Original Article

Comparison of Manual Vacuum Aspiration Versus Electric Suction Evacuation in First Trimester Abortion

Hamna Javed, Bilal Mehmood and Saadia Khan Baloch

ABSTRACT

Objective: To compare manual vacuum aspiration versus electric suction evacuation (in terms of complete abortion) in first trimester abortion at a tertiary care hospital.

Study Design: A Randomized controlled trial study.

Place and Duration of Study: This study was conducted at the Department of obstetrics and gynecology, Holy Family Hospital, Rawalpindi from 01-01-2016 to 30-12-2016.

Materials and Methods: A total number of 430 pregnant females, age ranging from 20-40 years and gestational age <12 weeks at the time of abortion were included in this study. These study cases were randomly divided into two groups. Group A (n=215) was underwent manual vacuum aspiration while group B (n=215): was managed by electric suction evacuation technique. The final outcomes i.e. complete abortion was noted on 7th day. Data was analyzed by using SPSS Version 20. Chi-square test was applied to compare complete abortion rate in both groups.

Results: The mean age of the patients was 32.15±5.06 years. Mean body mass index was 25.58+7.84 Kg/m^2.Mean gestational age of females at the time of abortion was 8.97±1.29 weeks. Regarding complete abortion using two techniques, the overall success rate was 409 (95.1%) and there were only 21 (4.9%) cases of failure. Failure rate was 15 (6.97%) in electrical suction evacuation group and only 6 (2.80%) in manual vacuum aspiration group (p-value of 0.04).

Conclusion: Manual Vacuum aspiration is a superior technique as compared to electrical suction evacuation regarding success of complete abortion.

Key Words: Abortion, Manual Vacuum Aspiration, Electric Suction Evacuation.

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INTRODUCTION

Abortion (early pregnancy loss) is a very common event of women's life and is accountable for a very high number of losses of pregnancies. According to WHO, nearly 46 million pregnancies are aborted every year, out of which nearly 20 million abortions are done in unsafe environment.[1] The estimated abortion rate in Pakistan is about 29/1000 in pregnant females having age 15 to 49 years. Incomplete miscarriage occurs in about 10% to 15% of all pregnancies and it is accountable for 10% to 13% of total maternal deaths during pregnancy.[2-6]

To avoid miscarriage, there has been a continuous research for the development of a safe and cost effective method of abortion.

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Manual vacuum aspiration and electrical suction evacuation are two commonly used methods of abortion in many hospital settings in Pakistan. Out of all the recognized procedures of first trimester, Electrical suction evacuation(ESE) has been used since years. It has become standard surgical procedure for safe early pregnancy termination.[7] Most of these operations are performed in operating theatre using an electric vacuum.Manual vacuum aspiration (MVA) is an alternative to electrical suction. It also does not require electricity for its operation and has a success rate upto 98.0%-100%.[8-10] Moreover, women also prefer MVA over ESE because of its less noise, lower cost and more reliability.[11-13] But MVA is less used as compared to ESE in many centers.[14] In this study, we compared manual vacuum aspiration versus electric suction evacuation (in terms of complete abortion) in first trimester abortion at a tertiary care hospital.

MATERIALS AND METHODS

This clinical trial was conducted in a tertiary care setting, Holy Family Hospital Rawalpindi. The study was completed in a period of one year from January 2016 to December 2016. A total number of four hundred and thirty (430) pregnant females having age 20-40 years and Gestational age less than 12 weeks

assessed on LMP undergoing first trimester abortion presenting with complaint of bleeding per vagina as per abortion definition were selected for this trial. Females with history of cesarean section, pelvic infection, uterine fibroids, ectopic pregnancy and those having any medical disorder like diabetes, hypertension, asthma, epilepsy assessed through medical records were excluded.

Ethical clearance was taken from Institutional Ethical Committee to conduct this study. Informed consent was taken from each patient before inclusion. These study cases were briefed about the objectives of this study, ensuring them confidentiality of the information provided and fact that there was no risk involved to the patient while taking part in this study.

Once registered these study cases were randomly divided into two groups (Group A and Group B) by draws method. Group A females underwent manual vacuum aspiration while group B females underwent electric suction evacuation technique.The final outcomes i.e. complete abortion was noted on 7th day after abortion.

Data was analyzed by using SPSS Version 20. Mean and standard deviation was calculated for the numerical data like age of patients, duration of procedure, BMI and gestational age. Frequencies and percentages will be tabulated for qualitative variables like age groups, parity, gravidity and complete abortion. Chi-square test was applied to compare outcome i.e. (complete abortion) in both groups.

RESULTS

In this study, 430 patients were included. The mean age of the patients was 32.15±5.06 years. Mean body mass index was 25.58±7.84 Kg/m^2.Mean gestational age of females at the time of abortion was 8.97±1.29 weeks. Comparison of age, BMI and gestational age within groups is given in Table 1.

