ORIGINAL ARTICLE

Comparative Study of Manual Vacuum Aspiration and Dilatation & Evacuation for the Surgical Management of Early Miscarriages: A Randomized Controlled Trial

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ABSTRACT

Aim: To compare the efficacy of manual vacuum aspiration with dilatation & evacuation for the management of early miscarriages.

Methods: A randomized controlled trial study carried out at SPH Civil Hospital Quetta, over a period of one year from July 2014 to July 2015. Pregnant women at the gestational age less than 12 weeks with the confirmed diagnosis of miscarriage were included in the study and divided into two groups. Women in the Group A, were undergone manual vacuum aspiration and the others in Group B were undergone dilatation and evacuation for the management of incomplete abortion after an informed consent being taken. Comparison of both groups, in terms of efficacy of methods of evacuation was done. Data was collected on prescribed proforma. Mean and standard deviation were calculated for quantitative data.

Results: In Group A, Manual Vacuum Aspiration (MVA) efficacy was found in 301(98.6%) patients while in Group B, Dilatation and Evacuation (D&E) efficacy was found in 270(88.5%) patients. Mean gestational age in MVA group was 66.1±8.96 days whereas in D&E group was 64.35±11.03 days.

Conclusion: Manual vacuum aspiration is a more effective method than Dilatation and evacuation in first trimester miscarriages with additional advantage of safety.

Keywords: Manual vacuum aspiration, dilatation and evacuation, incomplete abortion

INTRODUCTION

The miscarriage of an early pregnancy is the commonest medical complication, effecting 10-20% of clinically recognized pregnancies[1]. Approximately one in four women will experience such a loss in herlife[2]. In Pakistan approximately 890,000 women present with missed miscarriage or incomplete miscarriage annually and estimated annual miscarriage rate is 29 per thousand women aged 15-49 years[3]. 197,000 women are treated for post abortion complication in the public health sector annually[4]. Despite advancement in the medical technology, unsafe miscarriage related complications contribute to 10-13% of maternal deaths in the developing countries[5]. Option for patient with early pregnancy demise are expectant, medical (misoprostol) and surgical (sharp curettage and vacuum aspiration).

It is reported that medical management is not accepted by women due to uncertainty in predicting the success. Surgical option for women is dilatation and evacuation or by suction evacuation. Dilatation and evacuation is effective as 98% but have side effects like uterine perforation 2%, infection 6%, cervical trauma 4% and blood loss more than 100ml in 22% patients is observed while MVA have no following side effects[6].

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An alternative to traditional surgical method is manual vacuum aspiration. Manual vacuum aspiration is a technique for uterine evacuation. MVA is simple, safe, effective, portable, low cost technique[7]. MVA is effective as 100%[3] and causes less blood loss, less time consuming, require short hospital stay and thus cost less[6]. It can be done safely in a clinic or medical office using local anesthetic and a non-steroidal anti-inflammatory drug (NSAID), such as ibuprofen.

This technique is in used for last three decades[8] initially for incomplete miscarriage but currently it is being used for missed miscarriage, molar pregnancy, medical termination of pregnancy and endometrial sampling. Complications are rare less than 2%[1]. MVA has been demonstrated to be effective and very safe through clinical studies over the last 30 years. The World Health Organization (WHO) recommends MVA as a preferred method of uterine evacuation[9].

Studies demonstrate that the efficacy of MVA is comparable to EVA and is successful in approximately 99% of cases for early elective abortion and management of early pregnancy loss. Studies show that 98% of vacuum aspiration procedures occur without complications, much higher than the alternative D&C method, which may induce incidences of excessive blood loss, pelvic infection, cervical injury, and uterine perforation.[10] MVA has been demonstrated to be effective and very safe through clinical studies over the last 30 years. The

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PATIENTS AND METHODS

This was a randomized controlled trial conducted at SPH Quetta, over a period of one year from July 2014 to July 2015, after getting a formal approval of Ethics Committee. It was a prospective study. The sample size was calculated to be 610 patients. Pregnant women with gestational age less than 12 weeks and having a confirmed diagnosis of miscarriage were included in the study. Patients with molar pregnancy, septic abortion and other co-morbidities like uterine anomalies; coagulation disorders etc. were excluded from the study to avoid bias. The purpose of the study and the details of both procedures (D&E, MVA), including risks and benefits were explained to the patients admitted in Gynae Unit-1 through emergency or out-patient department. An informed consent regarding the inclusion in study was obtained. The diagnosis of miscarriage was made on the basis of history, clinical examination and pelvic ultrasound. These study cohorts were randomly divided into two groups “A” and “B”. The women in group A were undergone MVA manual vacuum aspiration and the others in group B were undergone dilatation and evacuation for the management of incomplete abortion. Patients were kept under observation for any complication for few hours. No major complications were observed in both groups. Efficacy of the procedures was confirmed by pelvic ultrasound Patient was called for follow up after two weeks. Data was collected on prescribed proforma. Mean and standard deviation were calculated for maternal age and gestational age. Frequency and percentage were calculated for parity and effectiveness.

