



A Clinical Study on Uterine Evacuation and Endometrial Sampling by Manual Vacuum Aspiration (MVA)

Hussam Zain^{1,2*}

¹Department of Obstetrics and Gynecology, College of Medicine, Alfashir University, Alfashir, Sudan

²Department of Obstetrics and Gynecology, College of Medicine, Majmaah University, Majmaah, Saudi Arabia

Article info

Received 2 March 2020

Revised 08 April 2020

Published 15 April 2020

*Corresponding author: Hussam Zain, Department of Obstetrics and Gynecology, College of Medicine, Alfashir University, Alfashir, Sudan; E-mail: zain98@hotmail.com

Abstract

Uterine evacuation is a procedure that used to manage many types of gynecological problems such as incomplete miscarriage, inevitable miscarriage, molar pregnancy and termination of pregnancy especially when the pregnancy associated with lethal congenital anomalies. Surgical evacuation (D and C) dilatation and curettage is usually done under anesthesia or sedation with light general anesthesia; sometimes-local Paracervical block or regional anesthesia can be used. The D and C procedure has many complications such uterine bleeding, trauma to the cervix, scarring of the uterus, infection and uterine perforation that can be very serious when the perforation reached the bowl causing damage and necessitate performing laparotomy so as to manage the case. MVA is a device made of plastic, uses negative pressure to evacuate the uterine content, since it a plastic material it is gentler to the uterus with fewer complications and specifically less uterine perforation incomparable with metallic dilatation and curettage

Objectives: *To study the MVA as a method of uterine evacuation and sampling and to determine the rate of complications of MVA in Alfashir maternity Hospital. Material and method This observational descriptive study was conducted in the Department of Obstetrics and Gynecology, Alfashir-Sudan Hospital from 15th of January 2015 to 15th June 2015. One hundred seventy-seven patients attended to gynecology casualty with miscarriage (inevitable or incomplete), blighted ovum, missed miscarriage and endometrial sampling, All cases underwent uterine evacuation or endometrial sampling using Manual Vacuum Aspiration then the patient was observed and data recorded for analysis for success rate and complications.*

Result: *The result shows that no major complications with the use of MVA such as uterine perforation or sever hemorrhage , 86.8% of the patients has no complications at all the rest had complications such as bleeding 12.5% which is very mild bleeding, which does not require transfusion at all and incomplete evacuation 0.7% and no uterine perforation*

Conclusion: *Finally, MVA is a safe device for uterine evacuation with minimal complications and can be recommended to replace traditional D and C in the future.*

Keywords: *MVA; Uterine evacuation; Miscarriage*

Introduction

Surgical evacuation is one of the modalities of managing different types of miscarriage which occur very frequently in our daily life, is associated with many complications that lead to increase in maternal mortality and morbidity, surgical evacuation either with metallic instruments or Vacuum Aspirator. Vacuum aspirator is a plastic device used to do uterine evacuation with less complication. uterine contents are evacuated with the aid of negative pressure, used as a method of termination of pregnancy, in the management of different types of miscarriage, or for obtaining a histopathological sample from the endometrium. infection is less common in comparison with other surgical evacuation procedures at 0.5% [1,2]. Dilatation and evacuation [3] or suction dilatation and curettage [4] are used to name the procedure by which MVA evacuate uterine content. Creating negative pressure to evacuate uterine content appear for the first time on 1958 by Dr. s Wu Yuantai and Wu Xianzhen in China [5], as an alternative option to a hard metal curette. In north America Henry Morgentaler is the first person to use MVA to evacuate uterine content and gave training courses to many doctors, he used with fewer complications rate of 0.48% and no deaths in over 5,000 cases [6,7]. This method was introduced in the United Kingdom in 1967, the MVA was used for the first time by Kerslake, et al. who has done a research about MVA in the United States [1,8].

Vacuum aspiration was used to manage miscarriage, in addition to many other uses such as pregnancy termination, menstrual problems, and to take histopathology sample form endometrium [9]. It is also used to manage gestation trophoblastic disease [10]. When treating a miscarriage or an abortion, the device can be used with or without dilation of the cervix in the first trimester. For gestation more than 12 weeks, vacuum aspiration may be used as a part of the procedure [11]. Vacuum aspiration is a surgical operation that can be done in an outpatient setting, in a short time [12]. The operation usually takes a duration of 10-20 minutes [2]. Negative pressure is created manually or by electric pump. A small syringe is used as a manual pump [13]. All of them are equally effective and safe with no differences [14]. the device work by removing uterine content as result of a negative pressure inside the uterus. The operator can do it without anesthesia or using a local anesthetic in the cervix, this depends on the counseling of the patient. Then, Hagar dilators can be used to increase the cervical opening, or sometimes the dilation can be achieved through some drugs like prostaglandins

