Annals of R.S.C.B., ISSN:1583-6258, Vol. 25, Issue 3, 2021, Pages. 9043 - 9047
Received 16 February 2021; Accepted 08 March 2021.

Efficacy of Manual Vacuum Aspiration for the Management of Incomplete Miscarriage

Dr. Asma Amin Baig[1*], Dr. Ayesha Azhar Khan[2], Dr. M. Rabeet[3], Dr. Shamim Akhtar[4], Dr. Shazia Zulfiqar[5], Dr. UzmaAkram[6]

[1]Senior registrar, Rashid Latif Medical Complex, Lahore, [2]Senior registrar, Rashid Latif Medical Complex, Lahore, [3]Postgraduate resident, Arif memorial teaching hospital, Lahore, [4]Assistant professor, Peshawar medical and dental college, Peshawar, [5]Senior registrar, Shalamar medical and dental college, Lahore, [6]Consultant gynecologist THQ hospital, Nankana
[*1]asma_khanum@hotmail.com, [2]aakhanpk82@gmail.com, [3]dr.rabeeet@gmail.com, [4]drshamim67@yahoo.com, [5]drshaziam@hotmail.com, [6]druzmaakram@gmail.com

ABSTRACT

Introduction: Miscarriage is an unfortunateoutcome of early pregnancy which is beyond a woman's control.In routine, dilatation and curettage under general anaesthesia are performed to remove the products of conception which require admission in hospital and operation theatre thus increasing the cost of the procedure. Instead, manual vacuum aspiration (MVA) being less invasive procedure, can be performed in the outpatient departments under local anaesthesia making it acost-effective procedure and a better alternative to routine dilatation and curettage.

Objective: To determine the efficacy of MVA for the management of females with incomplete miscarriage.

Material and methods:
Study design: Descriptive study

Place and duration: Department of Obstetrics & Gynecology, Arif Memorial Teaching Hospital, Lahore for 9 months from May 2020 to January 2021.

Results: In our study, complete evacuation in patients undergoing MVA was recorded as 96.5%. So,the efficacy of MVA in the management of incomplete miscarriage in our study was 96.5% while in 3.5% of patients, MVA was not found efficacious.The mean age of the patients was 27.45 ±5.28 yearswith 67%of patients between 18-30 years of age and 33% between 31-45 years of age with higher efficacy found in the age group 18-30 years. Also, MVA was found to be 100 % efficacious in primiparous women in this study.Mean gestational ageof patients was found to be 8.05 ±3.30 weekswhere 29%of patients were between 1-6 weeks of gestation and 71%were between 7-13 weeks of gestation.

Conclusion: We concluded that the efficacy of MVA in the management of incomplete miscarriage is sufficient while it is simple, safe, and cost-effective which makesthis technique best suited for low-equipped centers. The present study also concluded that there is an association of efficacy of MVA with low parity and young age.

Keywords
Incomplete miscarriage, Dilatation and curettage,Manual Vacuum Aspiration (MVA)

Introduction

Miscarriage forms a major part of gynaecological work load. [1]An incomplete miscarriage is defined as the expulsion of some but not all products of conception from the uterusbefore 20 weeks of gestation. [2,17] The overall rate of miscarriages is 15% of allpregnancies and complications related to miscarriage are a major public health issue. [3,4] In Pakistan, the incidence of miscarriage is 29/1000 womenper year and is responsible for 5.6% - 11% of maternal mortality according to the Pakistan Demographic and Health Survey. [2,3] According to WHO approximately 99% of maternal deaths occur in developing countries according to WHO making the achievement of millennium development goal five a big challenge in these countries [9,10].Injuries related to unsafe abortions occur in about 5 million women while unsafe miscarriage leads to13% of maternal deaths worldwide [5,6].

Annals of R.S.C.B., ISSN:1583-6258, Vol. 25, Issue 3, 2021, Pages. 3323 - 3328
Received 16 February 2021; Accepted 08 March 2021.

