# Comparative Efficacy Of Manual Vacuum Aspiration And Medical Termination In First Trimester Miscarriage

**Natasha Bushra,[1] Javeria Zunair,[2] Lamia yousaf,[3] Ameelia Sadaqat[4]**

**Abstract**

**Objective:** To compare the efficacy of medical termination versus manual vacuum aspiration in first-trimester miscarriage.

**Method:** This was a quasi-experimental study done at Department of Obstetrics and Gynaecology Services, Institute of Medical Sciences Lahore from January to September 2018. Women who chose medical termination were offered 600 micrograms of misoprostol given sublingually and dose repeated after 3 hours. Patients were chosen manual vacuum aspiration and were explained the method, informed consent was taken, and MVA was performed after cervical ripening. A designed proforma was filled in terms of pain score, amount of blood loss, and general symptoms like fever and diarrhoea.

**Results:** Of all women who were enrolled in the study were 408. Out of the medical termination was chosen by 228(56%) and manual vacuum aspiration was selected by 180(44%). For those patients who chose medical termination, the majority of them had fear of intervention i.e., almost 77% followed by a fear of infection after surgical intervention (62%). Patient with medical termination experienced more pain and increase blood loss as compared to MVA($p<0.05$).

**Conclusion:** MVA is a safe and effective method for early pregnancy termination as compared to medical termination

**Keywords:** Manual vacuum aspiration, medical termination, efficacy

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## Introduction

Miscarriage results in 10–20% of clinically recognised pregnancies. A large number of women present in tertiary care hospitals for treatment of the miscarriage or complications related to abortions. Unsafe abortions are a key contributor to maternal morbidity which is one of the determinants of Millennium Development Goal (MDG) targets.[1] It causes 13% of maternal mortality in developing countries and accounts for 99% of maternal death worldwide. In Pakistan, complications due to miscarriage cause maternal mortality upto 10-12%. Studies show that large number of women seeking for abortion are not educated and are not practicing any contraception. They have limited resources to report any tertiary care hospital and that lead to unsafe abortions. The most common reason for abortion in Pakistan is limitations to practice of contraception due to social and cultural backgrounds.[2]

The health care professionals in Pakistan are striving hard to provide safe abortion services to the community and to avoid the abortion related complications that will further facilitate in achieving the sustainable development goal 3 which calls for good health and well-being.[3]

Induced abortion by untrained quacks is one of the leading causes of maternal mortality and morbidity.[4] Diffe-

*1,3. Department of Gynaecology and Obstetrics Khawaja Mohammad Safdar Medical College Sialkot.*
*2. Department of Gynaecology and Obstetrics, Fatima Memorial Hospital Lahore*
*4. Department of Gynaecology and Obstetrics, LMDC*

**Correspondence:**
**Dr. Natasha Bushra** *Assistant Professor, Department of Gynaecology and Obstetrics Khawaja Mohammad Safdar Medical College Sialkot.*
*Email: Natashausman5@hotmail,com*

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rent methods of termination of pregnancy are being used and in the recent years MVA has gained popularity not only being safe and simple and more cost effective, but also leads to less complications and shorter hospital stay as compared to others. Medical termination of pregnancy by prostaglandins is an alternative method and most widely used drug is prostaglandins A study conducted in northwest Ethiopia concluded that women undergoing medical abortion are more satisfied than surgical abortion and it can be offered as an alternative method especially in low resource settings.[5]

Another study conducted in USA in 2012 compared different options for early miscarriage and concluded that expectant management leads to increase risk of bleeding that may need blood transfusion and emergency need for surgical evacuation. This study included 1521 participants. The group offered expectant management had retained products of conception seen on ultrasound after 3 weeks (RR 4.0; 95% CI 3.14 to 5.38) or by six to eight weeks (RR 3.1 95% CI 1.15 to 6.29). The mean percentage of additional surgical management in the expectant group was 28%, while only 4% in the surgical-treatment group. The expectant group had bleeding risk more than surgical group (MD 1.59; 95% CI 0.74 to 2.45. There was increased need of blood transfusion in expectant group (RR 6.45; 95% CI 1.21 to 34.42) with the mean percentage of 1.4% as compared with none for surgical management. Risk of infection was similar for the two groups (RR 0.63; 95% CI 0.36 to 1.12). [6]

