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# INDICATIONS AND OUTCOMES OF MANUAL VACUUM ASPIRATION IN ALEX EKWUEME FEDERAL UNIVERSITY TEACHING HOSPITAL ABAKALIKI

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## Abstract: -

**BACKGROUND**: Manual vacuum aspiration has been used internationally for many years and been shown to be safe and effective for early abortion, menstrual regulations and completing incomplete abortions. Hence proper training of health workers on the use of this simple and inexpensive medical device- the manual vacuum aspiration instrument, will help in preventing the morbidities and mortality associated with unsafe abortions.

**OBJECTIVE**: To document the main indications of manual vacuum aspiration and outcome of the procedure in Alex Ekwueme Federal University Teaching Hospital Abakaliki.

**METHOD**: A retrospective review of MVA records book of patients who underwent MVA was carried out in Obstetrics and Gynaecology department of Alex Ekwueme Federal University Teaching Hospital Abakaliki from 1st January 2020 to 31st December 2023. Data were collected in a *pre-designed proforma* and analysed for age, marital status and parity, gestational age, presenting complaints, indications, analgesic methods used and complications following the MVA.

**RESULTS**: During the study period, 512 case files of patients who underwent Manual Vacuum Aspiration were retrieved. However 12 of the case files lacked complete information needed for the study and were not analysed. The remaining 500 case files that had complete information of the patient were analysed in the study. Most of the patients 162 (32.4%) were in the age bracket of 25-29 years, and the mean age of the participants was 28.56± 3.35 years. Majority of the patients were married (88.0%) and nulliparous women accounted for highest number of cases 229 (45%). Most of the patients 230 (46.0%) had the procedure at 7-9 weeks of gestation. Bleeding per vagina was the most common presentation at a rate of 248 (49.6%). While the commonest indications for MVA were incomplete miscarriage at a rate of 420 (84.0%). Majority of the patient had pentazocine and diazepam 244 (48.8%) as a form of analgesics. Pain was recorded as the commonest immediate complication of MVA at a rate of 340(68.0%).

**CONCLUSION**: MVA is an effective alternative to conventional suction curettage, avoiding general anaesthesia and need for access to theatre. Complications such as uterine perforation, bleeding and retained products of conception are minimal when done at or below 12 weeks gestational age. Thus, safe, easily performed and possibly cost effective procedure, with advantage for both patient and the health care system.

**Keywords:** Early Abortion, Unsafe Abortion, Analgesia, Obstetric Complications, Retrospective Study, Gestational Age, Pain Management.





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# Introduction

Abortion is one of the major causes of maternal morbidity and mortality in most part of sub- Saharan Africa[1].It occurs in 10-20% of clinically recognized pregnancies and accounts for 50,000 inpatient admission in United Kingdom annually[2]. In Nigeria it account for 20million cases annually and 40% of maternal deaths in some communities in Nigeria[1,3]. Incomplete and missed abortions being the commonest occur in approximately 15% of clinically recognized pregnancies and in 890,000 women per year[4]. Approximately one in four women will experience such a loss in her life time[5]. Abortion has also been implicated as a cause of secondary infertility, ectopic pregnancy and preterm labour[6]. It can be managed surgically by evacuation of the uterus, medically with misoprostol or expectantly by awaiting spontaneous expulsion of failed pregnancy[7]. Many patients with early pregnancy loss are unwilling to undergo expectant management or misopostol treatment and therefore surgical treatment is performed[6]. Surgical treatment can be performed by manual vacuum aspiration (MVA), electrical vacuum aspiration (EVA) or by dilatation and curettage[6]. The World Health Organization (WHO) recommends MVA as a preferred method of uterine evacuation[8]. When compared to dilatation and curettage, MVA is a safer, more readily accessible and potentially less expensive way to offer high quality services to women[9].

Manual vacuum aspiration has been used internationally for many years and been shown to be safe and effective for early abortion, menstrual regulations and completing incomplete abortions[4,10,11,12]. It was refined in early 1970's by Harvey Karman with the development of the Karman Cannula.[13,14.] The technique of MVA has been used widely in USA, African, Asian and European countries[15]. In many developing countries, such as Bangledash and Vietnam, MVA has been used for several decades to provide early induced abortion, including procedures referred to as menstrual regulation.

Manual vacuum aspiration has been in use for management of incomplete miscarriage and elective termination of early pregnancy with varying reports on its safety and efficacy.[16,17.] Its use has been extended for the management of missed miscarriage and molar pregnancy.[18.] Other indications of manual vacuum aspirations include treatment of retained product of conception after delivery, dysfunctional uterine bleeding and also to obtain sample for endometrial biopsy.[7,19.]

