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ORIGINAL ARTICLE

Manual Vacuum Aspiration Versus Dilatation and Curettage for Treatment of 1st Trimester Miscarriage

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ABSTRACT

Background: Miscarriage in the first trimester contributes for the most pregnancy losses. Manual vacuum aspiration (MVA) or manual suction curettage is a method of uterine evacuation that allows women with first trimester miscarriage to be safely treated in the Outpatient department or Emergency department instead of Operation theatre. Office-based treatment reduces costs for both the client and the health system.

Objectives: To determine the effectiveness, safety and frequency of patients' satisfaction undergoing manual vacuum aspiration versus dilatation and curettage (DNC) for treatment of 1st trimester miscarriage.

Methods: This observational study was conducted in Gynecology department of Social Security Teaching Hospital, Lahore over a period of 1 year from 15-06-2022 to 14-06-2023. A total of 200 cases were included and 100 cases were assigned to each group undergoing MVA or dilatation and curettage (DNC) randomly. Procedure of MVA was performed in examination room under para-cervical block whereas dilatation and curettage was performed in theatre under anesthesia. The efficacy, complications and patients' satisfaction were determined for both procedures.

Results: Manual vacuum aspiration was superior in terms of shorter hospital stay (3.3±0.9 vs 6.14±2.64 hours; p=0.001) and less duration of procedure. Absolute evacuation was attained in 98% with Manual suction curettage versus 90% with dilatation and curettage. Uterine perforation (2%), post procedure infection(2%)and pain abdomen(7%) were encountered in dilatation and curettage group. 98% women were satisfied with MVA as compared to dilatation and curettage where 94% women were satisfied.

Conclusion: Manual vacuum aspiration is as effectual as dilatation and curettage for treatment of first trimester miscarriage while being cheap, efficient and quick, has less hospital confinement and leads to slighter blood loss and complications as compared to dilatation and curettage.

Keywords: 1st trimester miscarriage, Manual vacuum aspiration, Dilatation and curettage, Satisfaction.

INTRODUCTION

WHO has defined miscarriage as loss of embryo or fetus weighing 500gm or less which typically correspond to the gestation of 20 to 22 weeks or less.[1] First trimester miscarriage (≤12 week gestation) accounts for maximum pregnancy losses[1]. It occurs in 10-20% of clinically identified pregnancies and reports 50000 in patients' admissions annually in UK[2]. In Pakistan, annual abortion rate is approximately 29/1000 women aged 15-49 years[3]. In spite of improvement in healthcare technology, complications related to unsafe miscarriage accounts for 10-13% of maternal deaths in developing countries[4]. Thus, forage for cautious and economical uterine evacuation method continues. At the moment, management options for first trimester miscarriage include surgical and medical management[2].

Vacuum aspiration has emerged as the most effective method due to its lackof side effects and being less agony than dilatation and curettage and medical management. Manual vacuum aspiration is highly effective with success rate between 95-100% documented in various trials[5]. Lot of literature review exhibits safety and efficacy of manual vacuum aspiration in comparison to dilatation and curettage. However, very few data is available on the patient's satisfaction with both procedures in Pakistan. In one study, patients' satisfaction rate was found to be 70% for MVA[6]. Another study showed that 98%women undergoing MVA were satisfied with the procedure[2]. This issue needs further evaluation through more trials[7].

So this observational study was carried out to ascertain the efficacy, safety and frequency of patient's satisfaction with MVA and dilatation and curettage.

