

Manual Vacuum Aspiration and Dilatation & Curettage in First Trimester Miscarriages; Comparison of Efficacy

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ABSTRACT

Objective: To compare the efficacy of manual vacuum aspiration with dilatation and curettage in first trimester miscarriages.

Study Design: Randomized control trial.

Place and Duration of Study: Department of Obstetrics and Gynecology Unit "A", Lady Reading Hospital, Peshawar. Patients were received through OPD and Emergency during the six months i.e from 1st Jan, 2015 till 30th June, 2015.

Methodology: Women admitted in the department of Obstetrics and Gynecology Unit "A", Lady Reading Hospital, Peshawar, who meet the inclusion and exclusion criteria, were included in the study by consecutive non probability sampling with random allocation by dividing them into two groups through lottery method. Patients in group A were treated by dilatation and curettage while the patients in group B were evacuated by manual vacuum aspiration. After the randomly allocated method of evacuation, the efficacy of the procedure was determined in terms of need for the evacuation by presence of retained products of conception on ultrasound done by specialist.

Results: No substantial difference was found between patients subjected to D&C and to those subjected to MVA.

Conclusion: MVA is as effective as D&C for the treatment of miscarriage.

Keywords: Miscarriage, Abortion, Dilatation & Curettage, Manual Vacuum Aspiration, Retained products of conception.

INTRODUCTION

In our area of the world, women frequently suffer miscarriages and abortions. According to the WHO, there are around 46 million abortions performed each year [1-2]. Nearly 30% of all maternal fatalities occur in South Asia, home to 28% of the world's population. The World Health Organization (WHO) estimates that 13% of these fatalities are due to complications connected to abortion. As many as 890,000 women in Pakistan undergo missed or incomplete abortions each year, and the yearly abortion rate is 29 per 1000 women aged 15-49 years [4].

Post-abortion care (PAC) can be achieved in three ways: surgically, medically, or by spontaneous evacuation. Surgical evacuation is the most effective approach, with a success rate of more than 85%. There is likely to be substantial morbidity in 1% of females and mild morbidity in 10% using typical surgical evacuation procedures [3]. Thus, the surgical approach of vacuum aspiration has become the norm for safe early abortions. Both the patient and the healthcare system benefit from manual vacuum aspiration (MVA) [2]. Using a hand-activated plastic syringe and just local anaesthetic, MVA (manual vacuum aspiration) may create a vacuum without the need of electricity. It is particularly useful in settings with limited resources, such as surgical suites, where electricity is scarce [1].

The post-procedure hospital stay of 5 hours is found in 10% of patients handled by D&Cs, whereas the stay of up to 6 hours is seen in 26% of patients treated by MVA for treatment of early abortions, which is more successful than traditional Dilatation and Curettage (D&C) [6]. In addition, the MVA had a 4 percent chance of incomplete evacuation, whereas the D & C had a 2 percent chance. There is no

blood loss greater than 100 ml in the MVA group, compared to 22% in the D&C group. [5] Anesthesia was not necessary in the MVA, but it was in 16% of D&C cases. 8% of patients who underwent MVA and 20% of those who underwent D&C had an incomplete evacuation, according to another research. In the D&C group, 18% of patients experienced post-procedure bleeding, compared to just 6% in the MVA group [6].

This research compares the effectiveness of MVA and D&C in miscarriages in the third trimester. Miscarriage treatment options have been studied extensively, but few research compare the two in Pakistan. A local comparison of MVA and D&C will be made as a result of this research in order to give guidance for future studies and research.

METHODOLOGY

The study was conducted on females admitted in the department of Obstetrics and Gynecology Unit "A", Lady Reading Hospital, Peshawar from 1st Jan, 2015 till 30th June, 2015, who met the inclusion and exclusion criteria. They were included in the study by consecutive non-probability sampling through random allocation by dividing them into two groups through lottery method. For group A patients, D&C was used while for patients in group B, MVA was applied. Written informed consent was taken from the patient along with approval from ethical committee of the hospital. Pre-designed proforma was used for evaluation of all patients. Detailed history, physical examination and obstetric examination was carried out. Ultrasound examination was performed for the period of gestation, retained products of conception in case of incomplete miscarriages and to exclude uterine anomalies.