The conventional method of treating miscarriage is dilatation and curettage under general anaesthesia but it is associated with complications like uterine perforation, infection, hemorrhage requiring blood transfusion and incomplete evacuation.[7,8] To avoid these complications other methods including medical (success rate 79%), manual vacuum aspiration (MVA) (success rate 98-99%) are developed.[16] Among these different methods manual vacuum aspiration is the best because it is safe, effective, inexpensive, portable, reusable, no need of electricity and can be done in outpatient department without general anaesthesia. [8, 14, 15] So it must be considered in routine practice as a substitute method for the treatment of miscarriage as cost is the major hindrance in seeking treatment in developing countries like Pakistan. Although evidence suggests the efficacy of MVA more than 96% [18] still this procedure is not routinely performed in Pakistan. This study was carried out to determine the efficacy of MVA in the management of incomplete miscarriage so that its use can be familiarized in low resource settings of Pakistan thereby reducing maternal morbidity and mortality.

Objective: To assess the efficacy of MVA for management of females with incomplete miscarriage.

Material & Methods

This study was conducted in department of Gynecology, Arif Memorial Teaching Hospital Lahore, Pakistan from May 2020 to January 2021. It was descriptive cross sectional study and there was non-probability purposive sampling. The estimated sample size with 95 % confidence level was 200.

Sample Selection

Inclusion Criteria:

1. Gestational age <13 weeks (confirmed by dating scan)
2. Incomplete miscarriage (confirmed byhistory,examination and USG i.e. heavy vaginal bleeding passing products of conception).

Exclusion Criteria:

1. Uterine anomaly on USG.
2. Molar pregnancy(confirmed on USG)
3. Deranged clotting profileas per laboratory report (PT, INR).
4. Known or expected ectopic pregnancy(as shown in USG).

Data Collection Procedure

A total of 200 patients with first trimester incomplete miscarriage coming to Outpatient and Emergency Department, fulfilling the selection criteria were enrolled for the study. Informed consent was obtained from all the patients by explaining the methods of termination of pregnancy. The procedure was done under local anesthesia in the form of paracervical block. After application of anesthesia, a 6-8mm MVA was inserted in cervix and a negative pressure was applied using the 60-ml self-locking rocket syringe attached with thecurette. Uterine cavity was evacuated and products of conception sent for histopathology.Patients were discharged 2 hours after procedure and followed up after 48 hours. Efficacy of MVA was measured in terms of complete evacuation confirmed on ultrasound 48 hours after MVA.

Data Analysis

Collected data was entered and analyzed in computer software SPSS v. 22.0.Quantitative variables such as age and gestational age were presented as mean and standard deviation. Qualitative variables such as

Annals of R.S.C.B., ISSN:1583-6258, Vol. 25, Issue 3, 2021, Pages. 3323 - 3328
Received 16 February 2021; Accepted 08 March 2021.

complete evacuation and efficacy of the procedure were calculated and presented as frequency and percentages.

Results

Distribution of patients according to age was done and presented, it showed 67% between 18-30 years and 33% were between 31-45 years of age, meanage was calculated as 27.45 ±5.28 years. Gestationalage was calculated and presented, 29% were between 1-6 weeks and 71% were between 7-13 weeks of gestation, meangestational age was calculated as 8.05 ±3.30 weeks. Out of 200 patients with incomplete miscarriage selected for study, MVA was found to be efficacious in 193 (96.5%) patients as shown in Table 1.

Table 2 shows frequency of efficacy of MVA in different age groups. Efficacy of MVA was found to be higher in younger age group between 18-30 years of age 98.5% while 90% in age group 31-45.

Table 3 shows frequency of efficacy of MVA according to parity of patient and highest efficacy was found in primigravida100% followed by 96.8% in grand multiparous while in multi parous patient's efficacy was found to be 90.5%.

Table 1. Efficacy of MVA

No. of patients	Efficacy	Percentage
193	Yes	96.5%
7	No	3.5%

Table 2. Frequency of efficacy according to age of patients

Age in years	No. of patients	Efficacy	
		Yes	No
18-30	134	132 (98.5%)	2(1.5%)
31-45	66	60(90%)	9 (10%)

Table 3. Frequency of efficacy according to parity

Parity	No. of patients	Efficacy	
		Yes	No
Primigravidas	34	34(100%)	_
Multigravida 2-4	72	65(90.5%)	7(9.5%)
Grand multigravida > 5	94	91(96.8%)	3(3.2%)

Discussion

The incomplete miscarriage is an unfortunate outcome of pregnancy which is a major cause of maternal morbidity and mortality. Approximately 197,000 women are treated annually for post- abortion complications.[13,23] WHO recorded 87,000 deaths due to incomplete miscarriage per year. [24] Management of incomplete miscarriage is the evacuation of the uterus which is routinely done with dilatation and evacuation under anaesthesia.As WHO has acknowledged MVA as a safe and effective methodof uterine evacuation, it should be the method of 1st choice for treatment of miscarriage and is best suited in the developing world because it does not depend upon the availability of electricity or anaesthesia. [11] We conducted this study to assess the efficacy of MVA in the treatment of incomplete miscarriage.