Manual Vacuum Aspiration (MVA) is an alternative to the standard electrical vacuum aspiration (EVA) and can be performed under local anaesthesia[20]. It is an outpatient procedure that typically take less than 15minutes.[7,21.] It can be performed outside the operating theatre- the treatment room of clinic or emergency unit.[7.] It is performed under local anaesthesia and paracervical block with lignocaine widely used.[22.] The paracervical block affects nerve fibres located around the cervix and cervical canal. Hence minimises cervical pain associated with dilatation or movement of the cannula in the cervix.[22.] During MVA, a 60mls hand held syringe with a self locking plunger is used to produce the vacuum needed for the aspiration of products of conception.[20.]

Manual vacuum aspiration has the advantage of being quite without the noise of electrical vacuum aspiration.[21.] It does not require electricity and so can be performed in locations that have unreliable electrical services or none at all.[7] It reduces the hospital cost and saves time for both patients and clinicians.[7] Despite the simplicity and efficacy of the procedure, a large proportion of patients have been noted to have moderate to severe pain which can make the procedure impossible.[22] Other noted complications of manual vacuum aspiration include failure to completely evacuate the uterus, uterine perforation, infection, bleeding and cervical laceration.[20]

Manual vacuum aspiration is a measure which can greatly contribute to the reduction of maternal mortality and morbidities.[21,23] It is appropriate for use in many different clinical settings, does not require lengthy training for proper operation, and has yielded both high patient and provider satisfaction[8,24]. Also the mid- level health care providers such as Midwives, clinical officers, nurse practitioners and physician assistant can perform MVA procedures safely and effectively in a range of health care settings[25,26,27,28].

### Justification of Study

Manual vacuum aspiration has been in use for management of incomplete miscarriage and elective termination of early pregnancy with varying reports on its safety and efficacy.

It is an important/useful tool in management of early abortions complications. Thus clear provider knowledge of the indications and possible procedure associated complications is necessary in a resource poor setting like ours. Thus the impulse motivating this study.

### Aim

To determine the main indication of manual vacuum aspiration and outcome of the procedure in Federal Teaching Hospital Abakaliki.

### Objectives

1. To evaluate the indications for use of manual vacuum aspiration in FETHA.
2. To document the complications and any other problems arising from its use.

# Literature Review

**V**acuuming as a means of removing the uterine contents was pioneered in 1958 by Drs Wu Yuantai and Wu Xianzhen in china.[13] Dorothae Kerslake introduced the method into the United Kingdom in 1967 and published a study in United States that further spread the technique.[14.] The technique was refined in early 1970's by Harvey Karman with the development of the Karman cannula[13,14]. A high efficacy of Vacuum aspiration with success rate between 95-100% has been reported in various trials[4,5].

A study by Isa et al showed that MVA was commonly performed on women aged 20-34years in 75.4% .[7] This was similar to reports from Nguru and Jos[29,30] were most of the patient were in their active reproductive period. The same similarities , though of lower age group was noted in a study by Tekle et al, where the women were aged between 17-25years with mean age of 24years.[22] Also in a study by Ojiyi et al noted age range between 26-30years and mean age of 24years.[31]

Large proportion of patient who had MVA were married (96.1%)[7] while 3.9%[7] of them were single as noted in a study by Isa et al. This is because many women who are not married go to private

clinic for treatment. A similar finding was noted in USA where 19% of women aged 27-30years failed to report their abortion.[23] This differs from a study by Tekle et al in which 73.2% of women who had MVA in their study where single[22].

Grandmutiparity accounted for highest number of cases who had MVA (53.1%)[31] in a study by Ojiyi et al. This was similar in a study by Kullima et al, where grandmultiparity was noted to be highest as well (53.4%)[29]. But differs in a study by Millingos et al where nulliparous women was noted highest in their results (38%)[20]. Also in a study by Tekle et al where most women who had MVA were primigravida (54.9%)[22].

MVA with the use of Karma's syringe has been advocated for use for early pregnancy loss less than 12weeks gestation; use in more than 12weeks has been associated with incomplete evacuation and tendency of uterine perforation by fetal bony parts[7]. Most of the manual vacuum aspiration was carried out at the gestational ages between 7-12weeks in 88%[7] and below 7weeks in 5.2%[7] in a study by Isa et al. This was similar to the studies done by Kullima et al and Ojiyi et al where the procedures were done at the gestational ages of between 9-11weeks [29] and 9-10weeks[31] respectively. This differs in a study by Tekle et al where they noted that MVA can be used to treat incomplete abortion of uterine size up to 15 weeks of gestation safely[22]. A study by Isa et al showed that most of the women who had MVA presented with complaints of bleeding per vaginam in 94.6%[7] and lower abdominal pain in 0.4%[7] of cases. This finding was consistent with the previous study by Begun et al[23].

