



MANUAL VACUUM ASPIRATION (MVA); SAFETY AND EFFECTIVENESS IN THE TREATMENT OF FIRST TRIMESTER PREGNANCY LOSS

usmanziyai@gmail.com

Dr. Muhammad Usman Anjum¹, Dr. Surriya Yasmin², Dr. Qamoos Razzaq³

1. Assistant Professor,
Department of Pathology,
Frontier Medical & Dental College,
Abbottabad, Pakistan.
2. Assistant Professor,
Department of Gynecology,
Frontier Medical & Dental College,
Abbottabad, Pakistan.
3. Assistant Professor,
Department of Gynecology,
Frontier Medical & Dental College,
Abbottabad, Pakistan.

Correspondence Address:

Dr. Muhammad Usman Anjum
Assistant Professor,
Department of Pathology,
Frontier Medical & Dental College,
Abbottabad, Pakistan.
usmanziyai@gmail.com

Article received on:

22/07/2016

Accepted for publication:

05/10/2016

Received after proof reading:

14/11/2016

ABSTRACT... Objectives: To determine the safety and effectiveness of manual vacuum aspiration (MVA) in treating first trimester pregnancy loss. **Place & duration of study:** Department of Gynecology, Shahina Jamil Teaching Hospital, Abbottabad, Pakistan, from September 2013 to December 2014. **Study design:** Descriptive cross-sectional study. **Materials and methods:** All the patients who were less than 12 weeks of gestation and diagnosed with missed abortion, incomplete abortion, having retained products of conception after normal delivery and anembryonic pregnancy were included in the study. Diagnosis was made on the basis of history, physical examination and ultrasonography. Urine pregnancy test and β -HCG were done in selected patients. Last menstrual period and USG were used to determine the gestational age. Manual vacuum aspiration was carried out under Para cervical block using "Ipas Easy Grip" cannula with a 60ml syringe attached to it to create a negative pressure. Completeness of the procedure was determined and products of conception were sent for histopathological examination. **Results:** There were 165 patients enrolled in this study. All study subjects were married. Mean age of the patients was 27.60 ± 4.86 years. Fifty patients had a previous history of abortion. Mean parity was 2.98 ± 2.22 and mean gestational age was 8.23 ± 1.6 weeks. The maximum number of patients, 80%, belonged to age group of 20-30 years. There were 37 patients who were presented with first pregnancy. The number of multigravida and grand multigravida patients were equal, 64 cases in each group. The main reason for undergoing MVA in our study subjects was missed and incomplete abortion followed by retained products of conception and anembryonic pregnancy. **Conclusion:** MVA is a preferred mode of treating first trimester pregnancy loss as it is a simple, safe and cost-effective procedure. MVA should be used preferentially in rural areas where there is a limited access to health care facilities, power out-breaks are common and advanced medical equipment is not available.

Key words: Manual vacuum aspiration, abortion, pregnancy loss.

Article Citation: Anjum MU, Yasmin S, Razzaq Q. Manual vacuum aspiration (MVA); safety and effectiveness in the treatment of first trimester pregnancy loss. Professional Med J 2016;23(11):1349-1353. DOI: 10.17957/TPMJ/16.3540

INTRODUCTION

First trimester pregnancy loss is quite common among women of child bearing age. It is believed that one out of every four women experience this loss in their life-time.¹ As per the estimate of World Health Organization (WHO), there are 46 million abortions annually and out of these, approximately 20 million are believed to be unsafe. About 67,000 women lose their life every year because of these unsafe abortions while many more women endure grave injuries.² These unsafe abortions pose a significant public health threat specifically in developing countries and are also one of the chief causes of maternal mortality in these countries.³ The total number of cases

of missed and incomplete abortions is believed to be 890,000 per year in Pakistan with annual incidence of 29/1000 women between the age of 15-49 years.¹

Different treatment modalities are available for uterine evacuation after early pregnancy loss, chiefly medical and surgical ones. Medical treatment is preferred modality due to its higher safety and success rate. But, it's still not very commonly available in developing countries where surgical treatment is preferred for treating early pregnancy loss.⁴ Surgical options available for treating first trimester pregnancy loss include dilatation and curettage (D&C) and vacuum

aspiration. Conventionally, D&C is the more commonly used and preferred surgical method as compared to vacuum aspiration. But, D&C needs Operation Theater and general anesthesia and is associated with prolonged hospital stay, and hence, leads to increased health care costs and expenditures. Similarly, it is also associated with increased risk of complications.⁵