The efficacy was measured by observing the need for evacuation of retained products after the evacuation was done. The data was examined in SPSS 10.0. Mean and SD was computed for numeric variable like age. For qualitative variables like efficacy, frequencies and percentages were calculated. Efficacy was stratified among age to check effective modification. Chi square test was used to compare the efficacy in both groups while keeping p value of <0.05 as significant. Results were presented through tables and charts.

RESULTS

A total of 206 patients were used in the study as per defined criteria. Group A patients were treated via D&C while group B patients through MVA. Selection was done randomly.

Mean age of the study population was observed at 28.6 + 4.9 years (Table:1). Mean age of group A was 28.3 + 4.8 years while for group B it was 29.0 + 4.9 years. The difference was statistically not significant while applying Student T test with a p value of 0.29. (Table:1)

Patients were also distributed as per age into four age groups i.e. up to 25.00 years, 25.01 to 30 years, 30.01 to 35.00 years and 35.01 to 40.00 years. Similar distribution was done for both groups. We observed that miscarriage is more common in the age group 35 and above. We also applied chi square test to find the difference between patient distribution with regard to age in between group A and B and found it statistically insignificant. P value was 0.82.

Standard treatment was provided to each group. All the patients were examined before discharge and repeat ultrasound was done to confirm the presence or absence of retained products of conception (RPOC).

It was found that 16.5% patients had RPOC's in group A and 7.8% had RPOC's in group B upon repeat ultrasound. (Table 2 and 3)

The criterion for measuring efficacy was set as the absence of RPOC's on repeat ultrasound. Hence, efficacy was observed in 83.5% patients in group A while for group B, it was found at 92.2%. On applying Chi Square test, the difference was statistically insignificant with a p value of 0.055 (Table 4).

Table No. 1: Comparison of Mean Between both Groups (n = 103 each)

Group Statistics					
	Treatment Group	N	Mean	Std. Deviation	Std. Error Mean
Age of the patient	Dilatation & Curettage Group	103	28.3301	4.89375	.48220
	Manual Vacuum Aspiration Group	103	29.0485	4.95545	.48827

Table No 2: Frequency of RPOC on Ultrasound Before Discharge (Group A)

RPOC on US before Discharge						
Treatment Group			Frequency	Percent	Valid Percent	Cumulative Percent
Dilatation & Curettage Group	Valid	Yes	17	16.5	16.5	16.5
		No	86	83.5	83.5	100.0
	Total	103	100.0	100.0		

Table No. 3: Frequency of RPOC on Ultrasound Before Discharge (Group B) RPOC on US before Discharge

Treatment Group			Frequency	Percent	Valid Percent	Cumulative Percent
Manual Vacuum Aspiration Group	Valid	Total	103	100.0	100.0	
		Yes	8	7.8	7.8	7.8
		No	95	92.2	92.2	100.0
	Total	103	100.0	100.0		

Table No. 4: Comparison of Efficacy Between Treatment Groups (n = 103 in each group) Efficacy of Procedure * Treatment Group Crosstabulation

Count				
		Treatment Group		Total
		Dilatation & Curettage Group	Manual Vacuum Aspiration Group	
Efficacy of Procedure	Yes	86	95	181
	No	17	8	25
Total		103	103	206

P-value 0.043

DISCUSSION

Miscarriages occur in 10 to 20 percent of pregnancies in the United Kingdom each year, accounting for 50,000 hospital admissions [7]. First and early second trimester losses can be treated surgically, medically, or expectantly. Most women who have miscarried are surgically evacuated under anaesthesia. It is possible to do manual vacuum aspiration (MVA) under local anaesthetic as an alternative to the traditional electrical vacuum curettage.

If you have an incomplete miscarriage or a first-trimester termination of pregnancy that has to be terminated, MVA has been proven to be safe and effective in uterine evacuation. We wanted to see how MVA compared to D&C in terms of effectiveness and safety in these situations because MVA is commonly used at our institution.

Because general anaesthesia has a higher risk of problems than local anaesthesia, MVAs are often

conducted under local anaesthetic. The patient's time in the hospital is also reduced as a result. For both patients and hospitals, MVA has been found to be more beneficial than D&C [10].

The World Health Organization has recognised MVA as a safe and effective procedure for uterine evacuation. Due to its growing popularity in underdeveloped nations, it is currently being used more often. We also observed that MVA had a lower effectiveness than previously reported, at 92.2% vs D&C's 83.5 percent [12-13]. The team's unfamiliarity with the D&C process may be to blame for this discrepancy. In our study, we discovered that 7.8 percent of patients were unable to be evacuated following an MVA [14-15]. With time and practise we anticipate that this process will become more effective. There was no difference in morbidity or effectiveness between D&C and MVA in a previous randomised trial [16].