The purpose of pain control is to ensure that the women suffer the minimum of anxiety and discomfort as well as the least risk to her health[22]. In a study by Tekle et al, paracervical block with lignocaine is widely used to ease cervical pain during MVA[22]. This is because the majority of pain carrying fibres from the uterus and cervix pass through the paracervical tissue[22]. Hence paracervical block with lignocaine will relieve pain during the manipulation[22]. This differs in a study by Isa et al where intramuscular pentazocine (30mg) was used alone in 96.4%[7] and in combination with intramuscular paracetamol in 3.6%[7] to achieve sedation during the procedure. This was also a common practice noted in a study by Kulliman et al[29] and Mutihir et al[30] where intramuscular pentazocine was utilized to achieve sedation in 60.3%[29] and 85.3%[30] respectively. Also Mac Isaac et al noted that paracervical block combined with oral non- steroidal anti- inflammatory agents provides satisfactory pain relief for most women undergoing manual vacuum aspiration[32]. Alternatively, some women, especially those who are anxious, may prefer intravenous sedation analgesia as noted by Dalton et al[33]. However there is no clear consensus as to whether intravenous sedation analgesia is clinically helpful[33].

Studies have shown that vast majority of MVA procedures are performed due to incomplete miscarriage. This was noted in a study by Kullima et al in which incomplete miscarriage was 88%[29] and check MVA for complete and missed miscarriage was 12.0%[29]. Also in a study by Mutihir et al, noted incomplete miscarriage to be 85.3%, missed miscarriage -7.8% and evacuation of molar pregnancy- 6.2% as indications for MVA[30]. Similar finding was noted in a study by Ojiyi et al in which incomplete miscarriage-75.6% was the commonest indications for MVA[31] .In a study by Isa et al[4], the following indications for MVA were noted, incomplete miscarriage -88.1%, missed miscarriage -7.3%, retained product of conception after term delivery-0.6%, dysfunctional uterine bleeding -2.8% and molar pregnancy – 1.2%. Incomplete miscarriage was also noted as the commonest indication for MVA in their study[7]. This differs from Millingos et al findings of early fetal demise -75.5% as the commonest indication for MVA while failed medical treatment and incomplete miscarriage as an indication for MVA were noted to be 13.5% and 11% respectively[20]. This means that the use of MVA is dependent on the type of miscarriage prevalent in each institution.

Minor complication arising from surgical uterine evacuation has been reported in 0.7-2% of cases[4,17]. Findings from Millingos et al showed incomplete evacuation rate of 4.89%, repeat surgical evacuation of 3.26% but no uterine perforation and heavy bleeding was noted as a complication of MVA[20]. The higher rate of incomplete evacuation was attributed to increased number of MVA's performed by Junior Residents and the unfamiliarity of some of them with the procedure[20]. Similar findings were noted by Greenslade et al where 2-3% of incomplete evacuation was noted[4]. This differs from Tekle et al findings that noted pain as complication of MVA[22]. The pain was described to be diffuse lower abdominal pain with cramping and deep intense pain. The diffuse lower abdominal pain with cramping arises from movement of uterus, scrapping of uterine wall and uterine muscle contraction related to emptying of uterine carvity[22]. The deep intense pain occurs following cervical dilatation and stimulation of internal cervical os[22]. Findings from Ojiyi et al noted genital tract bleeding (46.4%) as the commonest complication of MVA[31].

MVA is an effective alternative to conventional suction curettage, avoiding general anaesthesia and need for access to theatre[20]. Complications such as uterine perforation, bleeding and retained products of conception are minimal[20]. Thus, safe, easily performed and possibly cost effective procedure, with advantage for both patient and the health care system[7,20]. Because the office based treatment reduces cost for both client and the health system, makes it possible for the women to avoid operating suite, substantially decreases waiting time and enables women to return home sooner[33].

## Materials and Method

### Study Design

This was a retrospective descriptive study on indication and outcome of manual vacuum aspiration in AEFUTHA over the last 4years. The case files of all patients who underwent MVA in Federal Teaching Hospital Abakaliki, Ebonyi State from 1st January 2020 to 31st December 2023 were retrieved from the Medical Records Department, Gynaecology emergency, Gynaecology ward, Gynaecology Clinic, Operation Theatre of Alex Ekwueme Federal University Teaching Hospital Abakaliki (AEFUTHA).

