Original Article

Outcome Of Manual Vacuum Aspiration Vs Surgical Evacuation

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ABSTRACT

Objective: To compare the safety, efficacy and complications of manual vacuum aspiration (MVA) versus surgical evacuation in low resource set up.

Study Design and Setting: This crossectional study conducted at Department of Obstetrics & Gynaecology at Kulsoom Bai Valika Social Security SITE Hospital Karachi from January to June 2017.

Methodology: A total of one hundred patients with less than 12 weeks of gestation and diagnosis of missed miscarriage, incomplete miscarriage, blighted ovum or with retained products of conception (RPOCs) were recruited and randomly allocated to MVA without anesthesia (Group A) and surgical evacuation under general Anesthesia in Operation theatre (Group B).Both groups were compared in terms of demographic and obstetric data, clinical course (need of anaesthesia, operating time, approximate blood loss and stay in hospital) ,complications(excessive bleeding, uterine perforation, need for re-evacuation/ failed procedure, sepsis and maternal death) and patient satisfaction.

Results: Mean age of patients was 28.68 in Group A and 26.90 in Group B (P value-0.136). Average gestational age in weeks at which procedure was performed in Group A found to be 8.32 and 9.546 for Group B (P value-0.007). Parity was comparable in both groups (P value-0.746). Most of the patients were literate. Mean operating time and amount of blood loss comparison among groups had no statistical difference. Average hospital stay was significantly short in MVA Group (P value-0.001). No maternal death or uterine perforation observed in both the groups,6% and 8% of patients had excessive bleeding in Group A & Group B respectively, one patient underwent re-evacuation in MVA group and one had sepsis after surgical evacuation. Post procedure satisfaction was comparable in both the groups.

Conclusion: Manual Vacuum Aspiration is comparable to surgical evacuation in terms of safety, efficacy, complications, patient satisfaction and superior in shorter hospital stay, no need of anesthesia and access to operation theater.

Keywords: Dilatation & curettage , miscarriage, MVA, Surgical Evacuation .

INTRODUCTION

Miscarriage or spontaneous abortion is the commonest medical complication affecting about 10-20% of clinically recognized pregnancies. The options of management are either expectant, medical or surgical depending on clinical situation and preference of women.[1] Expectant management generally takes more time, so mostlyin clinical practice medical or surgical options are preferred because of increased psychological issues in the woman and her relatives.[2]Surgical evacuation is mandatory in case of excessive bleeding, infection or DIC. It is also preferred by most of women because of its immediate effect and it can be planned to their family and work needs.[3] Surgical evacuation can be performed by conventional method dilatation and curettage (D&C) or vacuum aspiration, by electric (EVA) or manual vacuum aspiration method (MVA).[4] During MVA, a 60-ml hand held syringe with a self-locking plunger is used to produce the vacuum for the aspiration of products of conception. It is performed under paracervical block & analgesia in the procedure room.[5] Among surgical options, D&C is widely practiced despite the fact that it needs general anesthesia, is performed in operation theater and prolong hospitalization leading to higher charges, just for the reason of unawareness and non training of staff to use the alternative and simple procedure, the MVA.[6]

MVA is a safe, effective method and performed without general anesthesia.[7] Additionally it is done in shorter time as outpatient procedure and more cost effective in contrast to conventional method.[8] MVA can be used for any type of miscarriage of < 12 weeks, including missed, incomplete, molar or even retained products of conception.[5] There are minimal complications seen like excessive blood loss or

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incomplete evacuation in the hands of a skilled and trained practioner.[9] MVA should be preferred and given superiority to conventional evacuation methods in low resource health care units and rural clinics because of its lower cost , no need of electricity and general anesthesia.[7]

Incidence of miscarriage in our country is 29/1000 women per year in reproductive age.[9] According to the Pakistan Demographic and Health Survey, association of maternal death due to miscarriage or abortion was observed to be 5.6 %. [10]

MVA is now globally recommended by the international federation of Gynecology and obstetrics and World health organization.[11, 12] It is therefore a deemed necessity to introduce MVA as a safer option of evacuation in developing countries like Pakistan, especially in low resource areas as it is considered to be effective, simple, inexpensive and easy to perform procedure with almost nil complications and indeed it was the rationale of this study. Therefore this study was aimed to compare the outcomes of manual vacuum aspiration (MVA) and surgical evacuation in low resource set up in Karachi Pakistan.