which ripe and open the cervix. The last step, a cannula is introduced into the uterus and connecting the tube to the pump. The pump creates a negative pressure, which removes the product from the uterine cavity [2]. After the procedure has finished, uterine content would be sent to histopathology to confirm the completeness of evacuation and to have an idea about the miscarriage from a histological point of view. After the procedure, usually patient stay for a few hours for observation for vital signs then counseling about returning for follow up after two weeks looking for signs of infection, which occurs sometimes when some tissues left inside the uterus. Medication for pain relief usually given before and after the operation to reduce the pain in addition to uterotonic drugs to expel all uterine content. Dilation and curettage (D&C), is the procedure of choice when treating many types of miscarriage when there is a need for uterine evacuation but nowadays MVA emerges as alternative and replaces Dilation and curettage in many hospitals. Regarding the cost of the procedure is much less in compared with Dilation and curettage, moreover, D&C usually conducted by gynecologist, MVA procedure does not need high level of skills so can be performed by medical officers or even nurses and medical assistants. Another advantage for MVA is the safety when used in gestational age lee than 6 weeks in contrast to the high risk when D& C is used in this early gestation [14]. In cases of endometrial sampling, the device has a very small cannula which does not require cervical dilation ,it can be inserted very easy and the required sample taken without complications and no need for anesthesia, furthermore in settings where there is no constant electrical supply , MVA is best options because there is no need for electricity even can be done in very simple setting such as office. When MVA is used for uterine evacuation, removal of all uterine content effectively is up to 98 %, and the need for the second evacuation is rarely needed [14], and this usually occurs when the gestational age is less than 6 weeks [2] complications such as severe bleeding, infection, trauma to the cervix or uterus [14]. including perforation, and uterine adhesions can occur less than 1 per 100 %. MVA needs high-level disinfection with antiseptic solutions like chlorine. For all parts, but cannulas better to use a new one for every patient.

Materials and Methods

The is an observational and cross-sectional study design conducted from January 2016 to June 2016 in Alfashir Hospital located in northern Darfur Sudan. A total of 149 cases comprising miscarriages

(incomplete, inevitable, missed and blighted ovum) of up to 12 weeks gestation, hemodynamically stable molar pregnancies and patients requiring endometrial sampling were included in the study. The cases were selected through complete enumeration method. All the cases registered and admitted through the Outpatient Department of Obstetrics and Gynecology during the data collection period were included in the study. The study sample was finalized after confirming the diagnosis by physical examination and an ultrasound scan of the uterus as per the hospital's protocol. All cases underwent uterine evacuation or endometrial sampling using Manual Vacuum Aspiration then the patient was observed, and data recorded for analysis for success rate and complications. Informed consent was taken from the participants after explaining to them about the procedure and the benefits of this study. Patient-doctor confidentiality was also emphasized, and it was explained that this data will only be used for research purposes.

Exclusion criteria: All the patients diagnosed with septic miscarriage and those who refused to participate in this study. Ethical approval was obtained from the Ethics Committee of Alfashir University prior to starting the study.

Results

149 females were involved in the study the majority (65) (34.6%) are in the age group 26-35 years followed by 16-25 (46) (30.8%). 97.3% of them are married (145) while (4) 2.7 were divorced .regarding the parity 10.7% (16) were primigravida while most of them 86 (57.7%) are para 2 to 4, 22.8% (34) are between para 5 -7 and 8.8% (13) are para 8 or more. As shown in Table 1 (63%) of the patients presented with per vaginal bleeding, (11.5%) with pain in the lower abdomen, 16.3% with both bleeding and pain and (2.6%) passage of fleshy mass. 6.7 % of the patients had not complained. As shown in table 2 in our study we used MVA in all type of uterine evacuation in addition to uterine sampling , as the result showed in table 3, the majority of patients (50.3) % are diagnosed with incomplete miscarriage, 8.7% were inevitable miscarriage, 20.8% were missed miscarriage. 9.4 %, 10.7% were molar pregnancy and blighted ovum respectively. For endometrial sampling were 8.7%. Pain management is a vital part in the uterine evacuation by MVA; postpartum analgesia is used in 93 patients out of 149 patients only 2 patients are not satisfied. The remaining 48 patients the procedure done without analgesia all of them are happy except 2 patients were not. In table 4 complications, overall, the complication occurs in 20 patients with 12.8% and the rest 129 patients are free of complications (86.5) (Table 5).

Table 1: Sociodemographic characteristic.

Character		Frequency	Percent
Age	15 years or less	0	0
	16-25	46	30.8
	26-35	65	34.6
	36-50	38	25.5
Marital status	married	145	97.3
	divorced	4	2.7
	widow	0	0
Parity	primigravida	16	10.7
	2-4	86	57.7
	5-7	34	22.8
	8 or more	13	8.8

Table 2: Presenting symptoms.

Character	Frequency	Percentage
Vaginal bleeding	94	63
Abdominal pain	17	11.5
Bleeding and Pain	24	16.3
Passage of products	4	2.6
No complaint	10	6.7
Total	149	100

Table 3: Diagnosis.