RESULTS

In the analysis of 610 pregnant women, mean age of 29.6±4.96 years was found in Group A (MVA) (n=305); whereas in Group B(D&E) (n=305), the mean age was 28.3±5.63 years as shown in Table 1. Mean gestational age in MVA group was 66.1±8.96 days whereas in D&E group was 64.35±11.03 days as shown in Table 2. In both MVA and D&E group, gestational age was mostly >70 days i.e., 165(54.1%) and 145(47.6%) respectively (Table 3).

MVA was found effective in 301(98.6%) cases, whereas D&E was effective in 270(88.5%) cases. The efficacy was regarded as positive when pelvic ultrasound revealed complete evacuation with no evidence of retained products of conception. MVA failed to evacuate the uterus completely in only 4 (1.4%) cases while D&E failed to do so in 35(11.5%) cases (Table 4).

In MVA group, 90(44.9%) patients were nulliparous, 140(55.1%) patients were primiparous and 75(24.5%) patients were multipara, whereas in D&E group 90(29.5%) patients were nulliparous, 150(49%) patients were primiparous and 65(21.5%) patients were multipara.

Table 1: Age of the patients (Descriptive Statistics (n=610)

	MVA Group	Dilatation & Evacuation
Mean	29.6	28.3
S.D	4.96	5.63
Minimum	20	24.3
Maximum	44	41.5
Range	24	17.3

Table 2: Gestational Age

	MVA Group	Dilatation & Evacuation
Mean	66.1	64.35
S.D	8.96	11.03
Minimum	53	57
Maximum	77	78
Range	24	21

Table 3: Proportion of Gestational Age in days (n=610

Gestational Age in Days	MVA	Dilatation and Evacuation
<70 Days	140 (45.9%)	160 (52.4%)
>70 Days	165 (54.1%)	145 (47.6%)

Table 4: Proportion of Efficacy (n=610)

Efficacy	MVA	Dilatation & Evacuation
Yes	301 (98.6%)	270 (88.5%)
No	4 (1.4%)	35 (11.5%)

Table 5: Parity Distribution (n=610

Parity Distribution	MVA	Dilatation and Evacuation
Nulliparous	90 (29.5%)	90 (29.5%)
Primiparous	140 (45.9%)	150 (49%)
Multiparous	75 (24.59%)	65 (21.5%)

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. Manual vacuum aspiration (MVA) is an alternative to the standard surgical curettage, performed under local anesthesia. Manual vacuum aspiration can be performed without the need for a fully equipped operation theatre as it does not need electricity and can be carried out under Para-cervical block. In countries with a small number of physicians, manual vacuum aspiration can be safely and effectively used by mid-level health care providers such as mid-wives. World health organization (WHO) recommends as the manual vacuum, aspiration preferred methods for the first trimester abortion[15].

The aim of our study was to assess the efficacy of MVA in the management of first trimester miscarriages. This was a prospective study of 610 patients, who were scheduled to undergo surgical evacuation. The study population was randomized to two groups, 50% of these women undergone MVA and the rest 50% undergone D&E. Both MVA and D&E were found to be efficient. MVA was found effective in 98.6% of the cases whereas D&E was effective in 88.7% cases. Incomplete uterine evacuation was seen in 1.4% (4/305) patients in MVA group whereas it was seen in 11.5% (35/305) patients in D&E group. The efficacy of MVA was 98.6% which is consistent with the results of prior studies i.e., Gazvani 2004[16]. The mean age of the study population and the mean gestational age in our study are also comparable with that of Gazvani 2004. The mean age in our study was 29.6±4.96 (20-44) years vs. 31.8±5.2 years and the mean gestational age was 9.42±1.69 weeks in our study whereas in Gazvani's study it was 9.2±1.8 weeks.

Another study demonstrated that MVA is successful in 99% of cases of elective abortion and spontaneous abortions. Its efficacy is comparable to EVA (electric vacuum aspiration)[10]. Bique et al have compared the efficacy of MVA with that of the misoprostol for treatment of incomplete abortion. Follow-up at seven days post-treatment reported success rate of 100% for MVA and 91% for misoprostol (100% vs. 91%; p 0.002)[17]. The results of the study favor manual vacuum aspiration as the preferred method for uterine evacuation during first trimester of pregnancy. This method is faster and more efficacious than medical termination with misoprostol especially at 9-12 weeks of gestation[18].

Despite its well-proven success and safety record, manual vacuum aspiration is still not widely used as an alternative management for uterine evacuation in first trimester miscarriages in Pakistan. In countries like Pakistan where health care resources are already scarce, MVA could be considered routinely, thus avoiding general anaesthesia and the need for access to theatre.

CONCLUSION

Manual vacuum aspiration is a more effective method than dilatation and evacuation in first trimester miscarriages with additional advantage of safety.

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