METHODOLOGY:

A clinical trial was performed in the Department of Obstetrics and Gynecology, at Kulsoom Bai Valika Social Security SITE Hospital, Karachi Pakistan for a period of six months from January to June 2017 to compare the outcomes of manual vacuum aspiration (MVA) and surgical evacuation in low resource set up. Patients who were less than 12 weeks of gestation and diagnosed with missed miscarriage, incomplete miscarriage, blighted ovum or with retained products of conception (RPOCs) were included in the study and gave informed consent. Patients with septic abortion, uterine anomalies, pelvic infection, bleeding disorders, hemodynamically unstable state, psychiatric or neurological disease were excluded.

Diagnosis was confirmed after history/ LMP, physical examination and ultrasonography (USG). Investigations were performed for every patient like complete blood count, blood grouping and Rh factor, Hepatitis B & C screening. One hundred total patients by non-probability convenient sampling technique were allocated to MVA without anesthesia in procedure room (Group A) and surgical evacuation under general anesthesia in operation theatre (Group B), fifty patients in each group. Informed consent was obtained and data was collected using a self-designed proforma. MVA was performed with IPAS cannula, after cervical priming of 6 hours with 400 micrograms of misoprostol, under aseptic techniques in procedure room without anesthesia. Para cervical block was given with 10-20ml of 1% lignocaine, as a local anesthesia. While surgical evacuation procedures were performed in operation theatre under general anesthesia by conventional method of dilatation and curettage. After procedure either MVA or surgical evacuation, products of conception were sent for histopathological examination. Patients were shifted toward after either procedure, routine care provided and discharged once stable. On discharge they were advised for follow-up visit after a week and report urgently in case of any excessive bleeding, severe abdominal pain and foul discharge.Both groups were compared in terms of demographic and obstetric data, clinical course (need of anaesthesia, operating time, approximate blood loss and stay in hospital) ,complications (excessive bleeding ,uterine perforation, need for re-evacuation/ failed procedure , sepsis and maternal death) and patient satisfaction. SPSS (version 20) was used to organize and analyze data. Data was presented as mean and standard deviation for age of patient, gestational age, operating time duration, amount of blood loss during procedure, stay in hospital and applied independent t-test for comparison. Frequency and percentages were calculated for parity, educational status, need of anesthesia, complications and patient satisfaction and compared using chi square test in both groups.

The significance level was $P < 0.05$.

RESULTS:

One hundred patients were recruited under study, fifty in each group to compare the outcomes of manual vacuum aspiration (Group A) and surgical evacuation (Group B). Indications of procedure for both groups are expressed in Figure I. Regarding Parity in Group A; 26 % were nulliparous, 52% were between Para 1-3 and 22% were Para 4 or above, while in Group B; 28% were nulliparous, 56% were between Para 1-3 and 16% were Para 4 or above ,with no significant difference in both groups(P value-0.746).All patients in Group A underwent MVA without anesthesia ,while surgical evacuation was done under general anesthesia in all patients except one, which was highly significant (P-value = 0.001). (Table I)Most of the patients under study were literate , 74% and 70% in Group A and Group B respectively.