### Data Collection

Data collection was done using a pre-designed proforma. The data was extracted into a study proforma focusing on socio-demographic characteristics such as age, marital status, parity, clinical presentation, gestational age, analgesic method used, indications and complications.

### Data Analysis

Data analysis was done using Epi info software (7.2.1 CDC Atlanta Georgia). The result was expressed as frequency tables, percentages, mean and standard deviation. Association between categorical data was analyzed using $X^2$ , with a p- value < 0.05 considered statistically significant.

### Ethical Considerations

Permission to carry out this research was sought and obtained from the Research and Ethics Committee of the Federal Teaching Hospital Abakaliki.

## Results

Between 1st January 2012 to December 31st 2015, 512 case files of patient who underwent manual vacuum aspiration were retrieved. 12 of the case files do not have complete information needed for the studies. Hence 500 case files of patients who had Manual Vacuum Aspiration were studied. The retrieval rate (R) is shown below:

R = 500/512 x 100%. = 97.7%.

The participant's characteristics are noted in table 1.

Age: The age range of patient was 15-45years, with most of the patients 162(32.4%) being 25-29years. The mean age was 28.56± 3.35years.

Marital status: Majority of the patients were married 440(88.0%), only 60(12%) of them were single.

Parity: Majority of the patients were primigravida 229(45%) and least was grandmultipara's 40 (8.0%).

Gestational age: Most of the patients 230 (46.0%) had the procedure at 7-9weeks of gestation, 228(45.6%) of the patients had the procedure between 10-12weeks gestation, while at less than 7weeks and greater than 12weeks gestation, the rate were at 32 (6.4%) and 10 (2.0%) respectively.

Presenting complaints: Majority of the patients presented with bleeding per vagina at a rate of 49.6%, while the least had a complaint not stated at a rate of 7.2%. Those that had both lower abdominal pain and bleeding per vagina were 170 (34.0%). While patient with complaints of lower abdominal pain alone were 46(9.2%).

Indications for MVA: The indications for MVA were incomplete miscarriage at a rate of 420 (84.0%), missed miscarriage at 43(8.6%), secondary postpartum haemorrhage due to retained product of conception after a term delivery at 18 (3.6%), dysfunctional uterine bleeding at 10(2.0%) and molar pregnancy at 9(1.8%) as shown in table 3.

Analgesics method used: Majority of the patient had pentazocine and diazepam 244(48.8%) as a form of analgesics, this was followed by pentazocine alone 189(37.8%). Other patients had pentazocine and paracetamol at 32 (6.4%), pentazocine and ibuprofen at 33(6.6%), paracervical block with lignocaine at 2 (0.4%) but none of the patient had paracervical block with lignocaine and ibuprofen as shown in table 4.

Complications of MVA: Pain was noted as the commonest complication of MVA at a rate of 340(68.0%), and the least complication was uterine perforation at 3(0.6%). Other complications noted were bleeding 59(11.8%), infection 53 (10.6%) and incomplete evacuation at 38(7.6%). However 7(1.4%) of the patients had no form of complications as shown in table 4. One of the patient who had uterine perforation had an imediate exploratory laparotomy and uterine repair, due to continous vaginal bleeding and detoriorating vital signs. Recieved intravenous antibiotics and 2units of whole blood. Had satisfactory wound healing and was discharged on 7th post operative day for follow up in clinic. The other two patients were managed conservtively with monitoring of vital signs, blood loss per vagina and intravenous antibiotics and fluids while on admission. With stable vital signs and absent bleeding per vagina within 3days, she was discharged for follow up in clinic.

**Table 1: Age Distribution, Marital Status and Parity**

| Age | Frequency | Percentage |
|---|---|---|
| 15-19 | 14 | 2.8 |
| 20-24 | 118 | 23.6 |
| 25-29 | 162 | 32.4 |
| 30-34 | 126 | 25.2 |
| 35-39 | 64 | 12.8 |
| >40 | 16 | 3.2 |
| Total | 500 | 100.0 |
| Marital status | Frequency | Percentage |
| Married | 440 | 88.0 |
| Single | 60 | 12.0 |
| Total | 500 | 100.0 |
| Parity | Frequency | Percentage |
| 0-1 | 229 | 45.8 |
| 2-3 | 190 | 38.0 |
| 4-5 | 41 | 8.2 |
| >5 | 40 | 8.0 |
| Total | 500 | 100.0 |