A trial comparing medical and surgical options was conducted in UK that recruited 349 women concluded that medical termination of pregnancy was less costly but also less effective than surgical evacuation. Although medical treatment was more acceptable for majority of women.[7] Clinical governance is framework responsible to maintain standards in health care providers and beneficence and consent is one of its pillars. Involving patient choices and preference in making the decision about treatment options is the essential component of health care services.[8]

To address the huge population demand and to facilitate the large masses at peripheral areas still medical abortion can be considered a good choice to provide safe abortion service at home however its accept-ability in women is largely unknown. Our study aims to assess the efficacy and acceptability of medical treatment and Manual vacuum aspiration in early pregnancy termination.

## Material and Methods

It was a quasi-experimental study conducted in the Department of Obstetrics and Gynaecology, Services, Institute of Medical Sciences Lahore from January to September 2018. The calculated sample size was 380 with confidence interval of 95% with 5% margin of error. The proposal was submitted in hospital ethical board. After approval from Ethical Committee, all women who fulfilled the desired criteria were included in the study. Patients with 1st trimester miscarriage confirmed by pelvic ultra-sound were explained the aim of study and the informed consent was taken. Patients were explained about options of medical termination with misoprostol and manual vacuum aspiration telling in details risks and benefits associated with both options. Women after detailed counselling chose the desired option and reason of choice with all details were noted on the proforma. Women who made choice of medical termination were offered 600 micrograms of misoprostol given sublingually and dose repeated after 3 hours according to FIGO criteria. Patients were discharged explaining to report in case of red flag signs like pain and bleeding. Women who made choice for manual vacuum aspiration were explained the method, informed consent was taken and after following WHO surgical safety checklist, MVA was performed under paracervical block. Cervical ripening with 400 microgram misoprostol was given either sublingually or vaginally. This dose is used for cervical ripening only to prevent trauma to the cervix. It will not affect the result of medical vs MVA treatment. MVA was performed by applying local anaesthesia 10-20 ml of 1% lignocaine intracervical at 2-, 4-, 8- and 10-O'clock. Products of were sent for histopathology. All patients were called for follow up after 1 week. A designed proforma was filled in terms of pain score, amount of blood loss, general symptoms like fever and diarrhea. Data was analysed though SPSS version 20. Quantitative variables like patients age will be presented by mean$\pm$SD. Qualitative variables will be presented by calculating the frequency and percentage. Post stratification chi square test will be applied keeping a p-value $<0.05$ as significant.

## Results

All women who were enrolled in study were 380. Out of them medical termination was chosen by 228(60%)

and manual vacuum aspiration was selected by 152 (40%). Those patients who chose medical termination, the majority of them had fear of intervention i.e., almost 82%. 68% patients were afraid of hospital setting so preferred home treatment by medication. Few women chose medical treatment due to fear of infection after surgical intervention (45%). Those who chose MVA were concerned for Minimal pain in 84% women. There was fear of excessive blood loss by medical treatment that made to decide MVA in 57%. The minimal time interval taken for expulsion was main reason those who chose MVA (54%). All patients who underwent MVA had complete expulsion confirmed by post procedure ultrasound although 51(22%) of the patients who were given medical termination need to undergo dilatation and curettage($p<0.05$). The time span in average for patients who had medical termination was upto 24 hours-48 hours. Patient with medical termination experienced more pain and increase blood loss as compared to MVA ($p<0.05$). No case with pelvic infection was reported in both groups. The comparison of outcomes in patients underwent MVA and medical termination is shown in **Table 3.**