Mean age of patients undergoing procedure was calculated to be 28.68 in Group A and 26.90 in Group B (P value=0.136). Average gestational age in weeks at which procedure was performed in Group A found to be 8.32 and 9.546 for Group B (P value=0.007). Mean operating time and amount of blood loss during procedure was comparable in both groups with no statistical difference. While average hospital stay was significantly short in Group A (P value=0.001). (Table II) Regarding complications, there was no case of any major complications, maternal death or uterine perforation was observed in both groups, while 6% and 8% of patients had excessive bleeding in Group A & Group B respectively and only one patient underwent re-evacuation in MVA group and one patient had sepsis after surgical evacuation, P value-0.541 (Figure II). Post procedure satisfaction of patients was comparable in both the groups shown in Figure III.

DISCUSSION:

Despite the fact that MVA is an effective, economical and safe choice for management of first trimester miscarriages, it is not widely practiced in our state largely due to lack of trained personnel and non-availability of MVA kits. However, Pakistan collaborated with The International Federation of Gynecology and Obstetrics (FIGO) global initiative for the prevention of Unsafe Abortions and its consequences almost eleven years back.[12] Recommendations were to switch from surgical evacuation followed by curettage to MVA, which was also endorsed by WHO, UNFPA, Society of obstetrician &Gynecologists Pakistan /SOGP and training was provided for same, mainly to doctors at public sector hospitals and ensured the availability of instruments.[12] But still we are far behind to achieve this target.

Regarding the availability and cost of MVA kits, it is slightly more expensive and need to be replaced earlier than conventional instruments used in surgical evacuation which can be used for long term and are cheaper. But overall total expenditure is reduced as it is performed without anesthesia, does not require access to operation theatre associated with early recovery and shorter hospital stay.[8] In present study, No statistically significant difference was observed between the two groups comparing the maternal age and parity, which was in agreement with ElieNkwabong, et al study.[13] While comparing the mean gestational age between Group A and Group B, significant difference was observed in the current study which was in disagreement with previous work done by Shonali et al,. [14] Most of the patients under study were literate. Both groups were comparable in the matter of operating time, with mean of 16.46 and 16.24 minutes in Group A and Group B respectively, which is in agreement with previous studies.[15,16] While study by Pedro et al revealed less operating time in process of MVA.[8]

Mean blood loss in MVA group was slightly less in comparison to other group, but it was not statistically significant, same noted by other author. [14]In contrast Patil T et al, observed blood loss higher in MVA group for more than 10 weeks of gestation as compared to EVA[17] while Pramod Garhwal et al compared the blood loss in MVA and medical method and reported less blood loss in MVA.[18] Duration of hospital stay was significantly limited in MVA group (Group A) which was in accordance with studies conducted previously.[8,13,19] All cases in Group A were performed under paracervical block without any need of anesthesia in contrast to Group B, which is again related to postoperative recovery, prolonged stay in hospital and high hospital expenditure.[13] Regarding comparing the post procedure complications , no maternal mortality and any case of uterine perforation was observed in either groups in current study, which was in agreement with study conducted by John M et al.[20] In contrast Elie Nkwabong et al reported six uterine perforations and one maternal death in D&C group against none in the MVA group.[13]

Excessive bleeding was the most frequently observed complication in both groups, with 6% and 8% of patients in Group A & Group B respectively. In contrast study performed by Patil T et al, 66.7% had excessive bleeding in MVA as compared to 40 % in EVA group.[17]Similar findings were observed by Goldberg AB et al. [21]Majority of patients had successful evacuation after MVA (98%) and only one patient underwent re-evacuation in MVA group in this study and analogous findings were reported in various

Figure 1: Indications For Procedure

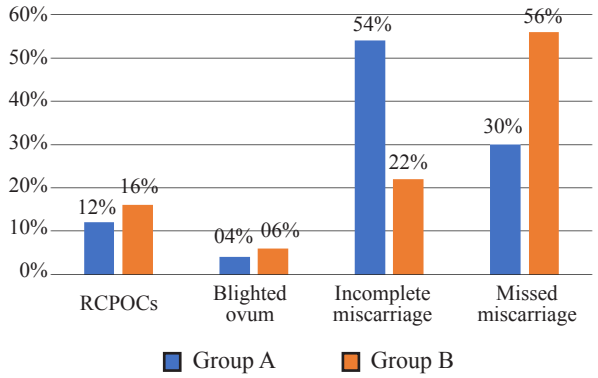

Figure 2: Comparing the Complications In MVA (Group A) & Surgical Evacuation (Group B)