Vacuum aspiration methods include both electric vacuum aspiration (EVA) and manual vacuum aspiration (MVA). EVA is used for many years and uses electrically generated vacuum.³ In MVA, on the other hand, vacuum is created manually and doesn't require electricity. It is a simple and safe procedure that can be done under local anesthesia on an outpatient basis. All these factors make it a cost-effective treatment option for developing countries. Similarly, it is also associated with a very low risk of complications especially in the hands of a skilled clinician.¹ That's why, WHO recommended MVA as a preferred method of treatment for managing first trimester pregnancy loss in 2003.⁶ MVA takes precedence in low-resource areas where electricity break outs are common and dedicated operating surgical sites are not available such as in rural areas of our country.⁷

MVA is not quite prevalent in developing countries including Pakistan but its gaining popularity. Therefore, we have conducted this study to determine the safety and effectiveness of MVA in treating first trimester pregnancy loss in our area.

MATERIALS AND METHODS

This descriptive, cross-sectional study was performed in the Department of Gynecology, Shahina Jamil Teaching Hospital, Abbottabad, Pakistan from September 2013 to December 2014. It was a descriptive cross-sectional study and there was a non-probability consecutive sampling. All the patients who were less than 12 weeks of gestation and diagnosed with missed abortion, incomplete abortion, having retained products of conception (RPOCs) after normal delivery and anembryonic pregnancy were included in the study. Patients having uterine anomalies, pelvic infection, bleeding disorders

and suspected of having ectopic pregnancy or septic abortion were excluded from the study.

Diagnosis was made on the basis of history, physical examination and ultrasonography (USG). Urine pregnancy test and β -HCG were done in patients suspected of having retained products of conception when history and physical examination were inconclusive of pregnancy. Last menstrual period (LMP) and USG were used to determine the gestational age.

MVA was carried out under strict aseptic control. Counseling was done and informed consent was taken. Para cervical block was used to achieve local anesthesia with 10-20ml of 1% lignocaine. Systemic analgesia and single-dose of antibiotics were administered to all patients half hour before the procedure. MVA was done using "Ipas Easy Grip" cannula. 60ml syringe was attached to cannula to create a negative pressure. Completeness of the procedure was determined by i) gritty sensation, ii) absence of further aspirate, iii) feeling of uterus contracting against the cannula and iv) presence of red foam/bubbles. Products of conception were sent for histopathological examination for confirmation. Patients were observed in ward after the procedure for 1-2 hours and discharged afterwards if stable haemodynamically. They were advised to consult immediately in case of any problem e.g. abdominal pain, bleeding, etc. Follow-up was arranged after one week.

SPSS (version 19) was used to organize and analyze data. Data was presented as mean, standard deviation and percentages.

RESULTS

Total of 165 patients were enrolled in this study as per inclusion and exclusion criteria. All study subjects were married. Mean age of the patients was 27.60 ± 4.86 years and mean gestational age was 8.23 ± 1.6 weeks. Fifty patients had a previous history of abortion. Mean gravidity and parity were 4.71 ± 2.46 and 2.98 ± 2.22 respectively, as shown in Table-I.

Characteristic	Outcome
Mean age, (years)	27.60±4.86
Mean gravidity	4.71±2.46
Mean parity	2.98±2.22
Mean gestational age, (weeks)	8.23±1.6
Previous history of abortion	50, (30.30%)

Table-I. Characteristics of the study population, (n=165)

The maximum number of patients, 80%, belonged to age group of 20-30 years showing higher predilection for younger age as shown in Table-II.

Age group, (years)	Number	Percentage
20 -30	132	80%
31-40	31	18.79%
> 41	2	1.21%
Total	165	100%

Table-II. Age-wise distribution of study population, (n=165)

There were 37 patients who were presented with first pregnancy. The number of multigravida and grand multigravida patients were equal as shown in Table-III.

Variable	Number	Percentage
Primigravida	37	22.42%
Multigravida	64	38.79%
Grand multigravida	64	38.79%
Total	165	100%

Table-III. Stratification of study population according to parity, (n=165)

The main reason for undergoing MVA in our study subjects was missed and incomplete abortion followed by RPOCs and anembryonic pregnancy as shown in Table-IV.

Indication	Number	Percentage
Missed abortion	53	32.12%
Incomplete abortion	52	31.52%
Retained products of conception	30	18.18%
Anembryonic pregnancy	30	18.18%
Total	165	100%

Table-IV. Indications for the MVA, (n=165)

Complete evacuation was achieved in all cases. No complication has been observed in our study with MVA.

