing mva procedure, psychological counseling should be given top priority<sup>10</sup>. Sedation with the use of Pentazocine (Sosegon) 30mg intravenously was used in 85.3% of the cases, and these all happen to be the patients with incomplete abortion. All the missed abortions/blighted ova and molar pregnancies were evacuated under general anaesthesia. MVA has been said to be a cost-effective surgical procedure requiring little or no analgesia, or just local anaesthesia<sup>8,9</sup>. Various techniques for pain relief, local anesthetic (para-cervical block), sedatives, analgesics and systemic anaesthetics may be used. General anaesthesia however should be avoided to improve on the safety of treatment of incomplete abortion<sup>10</sup>. For para-cervical block, attention need be paid to technique, which is safe and effective. To affect nerve function, a local anaesthetic must be deposited in sufficient quantity near the nerve, and sufficient time must be allowed for the anaesthetic to penetrate the nerve fiber<sup>11</sup>. Manual vacuum aspiration (MVA) with the use of the Karman's syringe and cannulae has become the predominant method of treatment of incomplete abortion in our centre. We found it to be simple, safe and effective when properly used for incomplete abortions. The procedure was also found to be cost effective as it eliminated the admissions of the patients to the ward for more than 24 hours thereby drastically reducing costs from hospital bed charges.

This cost effective technology will not only ensure timely management and hence help prevent undesirable complications, but will also reduce the pressure on tertiary institutions, which can then utilize their limited resources for other morbid disorders<sup>12</sup>. There is therefore the need to train health workers to competently perform early and safe vacuum aspiration using simple technology like the Karman's syringe. To reduce the number of women who experience complications from abortion, the training of medical and non-medical personnel in the use of the Karman's syringe and cannulae is most urgently need at all levels of health care service<sup>12</sup>. The integration of counseling, infection prevention practices are necessary elements that contribute to service that is of high quality.

Compared to sharp curettage or dilatation and curettage, MVA is of lower risk to the patients, less painful, and less costly to the health care system in terms of the providers' time and bed costs. Manual vacuum aspiration does not require an operating theatre or general anaesthesia, so it can be performed on an outpatient basis. This confirms the findings of others that the cannula and syringe is safe, reliable, simple to use, and very convenient and inexpensive and is suitable for use in an out-patient setting<sup>7,14</sup>. It has allowed post abortion care to be offered to desiring patients at more service delivery points where electricity supply is either epileptic or non-existent.

The introduction of the manual vacuum aspiration (MVA), the training of general medical practitioners and nurse/midwives to safely perform the procedure, to supplement the effort of obstetricians/gynaecologists, will certainly reduce the unacceptably high maternal mortality rate in this part of the world. It is suggested that the MVA procedure be adopted in all obstetrics and gynaecological units as well as general and cottage hospitals, comprehensive health centers, and primary health care centres in the country, to reduce those complications resulting from the traditional dilatation and curettage.

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