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Comparison of Manual Vacuum Aspiration With Dilatation and Evacuation

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ABSTRACT

Objective — *To compare the efficacy of manual vacuum aspiration with dilatation and evacuation for the management of miscarriages.*

Study design — *Comparative study.*

Place & Duration of study — *Department of Obstetrics and Gynecology Jinnah Postgraduate Medical Centre Karachi, From September 2018 to March 2019.*

Methodology — *Patients were enrolled in the study after informed consent. Patients were divided into two groups A and B, randomly by lottery methods. Patients in group A underwent manual vacuum aspiration (MVA) and in group B dilatation and evacuation. Dilatation and evacuation was done in the operation theatre under general anesthesia and MVA was carried out in the examination room under paracervical block with Ipas® MVA system which consisted of an aspirator and cannula. Patients with missed abortion and closed cervical os were asked to take 400mcg of misoprostol sublingually two hours before coming to the hospital and 400mg of ibuprofen was given to the patients orally half an hour before MVA. All the data was collected and analyzed using SPSS 21.*

Results — *A total of 184 patients were enrolled. Mean of age of the patients in group A was 28.4 ± 6.5 year and in group B 28.1 ± 6.2 year. Mean gestational age in group A was 8.5 ± 3.1 week and in group B 8.2 ± 3.4 week. Efficacy was found 95.6% in group A versus 85.8% in group B and was statistically significant (P=0.022).*

Conclusion — *Manual vacuum aspiration was a more effective method than dilatation and evacuation in first trimester miscarriages with additional advantage of being safe.*

Key words — *Efficacy, Manual vacuum aspiration, Dilatation & evacuation, Miscarriages.*

INTRODUCTION:

Early pregnancy miscarriages are the commonest medical complication effecting 10-20% of clinically recognized pregnancies.[1] The rate of unsafe abortions worldwide is on rise.[2] This rate was reported as 49% in 2008 compared to 44% in 1995.[3] Various techniques of inducing abortion exist and include medical, surgical and traditional methods.[4] Manual vacuum aspiration is a technique for uterine evacuation. MVA is simple, safe, effective, portable, and low cost technique.[5] It causes less blood loss, less time to perform and with short hospital stay.[6] It can be done safely in a clinic or medical office using local anesthetic and a non-steroidal anti-inflammatory drugs.[7]

MVA was initially recommended for incomplete miscarriage but currently it is being used for missed miscarriage, molar pregnancy, medical termination of pregnancy and endometrial sampling.[8] Compared to dilatation and evacuation (D&E), MVA is safer in terminating first trimester pregnancies.[9] Traditionally, first-line surgical management has been dilatation and evacuation which required a trained personnel, operating room, presence of anesthetist and sometimes blood transfusion. Despite careful and skilled intervention, even in the best hands complications like hemorrhage, incomplete evacuation, perforation and infection can occur.[10]

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This study was done to evaluate the effectiveness of manual vacuum aspiration versus dilatation and evacuation for miscarriage. The results help in deciding the better management of miscarriages and policy decision makers can take appropriate action to implement treatment strategy to manage this commonest gynecological condition.

METHODOLOGY:

This comparative study was conducted in the Obstetrics and Gynecology Department of JPMC from September 2018 to March 2019. Institutional review board approval was obtained and informed consent taken. Women of reproductive age group with miscarriage at gestational age < 12 weeks were included. Patients with septic abortion, bleeding disorders, and molar pregnancy were excluded. Patients were divided into two groups A and B. Each had 92 cases randomly divide by lottery methods.

Patients in group A underwent manual vacuum aspiration and patients in group B had dilatation and evacuation. Dilatation and evacuation was done in the operation theatre under general anesthesia and MVA carried out in the examination room under paracervical block with Ipas® MVA system. This system consisted of an aspirator and cannula. Patients with missed abortion and closed cervical OS were asked to take 400mcg of misoprostol sublingually 2 hours before coming to the hospital. Ibuprofen 400 mg was given orally half an hour before MVA.

Patients were assessed regarding completion of evacuation, duration of procedure, blood loss, incomplete evacuation, and duration of hospital stay. Completion of procedure was confirmed by ultrasound pelvis when no evidence of retained products of conception was found. Data was recorded on a predesigned form. SPSS version 21 was used for data entry and analysis. Frequencies and percentages were computed for qualitative variables like completion of evacuation and efficacy. Quantitative variables age, gestational age, parity, procedure time, amount of blood loss, and duration of hospital stay were presented as mean standard deviation. Comparison between the groups was done for efficacy by using Chi-square test. Effect modifier like age, parity, gestational age, was controlled through stratification. Post stratification Chi-square test was used. P value <0.05 was considered as statistically significant.

RESULTS:

A total of 184 patients were enrolled. Mean of age in group A was 28.4±6.5 year with confidence interval (CI) of 27.05-29.74 and in group B 28.1±6.2 year with CI 26.81-29.38 years. Details of parity, gestational age, duration of procedure, hospital stay, and blood loss variables is given in table I.