Table No.1: Baseline Characteristics of study patients.

Variable	Manual Vacuum Aspiration (N=215)	Electrical Suction Evacuation (N=215)	P-value
Age	32.51±5.18	31.80±4.92	0.15
BMI	25.21±9.71	25.95±5.33	0.33
Gestational Age	9.00±1.28	8.93±1.29	0.54

Regarding parity status, there were 191 (44.4%) nulliparous females. The pregnant females with parity status of 2-3 were 172 (40.0%) and with parity status ≥ 4 were 67 (15.6%). There was no difference in parity status between the groups (Fig 1).

Regarding complete abortion using two techniques, the overall success rate was 409 (95.1%) and there were only 21 (4.9%) cases of failure. Out of which 15 cases were in electrical suction group and 6 cases were in manual vacuum aspiration group. The rate of failure of complete abortion was significantly high in electrical suction group with p-value of 0.04 (Table 2).

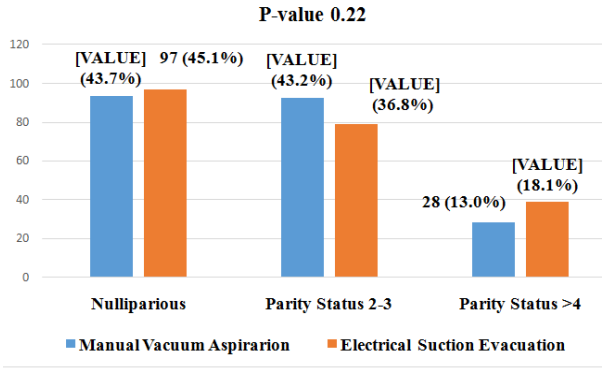

Figure No.1. Comparison of Complete Abortion in Manual Vacuum Aspiration Versus Electrical Suction.

Table No.2: Comparison of Complete Abortion Rate.

Complete Abortion	Manual Vacuum Aspiration	Electrical Suction	P-value
Yes	209 (97.20)	200 (93.03)	0.04
No	6 (2.80)	15 (6.97)	

DISCUSSION

Manual vacuum aspiration is being used worldwide from the last 30 years and is considered to be a safe and effective procedure of uterine emptying in early pregnancy.[15,16] It is now considered as an alternative tool of abortion to electrical suction, dilation and curettage.[17] Tasnim et al., concluded that Manual vacuum aspiration is a safe and effective alternative to traditional electric vacuum aspiration.[7] It is superior to Electrical Vacuum Aspiration in terms of cost, reduced need for general anaesthesia and no need for electricity. But the use of manual vacuum aspiration in most of the hospitals is restricted due to unfamiliarity of the clinicians with its use. The technique was introduced in our institution only three years back and was new for the residents as well other faculty members who were more competent with Electrical suction. A high achievement rate with no main complications with manual vacuum aspiration proved that this technique is safe and easy to learn. According to Edwards et al manual vacuum aspiration is associated with smaller blood lose, short procedural time, less hospital stay and thus a cost effective procedure for early abortion.[18] Manual vacuum aspiration is also considered to be an effective and safe tool for outpatient or office based abortion.[18] There is very low incidence of complication using manual vacuum aspiration and electrical suction but both these procedures can lead to severe complication e.g. uterine perforation, pelvic infection and even death.[10]

The mean age of pregnant females at the time of abortion in my study was 32.15±5.06years. The complete abortion rate using manual vacuum aspiration was high as compared to the electrical suction group. In this study this rate was 97.2% in manual vacuum aspiration group and 93.02% in electrical suction group.

In the study of Tasnim et al[7] the rate of successful abortion was high in electrical suction group 91.4% versus 89.6% in MVA group. But in the study of Samal et al.[2] the rate of complete abortion was high in manual vacuum group 98.0% versus 97.0% in ESE group.Helen et al.[1] also found similar results, in their study the rate of successful abortion was 98.0% in MVA group and 97.0% in ESE group. And these authors concluded that MVA should be used as a 1st line technique because it is much safe and easy as compared to ESE method. In the study of Baqai et al.[19] the rate of successful abortion using MVA was 94.5%. Ansari et al.[20] found 97.7% success rate of abortion using MVA. In my study, the mean gestational age at the time of abortion was 8.26±1.57 weeks and in the study of Tasnim the mean gestational age in manual vacuum aspiration group was 9.7±1.44 weeks.[7] The less gestational age in my study may be responsible for high success rates using manual vacuum aspiration.

So according to the results of our study, MVA is associated with higher rate of successful abortion as compared to electrical suction evacuation. Because of its simplicity and easy usage, it should be used for abortion preferably as compared to electrical suction evacuation especially in centers where there is a lack of modern facilities and especially electricity backup in gynecology departments.

CONCLUSION

Manual Vacuum aspiration is a superior technique as compared to electrical suction evacuation regarding success of complete abortion.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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