In our study, the mean age of patients was 27.45+5.28 years with67% between 18-30 years and 33% between 31-45 years of age. Mean gestational age was calculated as 8.05 ±3.30 weeks where 29% were between 1-6 weeks and 71% were between 7-13 weeks of gestation.

Incomplete evacuation in patients undergoing MVA was recorded as 3.5% and the efficacy of MVA in the management of incomplete miscarriage was found to be96.5%. Our results are comparable with a study conducted by Tahir et al.in which the mean age of patients was 28.2 ± 5.68 years and mean gestational age was 9.3± 1.5 weeks and recorded efficacy of MVA 97.1 %. [21] In one studyconducted by Das CM, et al.,the efficacy of the procedure was found to be 88.18% while the incomplete evacuation was seen in 9.82% of patients. [25] These results are far lower than our results but several other studies revealed the efficacy of MVA more than 95% as found in our study.

Our findings are also in agreement with a studyconducted at CMH Rawalpindi by Afzal B, et al. which recorded complete evacuation in 95.8% of cases, and infection occurred in 1.9% of cases. [1] Data from anotherstudy conducted in 2018 by Ara J, et al. reveals the efficacy of the procedure as 98%. [11].

Anjum et al. conducted a study in Abbot Abad Pakistan in which mean age of patients was 27.60 ± 4.86 years, while mean gestational age was 8.23 ± 16 weeks and success rate of MVA was found to be 96.1%. [9] MVA was reported as more effective with less failure rate 2.5% in one study. [20].

Rates of incomplete evacuation in two different studies are 4 % and 2.5 % almost similar to our results (3.5%). [4,14] Islam et al.conducted a study to determine the safety and efficacy of MVA. It was observed thatthe complete evacuation was obtained in 97% while the post-procedural complication rate was very low i.e. 4%.8 In our study the relationship of effective evacuation with patient age and parity was noted with increased efficacy of MVA noted in younger patients with low parity comparable to results of a study conducted by Anum A et al. [23].

In view of our results, we concluded thatMVA was reported as an effective method to achieve complete evacuation with less complication requiring less resource.So, this method must be taken into consideration by health care systemsin developing countries in place of conventional dilatation and curettage to improve thepost-miscarriage treatment protocols to lessen maternal morbidity and mortality.

Conclusion

Atthe present age burden on tertiary care centers with limited resources has caused many procedures to move from operation theatre to outdoor settings. MVA is an efficacious procedure with the advantage to be used in low resource areas where cost is a major hindrance in seeking medical care and also electricity breakouts are common. Yet this is a small study and more work is required to assess patient acceptability for MVA and also to familiarize gynaecologists with MVA in our settings.

References

[1] Afzal B, Tahir N, Afzal k, Kayani S. Effectiveness of Manual Vacuum Aspiration for Incomplete and Missed Miscarriages at CMH Rawalpindi. Pak Armed Forces Med J 2018;68(1):60-63.
[2] Akmal F, Suboohi S, Pario S, et al. Outcome of Manual Vacuum Aspiration Vs Surgical Evacuation. J BahriaUni Med Dental Coll 2019;9(4):303-307.
[3] Khalil S, Shaheen N. Misoprostol Versus Outpatient Manual Vacuum Aspiration for Termination of Pregnancy: A Quasi Experimental Study.J Islamic Int Med Coll 2019;14(1)3-7.