PATIENTS AND METHODS

An observational study was carried out in Gynecology department of Social Security Teaching Hospital, Multan Road, Lahore from 15th June 2022 to 14th June 2023. Two hundred cases with first trimester miscarriage were incorporated in this study and 100 cases were allocated to each group undergoing MVA or dilatation and curettage (DNC) randomly. All women with first trimester miscarriage at less than 12 weeks gestation and incomplete abortion were included in the study. Women with miscarriage at gestational age >12 weeks, molar pregnancy, septic induced abortion were excluded. All patients fulfilling the inclusion and exclusion criteria visiting to OPD and emergency department of Sir Ganga Ram Hospital were included in the study. After complete history, examination and investigation, informed consent was taken. Dilatation and Curettage was carried out in operation theatre under short general anesthesia and MVA was conducted in the examination room in OPDs and emergency department under para-cervical block. The patients with missed miscarriage and closed cervical os were requested to take 600 mcg of misoprostol sublingually, 3 hours prior to the procedure. Patients undergoing MVA are requested to take Tab Iboprufen 400 mg orally an hour prior to the procedure. The patients were evaluated on grounds of effectiveness of procedure, duration of procedure and duration of hospital stay. Patients' satisfaction was determined by asking the women whether she will use the procedure again or recommend it to others. Efficacy and any complications associated with MVA or dilatation and curettage were also measured. The data was entered and analyzed through SPSS-20. T test was used for statistical significant. P value less than 0.05 signified the effectiveness of procedure

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RESULTS

In the study, 21 patients were aged below 20 years, 69 patients in the range of 20-30 years old and 10 patients in the range of 31-35 years in MVA group whereas 19 patients were aged below 20 years, 63 patients in range of 20-30 years and 18 patients in range of 31-35 years in DNC group. In MVA group, 17 patients were primigravida while remaining 83 patients were multigravida whereas in DNC group, 23 patients were primigravida and 77 patients were multigravida. 24 patients of MVA group and 31 patients of DNC group had history of previous caesarean sections whereas 76 patients of MVA group and 69 patients of DNC gave no surgical history. In MVA group, gestational age was 6-8wks in

21 patients, 8-10 weeks in 63 patients and 10-12wks in 16 patients whereas 17 patients had gestational age of 6-8 weeks, 71 patients had gestational age of 8-10wks and 12 patients were at 10-12wks gestation in DNC group. MVA was carried out in 57 patients within 5 minutes, 37 patients in 6-10 minutes and 6 patients in 11-15 minutes whereas more time was required in undergoing dilatation and curettage i.e. 10 patients within 5 minutes, 62 patients in 6-10 minutes and 28 patients in 11-15 minutes (Table-I) Similarly MVA was associated with short hospital stay as compared to DNC. 90 patients were discharged within 5 hours after MVA and 10 patients within 5-8hours whereas in DNC group, 10 patients were discharged within 5 hours, 62 patients within 5-8hours, 20 patients within 9-12hours and 4 patients after 12hours (Table 1).

Regarding patients' satisfaction, 98% patients were satisfied with MVA and 90% patients were satisfied with DNC (Table 2). MVA was associated with less complication as compared to DNC. In our study, 2 patients had incomplete evacuation after MVA making it 98% effective whereas 4 patients had incomplete evacuation after DNC. Uterine perforation (2%), post procedure infection (2%) and pain abdomen (7%) were encountered in dilatation and curettage group whereas MVA was associated with less complication as compared to DNC (Table 3).

Table 1: Distribution of cases by duration of procedure

Duration of procedure (minutes)	Manual vacuum aspiration (n=100)	Dilatation & curettage (n = 100)
Age (years)		
<5	57	10
6-10	37	62
11-15	6	28
Mean+SD	5.88±2.43	8.98±2.64
P value	0.001	
Hospital stay (hours)		
<5	90	10
5-8	10	62
9-12	0	20
>12	0	4
Mean + SD	3.3±0.9	6.12±2.48
P -value	0.001	

Table- 2: Patients' Satisfaction in MVA Versus DNC Group

Patient's satisfaction	MVA (n=100)		DNC(n=100)	
	No.	%	No.	%
Yes	98	98.0	90	90.0
No	2	2.0	10	10.0

Table 3: Complications of MVA versus dilatation and curettage

Complications	MVA		DNC	
	No	%	No	%
Incomplete evacuation	2	2.0	4	4.0
Uterine perforation	–	–	2	2.0
Infection	–	–	2	2.0
Shock	–	–	–	–
Pain abdomen	2	2.0	7	7.0