**Table 2: Gestational Age, Presenting Complaints.**

| GESTATIONAL AGE | Frequency | Percentage |
|---|---|---|
| <7 | 32 | 6.4 |
| 7-9 | 230 | 46.0 |
| 10-12 | 228 | 45.6 |
| >12 | 10 | 2.0 |
| Total | 500 | 100.0 |
| PRESENTING COMPLAINTS | Frequency | Percentage |
| Bleeding per vagina | 248 | 49.6 |
| Lower abdominal pain | 46 | 9.2 |
| Vaginal bleeding & lower abdominal pain | 170 | 34.o |
| Not stated | 36 | 7.2 |
| Total | 500 | 100.0 |

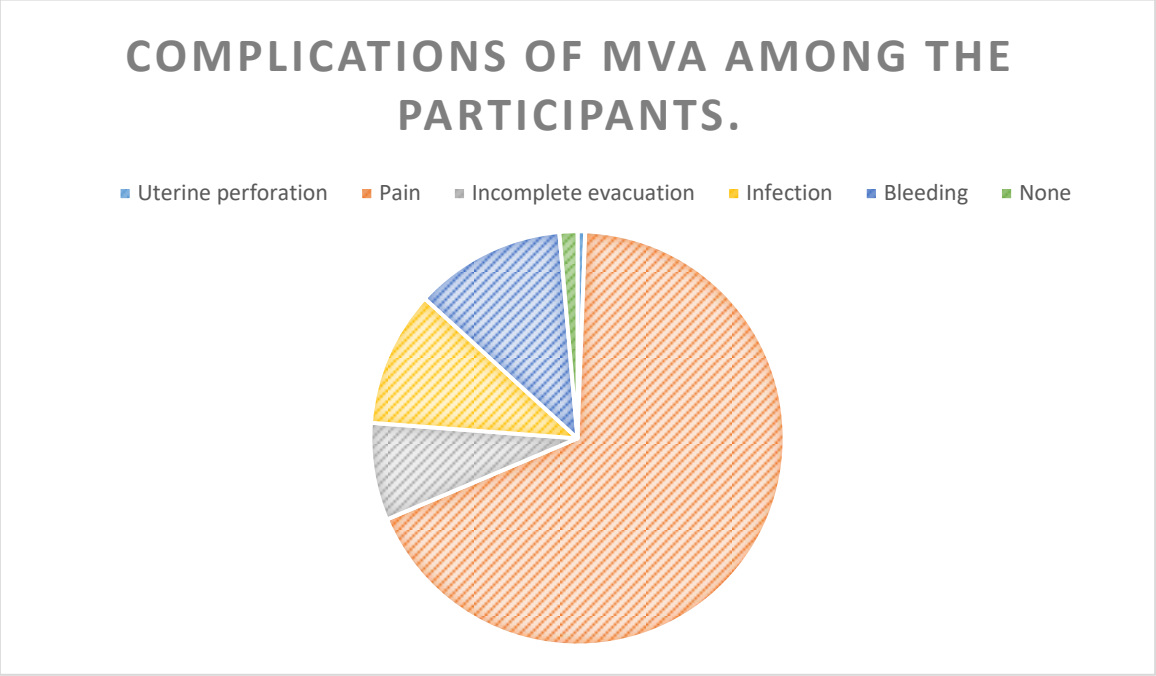
**Table 3: Indications for Manual Vacuum Aspiration.**

| INDICATIONS | Frequency | Percentage |
|---|---|---|
| INCOMPLETE ABORTION | 420 | 84.0 |
| MISSED ABORTION | 43 | 8.6 |
| DYSFUNTIONAL UTERINE BLEEDING | 10 | 2.0 |
| MOLAR PREGNANCY | 9 | 1.8 |
| SECONDARY POSTPARTUM HAEMORRHAGE | 18 | 3.6 |
| Total | 500 | 100.0 |

**Table 4: Analgesics and Complications of MVA**

| ANALGESICS | Frequency | Percentage |
|---|---|---|
| Paracervical block with lignocaine | 2 | 0.4 |
| Pentazocine | 189 | 37.8 |
| Pentazocine & Paracetamol | 32 | 6.4 |
| Pentazocine & Ibuprofen | 33 | 6.6 |
| Pentazocine& Diazepam | 244 | 48.8 |
| Total | 500 | 100.0 |

| COMPLICATIONS | Frequency | Percentage |
|---|---|---|
| PAIN | 340 | 68.0 |
| INCOMPLETE EVACUATION | 38 | 7.6 |
| INFECTION | 53 | 10.6 |
| UTERINE PERFORATION | 3 | 0.6 |
| BLEEDING | 59 | 11.8 |
| NONE | 7 | 1.4 |
| Total | 500 | 100.0 |




## Discussions

Many patients with early pregnancy loss are unwilling to undergo expectant management or misopostol treatment and therefore surgical treatment is performed[6]. Surgical treatment can be performed by manual vacuum aspiration (MVA), electrical vacuum aspiration (EVA) or by dilatation and curettage[6]. The World Health Organization (WHO) recommends MVA as a preferred method of uterine evacuation[8].

