

# Outcomes of Manual Vacuum Aspiration Versus Dilatation and Curettage in First Trimester Miscarriages

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## ABSTRACT

**Aim:** To compare the efficacy of Manual Vacuum Aspiration (MVA) with dilatation and curettage (DNC) in first trimester miscarriage cases.

**Methods:** We conducted this trial in DHQ hospital Faisalabad Aug-2017 to Feb-2018. A total number of 90 female patients having miscarriage during first trimester were included. Patients were assigned randomly into MVA and D&C groups. Data regarding efficacy of both procedures i.e., hospital stay and procedural success rate was measured in all patients.

**Results:** Mean age of study patients was 30.47±5.23 years. Mean gestational age at the time of abortion was 8.65±1.30 weeks. Mean parity of study females was 1.96±0.82. Hospital stay was significantly prolonged in D&C group 16.75±2.31 hours versus 5.86±1.45 hours in MVA group (p-value <0.0001). Abortion was successful in 43 (95.6%) patients in MVA group versus 41 (91.1%) in D&C group (p-value 0.39).

**Conclusion:** MVA is safe, effective, and requires shorter hospital stay. And the success rate is comparable to that of D&C.

**Keywords:** Miscarriage, Manual vacuum aspiration, Dilatation and curettage.

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## INTRODUCTION

Good maternal health and termination of pregnancy very safely are very important factors of neonatal health. Early pregnancy loss (EPL) is a major complication of pregnancy and about 56 million miscarriages are performed yearly worldwide. Unsafe miscarriage is a major risk factor of mortality in pregnant females. Abortion rate is now declining in western world but it's not true for developing countries<sup>1,2</sup>.

In literature, the reported incidence of EPL is about 15 to 20% with a death rate of 10-13% if miscarriage is performed in unsafe environment.<sup>3</sup> There is a continuous effort to find a safe method of abortion in EPL. Surgical techniques include dilatation and curettage (D&C) and manual vacuum aspiration (MVA) of abortion in these patients. Many females choose surgical evacuation over expectant and medical management as it offers more immediate completion of the procedure with less follow up<sup>4,5</sup>.

In the past D&C is the most frequently used method of dealing with incomplete miscarriage in many undeveloped nations<sup>4</sup>. In this procedure general anesthesia is given which may associate with prolonged hospital stay.

Both FIGO and WHO have recommended to shift from DNC to aspiration techniques, such as MVA or to manage medically, and is the main objective of the FIGO initiative in Pakistan for some years.<sup>4,6</sup> MVA has not gained much acceptance in Pakistan among patients due to varied reasons that are both social, financial and awareness related issues, regardless of the fact that it is cheaper and safer technique as compared to D&C. We conducted this study with the aim of comparing the efficacy of MVA over D&C in first trimester pregnancy losses. As the aim of the research is to validate the significance of MVA over D&C. Because our healthcare system is already

under heavy stress of patient load there is a never ending requirement of finding alternate ways where admissions can be minimized. Secondly the use of safer and cheaper techniques in low income and low literacy countries has manifold effects.

## METHODS

In this clinical trial, 90 females with diagnosis of early pregnancy loss during first trimester either primigravida or with previous history of normal vaginal delivery were included. Exclusion criteria was; cases having no other comorbidities like bleeding disorders, hepatic, renal and cardiac disease. The study duration was Aug-2017 to Feb-2018 and was conducted in DHQ hospital Faisalabad. Pertinent history and laboratory tests were taken to fulfill the inclusion and exclusion criterion. This included detailed history, medical surgical obstetrical examination coagulation profile blood complete picture and obstetric ultrasound.

Patients were assigned randomly into MVA and D&C groups (45 patients in each group) using draw randomization technique. MVA procedure was done in the examination room under local anesthesia using a IPAS MVA system. While D&C was done in operating room after giving general anesthesia.

Data regarding efficacy of both procedures i.e., hospital stay and procedural success rate was measured in all patients. Hospital stay time was measured from time of shifting the patient to the recovery unit to time of discharge of patient from the hospital. Absence of retained miscarriage products on pelvic ultrasound two days after the principal procedure was labelled as procedural success.

Data was analyzed using SPSS software. Chi-square test was applied to compare procedural success rate between the MVA and D&C group. Independent sample t-test was used to compare hospital stay between the groups. P-value ≤0.05 was taken as significant.