DISCUSSION

Miscarriage takes place in 10-20% of clinically detected pregnancies[2]. One in four women will encounters miscarriage in her life time[8]. Local data demonstrates yearly miscarriage rate of 29 per 1000 in women aged 15-49 years[3]. Treatment options for first trimester miscarriage incorporates expectant, medical and surgical management. In spite of the fact that patient with first trimester miscarriage and incomplete abortion can be treated on grounds of expectant or medical management, however, most of the patients opted for surgical management for psychological reasons.[9] as 88% of women with miscarriage opted for surgical evacuation under general anesthesia. MVA is a substitute to standard DNC and can be carried out under para cervical block[9].

Manual vacuum aspiration has been documented as highly effective with success rate between 95-100%in various trials[5,10-13]. MVA is better than DNC as it is delicate, cheap, shorter hospital confinement (3.3±0.9 versus 6.14±2.64 hours; p=0.001), less duration of procedure, can be carried out under para cervical block and does not need electric utility. MVA was linked with short hospital confinement because more time is required for patient's preparation, duration of anesthesia and patient's recovery time in dilatation and curettage. It is especially cost effective in depleted resource setting where electric utility and surgical suites are scarce[14-19]. MVA is an effective procedure associated with fewer complications as compared to DNC. The results are comparable with studies done by Fariha et al[18], Fatima et al[10], Kubra et al[11] and Helen et al[20]. In our study, absolute evacuation was attained in 98% women who opted for MVA versus 94% pateints who opted for dilatation and curettage. Reasons of incomplete evacuation were old missed abortion, retained products of conception adherent to uterine cavity and inexperienced surgeon. Uterine perforation (2%), post procedure infection (2%) and pain abdomen (7%) were encountered in dilatation and curettage group.

In spite of the fact that MVA has been widely practiced in USA, African, Asian and European countries, its use in Pakistan is scarce. Very few studies are accessible to prove its feasibility, safety and efficacy over DNC. MVA has been a substitute method to electric vacuum extraction for past 30 years[15]. There were no difference in the complication rates between these devices and both devices showed similar efficacy in many prior randomized, controlled trials[16-19]. Very scarce data is available regarding patient's acceptability or satisfaction rate for MVA. This highlights the importance of our study which was conducted with the aim of measuring frequency of patients' satisfaction for MVA and evaluates its efficacy and safety. Our results showed patient's satisfaction rate to be 98% which is similar to the findings by Millingos et al[2] and Hamoda et al[21]. There was high satisfaction rate in most of the women who underwent MVA for treatment of 1st trimester miscarriage as compared to women (90%) were satisfied with dilatation and curettage. We incorporated small cohort patients in our study so a large cohort study of patients would be needed to establish precisely the efficacy, safety and frequency of patients' satisfaction undergoing MVA or D&C for treatment of 1st trimester miscarriage.

Although MVA is an easy procedure not needing complex apparatus, it is scarcely used in Pakistan. Unacquaintance of doctors with this apparatus, apprehension among staff in counseling women, lack of patient's awareness regarding the procedure as well as lack of its acceptance in Pakistan for treatment of miscarriage could be main factors for its scarce use. Training of staff could be another issue due to lack of government funds and government policies although the training cost is not substantial in terms of advantages attained through this low cost technology[2]. If TBAs and staff at the level of BHUs and RHUs are trained in performing MVA, maternal mortality rate can be reduced by less referral to DHQs and THQs, less time wastage due to transport, bad weather conditions and less bleeding. This study may sensitize general population, clinician and government policy makers to take interest in application of this method and increase its approval in Pakistan for treatment of miscarriage.

CONCLUSION

Manual vacuum aspiration is found to be more tolerable to women for treatment of first trimester miscarriage as compared to dilatation and curettage. It is effectual, secure and allows a better physical and mental quality of life post-operatively. It can ne contemplated as an alternative method for treatment of 1st trimester miscarriage.

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