Character	Frequency	Percent
Incomplete miscarriage	75	50.3
Inevitable miscarriage	13	8.7
Missed miscarriage	31	20.8
Molar pregnancy	14	9.4
Blighted ovum	3	2
Endometrial Biopsy	13	8.7
Total	149	100

Table 4: Analgesia.

variables		Patient feed back			Total	P value
		Satisfied	Not satisfied	Missing data		
Analgesia	Yes	93	2	1	63.30%	X2=2.362 P=0.669
	No	48	2	1	32.70%	
	Total	141	4	3	148	

Table 5: Complication.

	Present Study	Milingos Study (%)	Abdelzaher study (%)	Goldberg, Alisa Study (%)
Mild Bleeding	12.8	-	0	0
Incomplete evacuation	0.7	0	0.3	2.2
Uterine perforation	0	0	0.5	0.3
Severe blood loss, need for blood transfusion	0	0	0	0
No complications	86.5	-	-	-

Discussion

To our knowledge, this study carried out in area with high population and limited resources where MVA can be used with less need for anesthesia and and less uterine perforation which can occurs when metallic instrument is used. In developed countries, previous experience with MVA has been limited to the management of incomplete miscarriage and early induced abortion, in our study we include other type of miscarriage in addition to uterine sampling. The findings of our study suggest that MVA is a safe, effective and acceptable option for women diagnosed with different types of miscarriages. Regarding the presenting complain. In this study 63.2% cases came with per vaginal bleeding from minimal to severe hemorrhage and 11.5% with lower abdominal pain, 2.6% with passage of products ,16.3 %came with both bleeding and pain and 6.7 % of them without complain. These findings are much less when compared with a study in MMCH.1. The risk for complication with surgical uterine evacuation is relatively small. In our sample, we did not have any major complications such as uterine perforation or

heavy bleeding, 86.8% of the patients has no complications at all , the rest had complications such as bleeding 12.5% which range between mild to moderate bleeding which does not require transfusion ,this slightly more in compare to the studies done by Elzaher, et al. and Alisa et al. (0%).

Incomplete evacuation 0.7% this much less comparable with Elzaher et al. (3%) and Alisa, et al. (2.2%). There was no uterine perforation .in our study (0%) this similar to study was conducted in Aberdeen Maternity hospital by Milingos (0%). In our study 79.8% of the cases are due to miscarriages (incomplete, inevitable and missed), molar pregnancy 9.4%, blighted ovum 2% and used for endometrial sampling in 8.7%, this will tell that MVA can be used in the management of different gynecological problems. Most patients in the study remained comfortable during MVA procedure. 63.3%, were managed with analgesic. A large portion (32.7%) were managed by only proper counselling, they just felt minimal pelvic pain lasting a few hours and decreased spontaneously, this is like studies done by Begum S.

Conclusion

Finally, MVA is a good method for uterine evacuation, does not need special training or skills, no need for surgical theater to perform the procedure and fewer complications therefore may be recommended to replace traditional D and C in the future.

Reference

1. Coombes R. Obstetricians seek recognition for Chinese pioneers of safe abortion. *BMJ* 2008; 336: 1332–1333.
2. Manual and vacuum aspiration for abortion. A-Z Health Guide from WebMD. 2006.
3. Miscarriage. EBSCO Publishing Health Library. Brigham and Women's Hospital. 2007.
4. What every pregnant woman needs to know about pregnancy loss and neonatal death. The unofficial guide to having a baby. WebMD. 2004.
5. <https://www.issues4life.org/pdfs/iariskptb002.pdf>
6. Morgentaler H. Report on 5641 outpatient abortions by vacuum suction curettage. *Can Med Assoc J* 1973; 109: 1202-1205.
7. Morgentaler H. Alan F Guttmacher lecture. *Am J Gynecol Health* 1989; 3: 38–45.
8. Kerslake D, Casey D. Abortion induced by means of the uterine aspirator. *Obstet Gynecol* 1989; 30: 35–45.
9. Baird TL, Susan KF. Manual Vacuum Aspiration: Expanding women's access to safe abortions services. IPAS 2001.
10. Forrest G, Benson J, Winkler J, et al. Summary of clinical and programmatic experience with manual vacuum aspiration. *Adv Abortion Care* 1993; 3: 1-7.
11. https://www.who.int/maternal_child_adolescent/documents/managing-complications-pregnancy-childbirth/en/
12. https://www.academia.edu/20435737/Baird_2001
13. Allison JL, Sherwood RS, Schust DJ (2011). Management of first trimester pregnancy loss can be safely moved into the office. *Rev Obstet Gynecol* 2011; 4: 5–14.
14. Dalton VK, Saunders NA, Harris LH, et al. Intrauterine adhesions after manual vacuum aspiration for early pregnancy failure. *Fertility Sterility*. 2006; 85: 1823.

This manuscript was peer-reviewed

Mode of Review: Single-blinded

Academic Editor: Ahmed KA