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## RESULTS

Mean age of study patients was  $30.53 \pm 5.23$  years. Mean BMI of included patients was  $24.48 \pm 4.42$  Kg/m<sup>2</sup>. Mean gestational age at the time of abortion was  $8.64 \pm 1.30$  weeks. Minimum gestational age was 6 weeks and maximum gestational age was 11 weeks. Mean parity of study females was  $1.96 \pm 0.82$ . Mean hospital stay was significantly prolonged in D&C group  $16.75 \pm 2.31$  hours versus  $5.86 \pm 1.45$  hours in MVA group (p-value  $< 0.0001$ ) [Table 1]. Abortion was successful in 43 (95.6%) patients in MVA group versus 41 (91.1%) in D&C group (p-value 0.39) [Fig. 1].

Fig. 1: Comparison of Procedural Success Rate between MVA and D&C Groups (p value 0.39)

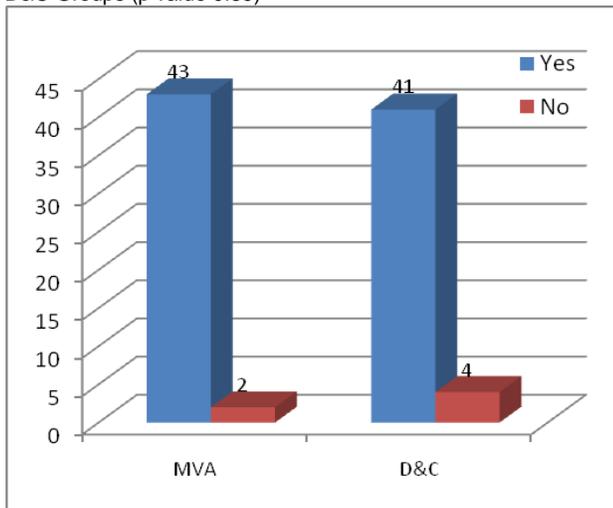


Table 1: Comparison of Mean Hospital Stay between MVA and D&C Groups.

Hospital Stay	MVA	D&C
Mean	5.86	16.75
S.D.	1.45	2.31

P value  $< 0.0001$

## DISCUSSION

It is highly important to prioritize the options for management of early pregnancy losses because high prevalence of miscarriage and related complications has substantial health and economic cost. Simplified and safe methods of first trimester abortion have been under trial since 1970s. The simplicity of vacuum aspiration under local anesthesia, with or without sedation, introduced out patient management in place of inpatient one.<sup>7</sup>

MVA is particularly appealing because it is convenient and extremely safe. It is not associated with an increased risk of pain, bleeding, uterine perforation or infection. Furthermore, it is cost effective<sup>8,9</sup>.

In present study, we compared the outcomes of MVA with D&C in first trimester miscarriage. Mean age of patients in present study was 30.47 years. Mean age of patients in the study of Islam et al. was 25 years.<sup>10</sup> Mean age of patients in the study of Qamar et al. was 31 years<sup>3</sup>.

In present study, mean gestational age at the time of miscarriage was 8.65 weeks and range was 6 to 11 weeks.

Mean gestational age in the study of Islam et al. was 9.4 weeks, maximum number of gestational age ranged from 9 to 11 weeks.<sup>10</sup> Kamel et al. and Westfall et al. also conducted a study on MVA in pregnant females having gestational age up to 10 weeks<sup>11</sup>.

In our study, procedure was successful in 95.6% patients in MVA group versus 91.1% in D&C group. Mean hospital stay of study patients was  $16.75 \pm 2.31$  hours in MVA group versus  $5.86 \pm 1.45$  hours in MVA group (p-value  $< 0.0001$ ).

Procedural success rate was lower in MVA group in the study of Salam et al. with success rate of 98.6% in MVA group and 88.5% in D&C group<sup>12</sup>. Procedural success rate in the study of Qamar et al. was also lower in MVA patients, 95% in MVA group and 98.3% in D&C group.<sup>3</sup> These results are contrary to the results of our study and many other published studies.

A systematic review by Weng et al. found no difference in the frequency of complete evacuations and patient satisfaction rate in DNC versus MVA groups<sup>13</sup>.

A study from Michigan University concluded that in DNC is 80% more time consuming and needs a two folds higher cost as compared to MVA<sup>14</sup>.

In spite of well-proven success and well-being record of MVA, it is still not extensively used as a preferred method of abortion in first trimester miscarriages in Pakistan. In realms like Pakistan where health related possessions are already limited, MVA could be used routinely, to bypass need for operation theatres.

## CONCLUSION

MVA is an alternative method to make early abortion safe and easily accessible to women in both rural and urban societies, especially in resource limited settings.

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