[4] Nwafor JI, Agwu UM, Egbuji CC, Ekwedigwe KC. Misoprostol versus Manual Vacuum Aspiration for Treatment of First Trimester Miscarriage in a Low Resourse Setting: A Randomized Controlled Trial. Niger JclinPract 2020;23(5)638-46.
[5] Giri A, Drivastav VR, Suwal A, Sharma B. A study of complications following self administration with medical abortion pills. NJOG 2015 Jan-Jan;19(1):20-24.
[6] Bickerstaff H, Kenny LC, Gynaecology by Ten Teachers 20th edition Boca Ratin London, New york, CRC press Taylor Francis Group, 2017,87.
[7] Schreiber CA, Creinin MD, Atrio J, Sonalkar S, Ratcliffe SJ, Barnhart KT. Mifepristone pretreatment for the medical management of early pregnancy loss. NEng J of Med 2018;378(23):2161-70.
[8] IslamR, Biswas SP, Halder D, Fatima K. Safety and efficacy of manual vacuum aspiration compared to dilatation is curettage in the management of early pregnancy failure. Bang Med J Khulna 2016; 49:18-22.
[9] World Health Organization Maternal mortality. Geneva WHO. 2014. [Cited 2015 Feb2]. Available from:http://www.who.int/mediacenter/fact sheets/f&384/en/
[10] Bhandari TR, Dangal G. Abortion practices in Nepal: What does evidence show? NJOG 2015 Jan-Jun;19(1);3-11.
[11] Ara J, Iftikhar T, Ijaz S, et al. Comparison of Manual Vacuum Aspiration Versus Conventional Evacuation of Retained Products. Ann Pak Inst Med Sci 2018;14(1):90-92.
[12] Edmonds K. Dewhurst's textbook of obstetrics and gynaecology: John Wiley & Sons; 2011.
[13] Iftikhar G, Tanveer S, Gilani TA, Gilani STA. Comparison of manual vacuum aspiration and sharp curettage in the treatment of first trimester abortions. Pak Armed Forces Med J 2014;64(4):541-5.
[14] Dr. Jayashree V, Dr. Latha K, Dr. Mahalakshmi S. Comparative study between manual vacuum aspiration and dilatation and curettage in the surgical management of early incomplete abortion in RMMCH, Tamilnadu: A randomized controlled trial. Int J ClinObstetGynaecol 2018;2(5):14-18.
[15] Manjula A, Sujata B. Compare the manual vacuum aspiration with electrical vacuum aspiration in 1st trimester MTP. IAIM 2016;3(12):41-47.
[16] Dr. Khajotia S, Dr. Balai BD, Dr. Saxena R, Dr. Malik D. Comparative study of Maunal Vacuum Aspiration and Dilatation & Evacuation for the Surgical Management of First Trimester Abortion at Tertiary Care Hospital in Western Rajasthan. Indian J Appl Res 2019 Apr;9(4):44-45.
[17] Khaniya B, Yadav R. Comparison of Use of Misoprostol versus Manual Vacuum Aspiration in the Treatment of Incomplete Miscarriage. NMJ 2019;2(2):239-42.
[18] Azman A, Sakri NAM, Kusni NAM, Mansor NH, Zakaria ZA. Manual Vacuum Aspiration: a safe and effective surgical management of early pregnancy loss. Int J ReprodContraceptObstetGynecol 2019 Jun;8(6):2256-60.
[19] Tasnim N, Fatima S, Mahmud G. Manual Vacuum aspirator:a safe and effective tool for decentralization of post miscarriage care. J coll PhysiciansSurg Pak2014Nov;24(11):815-19.
[20] MacCormac O, Edwards A, Forsyth M, et al. Comparison of manual vacuum aspiration to traditional methods of managing early pregnancy miscarriage. Cogent Med, 5:1, 1484601.
[21] Tahir A, Aamir F. To compare the efficacy of manual vacuum aspiration versus misoprostol in first trimester incomplete miscarriage. Pak J Surg 2018;34(3):250-54.
[22] Anjum MU, Ysmin S, Razzaq Q. Manual Vacuum aspiration (MVA); Safety and effectiveness on the treatment of first trimester pregnancy less. Professional Med J 2016;23 (11):1349-53.
[23] Anum A, Shabbir N, Qamar A. Efficacy of manual vacuum aspiration (MVA) and medical treatment in the management of first trimester missed miscarriage. Int J AdvBiotechnol Res 2019;10(3)61-66.
[24] Madoue GB, Daniel D, Tchari A, et al. Comparison of manual vacuum aspiration and misoprostol in the management of incomplete abortion. S Sudan Med J 2016 Nov;9(4):76-78.
[25] Das CM, Srichand P, Khursheed F, Shaikh F. Assessment of efficacy and safety of manual vacuum aspiration (MVA). JLiaquatUni Med Health Sci 2010;9(3):130.