From our study MVA was commonly performed on women aged 25-29years with mean age of 28.56± 3.35 years at 32.4%. This was similar to reports from Nguru and Jos[29,30] were most of the patient were in their active reproductive period and also in a study by Isa et al and Ojiyi et al that had an age range of 20-34years in 75.4% [7] and 26-30 years with mean age of 24 years[31] respectively. The same similarities , though of lower age group was noted in a study by Tekle et al, where the women were aged between 17-25 years with mean age of 24 years.[22]

Findings in our study showed that large proportion of patient who had MVA was married (88.0%) while 12% were single. This was similar to findings by Isa et al were (96.1%)[7] were married while 3.9%[7] of them were single. This was supported by the fact that many women who are not married go to private clinic for

treatment. This differs from a study by Tekle et al in which 73.2% of women who had MVA in their study where single[22].

Primigravida 229(45%) accounted for highest number of cases who had MVA and least was grandmultipara's 40 (8.0%). This was similar in a study by Millingos et al and Tekle et al where nulliparous and primigravida were noted highest in their results at (38%)[20] and (54.9%)[22] respectively. But differs in a study by Ojiyi et al and Kullima et al were grandmultiparity were noted highest at (53.1%)[31] and (53.4%)[29] respectively.

MVA with the use of Karma's syringe has been advocated for use for early pregnancy loss less than 12weeks gestation; use in more than 12weeks has been associated with incomplete evacuation and tendency of uterine perforation by fetal bony parts[7]. This supported the reduced rate of uterine perforation and incomplete evacuation noted in our studies as most of the MVA was done between 7-9weeks at 46.0%. This was similar in studies by Isa et al, Kullima et al and Ojiyi et al where the procedures were done at the gestational ages of between 7-12weeks in 88%[7], 9-11weeks [29] and 9-10weeks[31] respectively. But differs in a study by Tekle et al where they noted that MVA can be used to treat incomplete abortion of uterine size up to 15 weeks of gestation safely[22].

The study showed that majority of the women presented with complaints of bleeding per vagina at 49.6% and lower abdominal pain at 9.2%. Least of the women had their complaints not stated at 7.2%. This was similar to other studies by Isa et al[7] and Begun et al[23]. Where Isa et al[7] noted that most of the women who had MVA presented with complaints of bleeding per vaginam in 94.6%[7] and lower abdominal pain in 0.4%[7] of cases.

Studies have shown that vast majority of MVA procedures are performed due to incomplete miscarriage. This was noted in our study were incomplete miscarriage was 84.0%, missed miscarriage was 8.6%, dysfunctional uterine bleeding was 2.0%, molar pregnancy was 1.8% and secondary post partum haemorrhage due to retained product of conception after term delivery at 3.6%. Similar findings were noted in varied other studies [4,7,29,30,31.] This differs from Millingos et al findings of early fetal demise -75.5% as the commonest indication for MVA while failed medical treatment and incomplete miscarriage as an indication for MVA were noted to be 13.5% and 11% respectively[20].

The purpose of pain control is to ensure that the women suffer the minimum of anxiety and discomfort as well as the least risk to her health[22]. Findings in our study showed that pentazocine and diazepam was the commonest method of analgesics at 48.8%. This differs from other studies by Tekle et al were paracervical block with lignocaine is widely used to ease cervical pain during MVA[22] and in Isa et al where intramuscular pentazocine (30mg) was used alone in 96.4%[7] and in combination with intramuscular paracetamol in 3.6%[7] to achieve sedation during the procedure. This was also a common practice noted in a study by Kulliman et al[29] and Mutihir et al[30] where intramuscular pentazocine was utilized to achieve sedation in 60.3%[29] and 85.3%[30] respectively. Also Mac Isaac et al noted that paracervical block combined with oral non- steroidal anti- inflammatory agents provides satisfactory pain relief for most women undergoing manual vacuum aspiration[32]. Alternatively, some women, especially those who are anxious, may prefer intravenous sedation analgesia as noted by Dalton et al[33]. However there is no clear consensus as to whether intravenous sedation analgesia is clinically helpful[33].