**Table 1:** *shows patient's characteristics*

| Variables | | Mean±SD Frequency(%) |
|---|---|---|
| Age | | 27±4.6 |
| Parity | PG | 147(36) |
| | G2 – G4 | 158(38) |
| | >G5 | 103(26) |
| Address | Urban | 100(25) |
| | Urban Slum | 234(57) |
| | Rural | 74(18) |
| Education | Illiterate/ Elementary | 147(36) |
| | Secondary | 208(51) |
| | Higher Secondary | 53(13) |
| Occupation | Working | 71(17) |
| | House wife | 337(83) |
| Contraception | Yes | 100(25) |

**Table 2:** *Reason for Choosing Medical Termination of Pregnancy*

| | No% |
|---|---|
| Fear of Intervention | 176(77) |
| Privacy at Home | 143(63) |
| No Infection | 142(62) |
| ***Shows Reason to Choose MVA*** | |
| Minimum Pain | 128(71) |
| Fear of Excessive Blood Loss | 72(40) |
| Short Time Procedure | 91(51) |

**Table3:** *Comparisn of Mva &medical Termination of Pregnency*

| | | MVA | Medical TOP | Chi-Sq | P-Value |
|---|---|---|---|---|---|
| Pain | Mild | 141 | 37 | 161.32 | 0.001 |
| | Moderate | 39 | 164 | | |
| | Severe | 0 | 27 | | |
| Haemorrh | <100ML | 164 | 31 | 242.22 | 0.001 |
| Age | >100ML | 16 | 197 | | |
| Time | 6 Hour | 180 | 24 | 322.1 | 0.001 |
| Interval | 12 Hour | 0 | 204 | | |
| Repeat Evacuation | | 0 | 64 | 59.927 | 0.001 |
| Infection | | 0 | 0 | Non significant | |

## Discussion

Miscarriage is a very stressful condition. Patients who are already traumatized must be handled carefully, the treatment offered should be safe effective and humane with no effect on future fertility perspective. Traditionally surgical treatment is considered best for the management of first-trimester miscarriage, but now MVA and medical treatment are considered as an alternative. The aim of our study was to compare the efficacy of MVA and the medical management of first-trimester miscarriage. In our study, 72% of patients opted for MVA due to the short procedure, minimal pain, fear of blood loss and less time is taken for expulsion. Almost similar findings were noted in another study.[9]

In our study complete evacuation was seen in all patients of the MVA group. while in the misoprostol group, 22% patients required evacuation by MVA, in another study similar findings were noted that in the MVA group, a no-repeat evacuation was required.[10] In our study pain and blood loss were significantly less in the MVA group as compared to the misoprostol group($p<0.05$). MVA is highly safe provided the health professionals are trained and equipped with proper MVA KIT. The safety of MVA can be attributed to the soft and flexible structure of pump and kitSide effects like diarrhea, fever, and vomiting were higher in the group that used misoprostol as compared to the MVA group. The results are comparable another study.[11]The results of our study revealed that MVA is better than medical management of first-trimester miscarriages. Similar findings were noted in many other studies like Tahir et al.[12] This is contrary to a study that found that both

MVA and misoprostol have the same efficacy.[13]

MVA is easy and cost effect and can be performed in outpatient clinics and theaters with less man power and equipment resources as it does not require sedation and anesthesia machines.. In poor countries like ours where anaesthesia staff and facilities are less and operation theatres are heavily occupied, MVA can be a safe option for the management of first-trimester miscarriages.[14]

In our opinion Careful patient selection and effective counselling can give better results. Hospitals should arrange for MVA kits. Proper training of staff should be done on regular basis We must conduct and get patients' feedback to improve this outdoor procedure and reduce hospital inpatient burden. We recommend conducting qualitative studies to know the perspective and insight depth of patients feeling while using MVA or medical treatment for the management of first trimester miscarriages.

## Conclusion

Manual vacuum aspiration is a safe and effective method for early pregnancy termination as com-pared to medical termination with misoprostol.

**Conflict of Interest:** *None*

**Funding Source:** *None*

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## Authors Contribution

**NB, AS:** Conceptualization of Project

**JZ**: Data Collection

**NB, JZ:** Literature Search

**JZ, AS:** Statistical Analysis

**NB, LY:** Drafting, Revision

**NB, LY, AS:** Writing of Manuscript