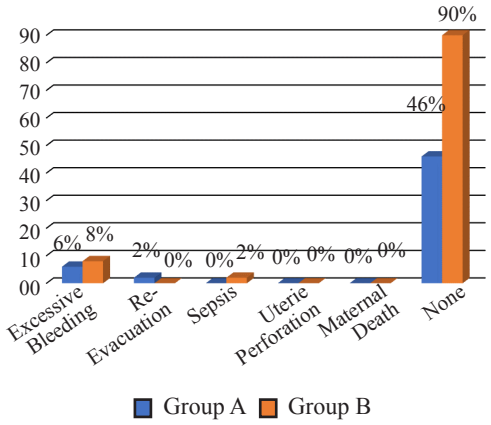

Figure 3: Patients Satisfaction (Post Procedure)

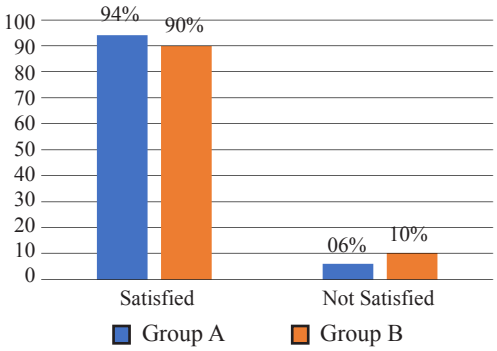

Table-1: Comparison Of Parity And Need Of Anesthesia

Obstetrical Characteristics		Group A (n=50)		Group B (n=50)		P-Value
		Frequency	Percentage	Frequency	Percentage	
	Nulliparous	13	26	14	28	0.746
	1-3	26	52	28	56	
	≥4	11	22	8	16	
Need of Anesthesia	Yes	0	0	49	98	0.001*
	No	50	100	1	2	

*Fischer exact Test

Table 2: Comparison Of Clinical Outcomes

Clinical Outcomes Variables	Group A (n=50)		Group B (n=50)		P-Value
	Mean	±SD	Mean	±SD	
Age (Years)	28.68	6.482	26.90	5.308	0.136
Gestational Age (Weeks)	8.32	2.51	9.546	1.97	0.007
Operating Time (minutes)	16.46	3.76	16.24	4.87	0.801
Amount of Blood Loss (ml)	124.40	64.49	142.70	61.29	0.149
Hospital Stay (hours)	8.76	4.09	14.44	6.48	0.001

literature.[22,23] Millingos et al, demonstrated 94.7% efficacy, while 5.3% patients had failed MVA .[5]

In current study one patient had sepsis after surgical evacuation, in contrast one patient ended up in septic shock after MVA in Ellie et al study.[13]No significant difference was observed in satisfaction level in both groups. 92% women who underwent MVA were satisfied, almost comparable results were observed by Haitham Hamoda et. al. [22]

Current study reinforces the evidence of previous researches to compare the clinical outcomes of MVA and conventional surgical evacuation. Provided all the benefits, simplicity of use and positive evidence of literature, MVA is not practiced widely until now. Probably due to non availability of MVA instruments, insufficiency of trained staff and apprehension of patients for undergoing procedure without anesthesia. Therefore it is recommended that practitioners and health policy makers must promote this procedure by providing mass training of procedure and make its access easy and available for the patients.

CONCLUSION:

The clinical outcomes of MVA (manual vacuum aspiration) procedure was comparable to surgical evacuation in terms of complications, patient satisfaction and in shorter hospital stay, no need of anesthesia and access to operation theater.

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