Minor complication arising from surgical uterine evacuation has been reported in 0.7-2% of cases[4,17]. Findings from our study noted pain as the commonest complication at 68.0%, followed by bleeding at 11.8%. Other complications noted in the study include infection (10.6%), incomplete uterine evacuation (7.6%) and uterine perforation at 0.6%. However, 1.4% 0f the patient had no form of complications noted. This was similar to Tekle et al findings that noted pain as commonest complication of MVA[22]. But differs from other varied studies by Millingos et al, Greenslade et al and Ojiyi et al that noted incomplete evacuation(4.89%), incomplete evacuation (2-3%) and genital tract bleeding (46.4%) as the commonest complication of MVA[4,20,31] respectively.

## Conclusion

MVA is an effective alternative to conventional suction curettage, avoiding general anaesthesia and need for access to theatre[20]. Complications such as uterine perforation, bleeding and retained products of conception are minimal[20]. Thus, safe, easily performed and possibly cost effective procedure, with advantage for both patient and the health care system[7,20]. Because the office based treatment reduces cost for both client and the health system, makes it possible for the women to avoid operating suite, substantially decreases waiting time and enables women to return home sooner.[33]

### Declaration

**Authors Contribution**: Principal Author is J Obasi, Study design and formation of methodology and Data was analyzed by AA Olaleye and Victor Onuchukwu, Manuscript writing by Emmanuel C. Uwakwe and Charles Nwambeke Edene, and sample collection by AA Olaleye, Wendy Oliobi, and Victor Onuchukwu. Result and discussion were written by AA Olaleye, and Wendy Oliobi.

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**Ethical Statement**: Ethical approval to carry out this study was obtained from the Research and Ethic Committee of Alex Ekwueme Federal University Teaching Hospital, Abalkaliki, Ebonyi State on the 6th October, 2020.

## References:

1. Okonofua F; Abortion and maternal mortality in the developing World. J Obstet Gynaecol Can. 2006; 28(11): 974-979.
2. Oguntoyinbo A E, Aboyeji A P. Clinical pattern of gynaecological/early pregnancy complaints and outcome of pelvic sonography in a private diagnostic centre in Ilorin. Niger J. Clin. Pract. 2011; 14: 223-7.
3. Adeniran AS, Fawole AA, Abdul IF, Adesina KT. Spontaneous abortion (miscariages): Analysis of cases at a tertiary centre in North central Nigeria J .Med. Trop. 2015; 17(1): 22-26.