In group A complete evacuation was done in 58 (63%) patients while 60 (65.2%) were completely evacuated in group B. Hospital stay, amount of blood loss, and procedure time are give in table II. Efficacy was found as 95.6% in group A versus 85.8% in group B. This was found to be significant (P=0.022). This is given in table III. Stratification of efficacy with respect, parity (0-3) and > 3, and gestational age (5-10 weeks) and > 10 weeks, was done to assess the significant difference between the groups. These are shown in table IV and V.

DISCUSSION:

Manual vacuum aspiration is an alternative to the standard surgical curettage with added advantage of being performed under local anesthesia. World Health Organization recommends manual vacuum aspiration as preferred method for the first trimester abortion.[11] The efficacy of MVA is consistent with

Table I: Descriptive Statistics of MVA and Dilatation and Evacuation

Variable		n	Minimum	Maximum	Mean	±SD	95% C.1
Age (years)	MVA	92	19	45	28.4	6.5	27.05 – 29.74
	D & E	92	19	42	28.1	6.2	26.81 – 29.38
Parity (n)	MVA	92	0	5	2.2	1.4	1.91 – 2.48
	D & E	92	0	5	1.9	0.9	1.71 – 2.08
Gestational Age (Weeks)	MVA	92	5	12	8.5	3.1	7.85 – 9.14
	D & E	92	5	12	8.2	3.4	7.49 – 8.09
Duration of Procedure (minutes)	MVA	92	5	15	9.1	2.8	8.52 – 9.67
	D & E	92	5	15	8.7	2.6	8.16 – 9.23
Blood Loss (ml)	MVA	92	5	120	43.8	8.5	42.03 – 45.56
	D & E	92	5	130	41.1	8.1	39.42 – 42.77

Table III: Comparison of Efficacy Between the Groups

Group	Efficacy		P-Value
	Yes	No	0.022* (Significant)
MVA (n=92)	88 (95.6%)	4 (4.4%)	
D & E (n=92)	79 (85.8%)	13 (14.2%)	

Table II: Comparison of Groups

Variable	MVA Group (n=92)		D & E Group (n=92)	
	Yes (n %)	No (n %)	Yes (n %)	No (n %)
Complete Evacuation	58 (63%)	34 (36%)	60 (65.2%)	32 (34.8%)
Less Hospital Stay	45 (48.9%)	47 (51.1%)	40 (43.4%)	52 (56.6%)
Less Blood Loss	42 (45.6%)	50 (54.4%)	37 (40.2%)	55 (59.8%)
Less Procedure Time	32 (34.7%)	60 (65.3%)	26 (28.2%)	66 (71.8%)

Table IV: Stratification of Parity with Respect to Efficacy (n=184)

Parity		Efficacy		P - Value
		Yes	No	
0 – 3	Group - A	41 (39%)	2 (1.9%)	0.094
	Group - B	53 (50.5%)	9 (8.6%)	
>3	Group - A	47 (59.5%)	2 (2.5%)	0.143
	Group - B	26 (32.9%)	4 (5.1%)	

Fisher Exact Test

Table V: Stratification of Gestational Age with Respect to Efficacy (n=184)

Gestational Age (weeks)		Efficacy		P - Value
		Yes	No	
5 - 10	Group - A	55 (51.9%)	1 (0.9%)	0.041
	Group - B	44 (41.5%)	6 (5.7%)	
>10	Group - A	33 (42.3%)	3 (3.8%)	0.226
	Group - B	35 (44.9%)	7 (9.0%)	

Fisher Exact Test

the results of prior studies.[12] The mean age of the study population and the mean gestational age in our study are also comparable with that reported by others. In the study of Salam et al the efficacy was 98% in MVA and 88.5% in D&E group.[13] Shaheen et al noted efficacy of MVA in 92.3% and 76.9% of D&E.[14] Jayashree noted the mean age of their study patients as 24.18±3.26 and 24.30±3.69 year in MVA and D&E groups.[15]

Despite its well-proven success and safety record, manual vacuum aspiration is still not widely used as an alternative method for uterine evacuation in first trimester miscarriages in Pakistan. In our country where healthcare resources are already scarce, MVA could be considered routinely, thus avoiding general anesthesia and the need for access to theatre. Blood loss was slightly higher in MVA group (45.6%) as compared to dilatation & evacuation group (40.2%) in our study. Other researchers also reported higher mean blood loss with MVA.[16]

The average duration of the study procedure in MVA group was 9.1±2. 8 minutes whereas in dilatation and evacuation group it was 8.7±2.6 minutes. Similar were the findings in other studies.[17] In present study, the mean duration of hospital stay in MVA group was shorter than other group. In current study, 58

(63%) patients had complete evacuation of uterus in MVA group. This was less than that achieved with D&E but statistically not significant.

CONCLUSION:

Manual vacuum aspiration was more effective method than dilatation and evacuation in first trimester miscarriages. It was also found safe, cost effective though more blood loss occurred with the procedure and less clearance of uterine cavity was achieved in comparison with other group.

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