DISCUSSION

MVA is a preferred method for the treatment of early pregnancy loss. It is a beneficial procedure for both patients and doctors. For patients, it's a simple and inexpensive procedure with minimal hospital stay. For doctors, it reduces burden on doctors and health care facilities as it can be done quickly and on out-patient basis.⁵

The mean age of patients, in our study, was 27.60±4.86 years while mean parity was 2.98±2.22 and average gestational age was 8.23±1.6 weeks. This was similar to other studies done on the same subject. Das et al, in their study conducted in Hyderabad, Pakistan, have shown that the average age of their study subjects was 25.2±4 years, the mean parity was 4±1.2 years and the mean gestational age was 9weeks±6days.⁵ Similarly, in another study done in Islamabad, Pakistan, by Tasnim et al, they have reported that the mean age of their patients was 27.34±5.35 years and mean gestational age was 9.7±1.44 weeks.¹ Elzaher and Bedewi have conducted their study in Saudi Arabia. They have reported that the mean age of their patients was 24.8±3.2 years and mean gestational age was 9.8±1.1 weeks.⁶

In our study, maximum number of patients, 80%, belonged to age group of 20-30 years. There were 37 (22.42%) patients who presented with first pregnancy while 77.58% were multigravida. In a study conducted in India, Kamel et al have reported that the maximum number of their patients, 60%, were between the age of 20-30 years while 90% of their patients were multiparous.³ Bano et al have reported that 86% of their patients were in the age range of 16-30 years.⁸ Tasnim et al have showed that 37.73% of their patients were primigravida while 62.27% patients were multigravida.¹ Similarly, the number of primigravida and multigravida among Saudi women was reported to be 37% and 63% respectively.⁶

The main reason for undergoing MVA in our study was missed abortion in 32.12% cases, incomplete

abortion in 31.51% cases, RPOCs in 18.18% cases and anembryonic pregnancy in 18.18% cases. Our findings are comparable to other studies. Tasnim et al have shown that the main cause of undergoing MVA among their patients was incomplete abortion in 42.45% cases, missed abortion in 35.84% cases and anembryonic pregnancy in 15.09% cases.¹ Likewise, in another study conducted by Das et al, missed abortion (46.3%) followed by the incomplete abortion (36.3%) and RPOCs (9%) were the main indication for undergoing MVA.⁵ Among Saudi women, incomplete abortion (54%) followed by missed abortion (38%) and anembryonic pregnancy (8%) were the leading causes of MVA according to Elzاهر and Bedewi.⁶ This shows that the missed and incomplete abortions are the important reasons for undergoing MVA.

Complete evacuation was achieved in all cases without any complications in our study. This could be due to the fact all procedures were performed by experienced clinicians themselves. Secondly, reported rate of success is very high with MVA as well as the rate of complications associated with MVA is very low, 0.7-2%.^{9,10} All these factors make it a safe and successful procedure. For example, Westfall have reported a success rate of 99.5% with no major complications in their study. Similarly, Bano et al have conducted their study in Karachi, Pakistan and they have reported a 100% success rate with MVA.⁸ In another study conducted in Lahore, Pakistan by Fariha et al, they have reported that MVA is a safe procedure with very low risk of complications.¹⁰ Hence, MVA is a safe and highly effective procedure for treating early pregnancy loss.

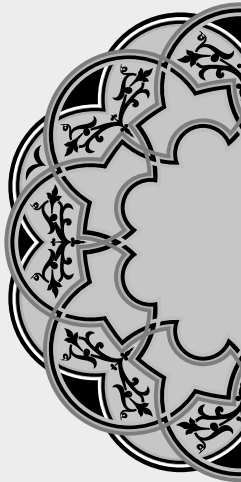
CONCLUSION

MVA is a preferred mode of treating first trimester pregnancy loss as it is a simple, safe and cost-effective procedure. MVA should be used preferentially in rural areas where there is a limited access to health care facilities, power out-breaks are common and advanced medical equipment is not available.

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*“To be a great champion
you must believe you are the best.
If you’re not, pretend you are.”*

Muhammad Ali

AUTHORSHIP AND CONTRIBUTION DECLARATION

Sr. #	Author-s Full Name	Contribution to the paper	Author=s Signature
1	Dr. Muhammad Usman Anjum	Performed study & written manuscript	
2	Dr. Surriya Yasmin	Performed study	
3	Dr. Qamoos Razzaq	Performed study	