4. Linda WP, Honor M. Office management of early pregnancy loss. Am Fam. Physician 2011; 84 (1): 75-82.
5. Say L, Kulier R, Gulmezoglu M, Campana A. Medical versus surgical methods for first trimester termination of pregnancy. Cochrane Database Syst. Rev 2005; 25: CD003037.
6. Edwards S, Tureck R, Fredrick M, Huang X, Zhang J and Barnhart K. Patient Acceptability of manual vacuum aspiration for early pregnancy loss. Journal of Women's Health. 2007; 16(10):1429-1436.
7. Isa B, Mairiga AG, Ibrahim SM, Bako BG, Usman HA. Experience with manual vacuum aspiration at University of Maiduguri Teaching Hospital Bo Med J. 2013; 102 (2): 31-35.
8. World Health Organization (WHO). 2003 Safe Abortion: Technical and policy guidance for health systems. Geneva: WHO.
9. Grimes DA, Benson J, Singh S et al. Unsafe abortion: The preventable pandemic. The Lancet. 2006; 368(9550):1908-1919.
10 Prata N, Bell S, Gessessew A. Comprehensive abortion care: Evidence of improvements in hospital level indicators in Tigray, Ethiopia. BMJ Open. 2013; e002873.
11 Dah T, Akiode A, Awah P, Fetters T, Okoh M, Ujah I, Oji E. Introducing misoprostol for treatment of incomplete Abortion in Nigeria. Afr. J. Reprod. Health. 2011; 15(4): 42-50.
12 Susheela S, Altaf H, Isaac M, Hadayeat U, Michael V et al. The incidence of menstrual regulation procedures and abortion in Bangladesh. International Perspective on Sexual and Reproductive Health 2012; 38 (3): 122-132. PUBMED.
13 Ghazala I, Syed T. Comparison of manual vacuum aspiration and sharp curettage in the treatment of first trimester abortions. Pak Armed Forces Med J 2014; 64(4): 54-5.
14 Laura ED, Lisa GH, Michele RH, Sadia H. Patient satisfaction and wait times following out-patient manual vacuum aspiration compared to elective vacuum aspiration in the operating room: A cross sectional study. Contrception and Reproductive Medicine 2017; 1 : 1-6 Doge et al. Contraception and Reproductive Medicine Doi 10.1186/s40834-017-0045-6.
15 Tasnim N, Mahmud G, Fatima S,Sultana M. Manual vacuum aspiration : A safe and cost effective substitute of electric vacuum aspiration for the management of early pregnancy loss. J Pak Med Assoc 2011; 61(2): 149-153.
16 Sharma M. Manual vacuum aspiration: An out-patient alternative for surgical management of miscarriage. The Obstetrician and Gynaecologist 2015; 17: 157-161.
17 Westfall JM, Sophocles A, Burggraff H, Elias S. Manual vacuum aspiration for first trimester abortion Arch Fam Med. 1998 ; 7 : 559-62.
18 Helmin J, Moller B. Manual vacuum aspiration, a safe and effective alternative in early pregnancy termination. Act Obstet Gynecol Scand. 2001; 80(6): 563 – 7.
19 Nozar S, Yaydeep T, Bela G: First trimester medical termination of pregnancy (MTP), Report of Foasi multicentric study across 27 clinics. J Obstet Gynecol India 2007; 57 (2): 162-166.
20 Millingos DS, Mathur M, Smith NC, Ashok PW. Manual vacuum aspiration: a safe alternative for the surgical management of early pregnancy loss. BJOG. 2009; 116: 1268-1271.
21 Das CM, Srichand P, Khursheed F, Shaikh F; Assessment of efficacy and safety of manual vacuum aspiration (MVA) JLUMHS. 2010; 9 (3): 130-133.
22 Tekle GE, Ruminjo JK, Kigondu CS. Pain relief using paracervical block in patient undergoing manual vacuum aspiration of uterus. East Afri Med J. 2002; 79(10): 530-534.
23 Begum S, Rashi M, Jahan AA: A clinical study on management of incomplete abortion by manual vacuum aspiration (MVA). J Enam Med Col. 2012; 2 (1): 24-28.
24 Manual Vacuum Aspiration – Frequently asked questions page. Ipas website. Available at www. Ipas.org/library/FAQS/Manual Vacuum Aspiration – frequently-Asked-Question aspx? Accessed January 6, 2025.
25 Goldman MB, Occhinto JS, Peterson IE, Zapkpa JG, Palmer RH. Physician assistants as provider of surgically Induced abortion services. American Journal of public Health. 2004; 94(8).
26 Renner RM, Brahmi D, Kapp N. Who can provide effective and safe termination of pregnancy care? A systematic review. BJOG. 2013; 120(1): 23-31.
27 Warriner IK, Meirik O, Hoffman M, et al. Rates of complications in first trimester manual vacuum aspiration abortion done by Doctors and mid level providers in South Africa and Vietnam: a randomized controlled equivalence trial Lancet. 2006; 368: 1965-1972.
28 Weitz TA, Taylor D, Desai S, Upadhyay UD, Waldman J, Battisteli MF, Drey EA. Safety of aspiration abortion performance by nurse practitioners , certified nurse midwives and physician assistants under califonia legal waiver. American Journal of Public Health. 2013; 103(3): 454-461.
29 Kullima AA, Kawuwa MB and Bimba G. Effectiveness of manual vacuum aspiration in the management of first trimester miscarriage : Experience in a specialist centre in North Eastern Nigeria, Port Harcourt Medical Journal. 2009 ; 3 : 278-282.
30 Mutihir JT and Ujah IAO. Experience with manual vacuum aspiration in Jos Nigeria. Trop J Obstet Gynecol 2004; 21 (2): 100- 102.
31 Ojiyi EE, Dike EI. Experience with manual vacuum aspiration at Imo State University Teaching Hospital, Orlu Nigeria, Port Harcourt Medical Journal 2012; 6 (1) : 46-51.
32 Mac Isaac L, Darney P: Early surgical abortion: An alternative and backup for medical abortion. Am J Obstet Gynecol 2000; 183: S76-S83.
33 Dalton VK, Castleman L. Manual Vacuum Aspiration for treatment of early pregnancy loss. Reprinted from Postgraduate Obstetrics and gynaecology Inc. Lippincott Williams and Wilkins 2002; 22(19): 1-5.