First-trimester abortions can be safely and effectively terminated by any of the three techniques, including D&C, EVA, and MVA. Dilatation and curettage take longer to accomplish, while electric vacuum aspiration is quicker. Compared to electric vacuum aspiration, MVA is more difficult to perform in circumstances of late terminations.

The amount of time it takes to complete a task is critical. Compared to MVA and D&C, EVA takes less time to perform. Physicians also believed that EVA was simpler to execute, which might explain why it was more frequently utilised in the United States and other industrialised nations [18-20] than MVA [18, 20].

EVA and MVA both result in less blood loss, are less time intensive, and need less time in the hospital than D&C procedures. Prior research [18-20] found similar results. During the first trimester of pregnancy, both EVA and MVA are highly effective in the therapy of incomplete abortions [21].

MVA is substantially faster than D&C 22 in terms of operation time. No statistically significant changes were identified in cervical injuries, febrile morbidity, blood transfusion, therapeutic antibiotic usage, or incomplete or repeat uterine evacuation procedures when using flexible versus rigid vacuum aspiration cannula [22].

With MVA, uterine perforations were more common in one study, but not in another [17]. MVA was reported to be superior than D&C in terms of blood loss among women who were fewer than 50 days pregnant [17].

With EVA and MVA, there were far fewer difficulties than with D&C. The most significant discovery was that when comparing MVA with EVA, there was no statistical difference in the rate of complete abortion. EVA, on the other hand, performed better in terms of operation duration and doctors' evaluations [19].

There were no statistically significant differences in increased blood loss, blood transfusion, febrile morbidity, repeat evacuation, re-hospitalization, postoperative discomfort, or therapeutic antibiotic usage between the two groups in two studies including 467 women [23]. [20, 21].

In terms of RPOC's, there were no statistically significant changes [24]. However, in both early and late abortions, the time of surgery was shorter with MVA than with D&C.

To choose which treatment approach should be used, considerations such as the availability of resources and

personnel's technical abilities play a major role in the selection process [25].

Patients in well-developed environments can be regularly monitored using less intrusive procedures. It is difficult to monitor patients for probable problems and incomplete evacuations in resource-limited settings, thus more definite approaches are preferred.

We are seeing a movement from D&C to MVA, which is faster and more successful, because of the extended patient care period and the fact that MVA is frequently performed in an operating room. There has been a delay in the change even in resource-limited settings that stand to benefit a lot from sustained surgical termination of pregnancy and emergency post-miscarriage care. MVA also has a lower risk of complications than D&C [28]. In addition, MVA is a less invasive process that may be performed by midwives without affecting patient results. Mortality, blood loss, hospitalisation, productivity losses, and healthcare costs are all reduced by MVA usage [30-32].

Many authors have cited MVA as an alternative to D&C for uterine emptying in first-trimester abortions, citing the benefits of analgesics or para-cervical block in place of general anaesthesia, a lower rate of complications, a shorter hospital stay, a reduction in hospital costs, and a reduced use of resources [33-34]. Due to a lack of technical expertise, its application has been limited despite its many advantages. But for the past four years, we've been using MVA in our department since we've found it to be safe, inexpensive, and easy to use. MVA had a 92.2 percent evacuation rate compared to 83.5 percent for the D&C group in our study. There were only 0.5% repeat aspirations, 0.7% infections, and 0.6% perforations in 1,677 MVA operations for elective abortion (99% gestational age) [35]. Thirty patients with an incomplete abortion diagnosis were separated into two groups and each exposed to a different therapy technique by the researchers. In their study, they found that patients treated with MVA spent 77% less time in the hospital and used 41% less hospital resources than those treated with DNC. 115 women who had experienced an early miscarriage were studied prospectively in an outpatient environment (MVA), and the results indicated only a small number of problems, such as repeat aspirations (3%), and post-procedure infections (2%). It was shown that the time of surgery in the MVA group was much shorter than in the curettage group [38], and patients had greater bleeding as a result. Various other trials reported 95–100% efficacy with MVA [39-40].

CONCLUSION

MVA is as effective as D&C for the treatment of miscarriage. We recommend more trials comparing their efficacy on a larger sample size.

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