

Comparison of the Outcome of Electric Vacuum Aspiration and Conventional Dilatation and Curettage in First Trimester Miscarriages

Electric Vacuum Aspiration and Conventional Dilatation and Curettage in Miscarriages

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ABSTRACT

Objective: To compare the outcome of electric vacuum aspiration and evacuation of retained products of conception in 1st trimester miscarriages.

Study Design: Randomized Controlled Trial study.

Place and Duration of Study: This study was conducted at the Department of Obstetrics & Gynecology, Shahida Islam Teaching Hospital Lodhran from January 2019 to December 2020.

Materials and Methods: A total of 108 patients with 1st trimester miscarriages, 18 to 40 years of age were included. Patients with signs of septic abortion, ectopic pregnancy, CRF, CLD and any bleeding disorders were excluded. Group 'A' patients underwent electric vacuum aspiration (EVA) while group 'B' patients underwent dilatation and curettage (DNC). Outcome variables like blood loss, hospital stay, uterine perforation and incomplete evacuation were noted.

Results: The mean age of women in group A was 28.52 ± 4.76 years and in group B was 29.08 ± 5.83 years. Gestational age was from <12 weeks with mean gestational age of 6.93 ± 2.61 weeks. In this study, mean blood loss was seen in EVA as 68.72 ± 11.28 ml and 83.85 ± 8.94 ml in DNC with p-value of 0.0001. Also hospital stay was seen in EVA as 24.92 ± 3.62 hours and 38.23 ± 5.73 hours in DNC with p-value of 0.0001. Incomplete evacuation was found in DNC group as 00 (0.0%) and in MVA group as 02 (1.85%) with p-value of 0.155. The uterine perforation was seen in 06 (11.11%) patients of DNC group and 2 (3.70%) patients of EVA group with p-value of 0.038.

Conclusion: This study concluded that electric vacuum aspiration (EVA) is effective and safe procedure as compared to conventional DNC in 1st trimester miscarriages.

Key Words: 1st trimester miscarriages, blood loss, electric vacuum aspiration. Dilatation and curettage, uterine perforation.

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INTRODUCTION

Maximum number of pregnancy losses occurs in early first trimester. On average every fourth women experiences a pregnancy loss in first trimester in her life time.¹ According to research data, the rate of pregnancy losses 29/1000 live births in women between ages 15-49

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15-49 years.² when determining the cause of first trimester miscarriage, missed miscarriage and incomplete miscarriage are the commonest³. The exact incidence and prevalence of miscarriages cannot be estimated as most of the women loss in early pregnancy without even knowing it.⁴ Assome women with bleeding in early pregnancy may not seek medical advice assuming the bleeding as their menses.⁴

Termination of pregnancy can be done by both surgical and medical methods. Gestational age is the most important factor in choosing the appropriate method. Medical approach is easy, noninvasive, and inexpensive but may end up in surgical evacuation and success is not always guaranteed. Surgical evacuation can be done by different methods including manual vacuum aspiration (MVA) or electric vacuum aspiration (EVA), dilatation and curettage (DNC).⁷ Vacuum aspiration is superior to all other methods in terms of safety, success and less complications yet dilatation and sharp curettage had been largely used method for uterine evacuation in developing world including Pakistan.

Local Hospital protocols of hospital admission and treatment should be based on local infrastructure, personal and practical limitations, availability of instruments and machinery patient preferences and, clinical efficacy of a surgical method.⁵ After abortion care of the women has been revolves around the harm reduction approach to maternal mortality and morbidity since early 1990,s.⁶

Lack of appropriate training and literature that compares MVA with sharp curettage concerns the use of this method in Pakistan.⁸ Incomplete evacuation in DNC group was found to be 20% and in MVA group as 8%.⁹ Amongst complications uterine perforation was found to be 10% in DNC group and 2% in MVA group.⁹ In another study, mean blood loss in MVA was 74.3±60.1 ml and 104.2±104.1 ml in DNC. Also hospital stay in MVA was 35.9±13.1 hours and 45.9±19.0 hours in DNC.¹⁰

DNC is a routine daily procedure in gynaecology departments of our hospitals. International literature shows that vacuum aspiration is more effective and safer in 1st trimester miscarriage. Manual vacuum aspiration is mostly studied and electric vacuum aspiration was not given much attention. So we decided to conduct a randomized clinical trial in our population in our Hospital Settings to compare the outcome of EVA and DNC in 1st trimester miscarriages. This study will not only provide the local statistics but will also provide our population a more effective and safe method in first trimester abortions. Then based on the results, the method with better outcome would be adopted routinely in our practices for reducing the maternal morbidity and mortality.

MATERIALS AND METHODS

This study was conducted in Department of Obstetrics &Gynecology, Shahida Islam Teaching Hospital Lodhran from January 2019 to December 2020.All patients between ages 18-40 years with 1st trimester miscarriage less than 12 weeks as assessed on LMP and presence of these Sonographic features like an abnormal-looking large and irregular yolk sac it may be floating freely, or calcified and increased echogenicity in placenta and sub-chorionic hematoma (hyper-echoic). However the patients with signs of septic miscarriage (fever >37.7 °C, purulent vaginal discharge, tachycardia or abdominal distention) were excluded. Ectopic pregnancy, any history of bleeding disorder, hemodynamic instability, chronic liver disease (serum bilirubin >1.0 mg/dl), chronic kidney disease (serum creatinine >1.3 mg/dl) were also excluded.

Data Collection Procedure: After taking permission from ethical review committee of Shahida Islam Medical Complex Lodhran, 108 patients fulfilling the

inclusion criteria were selected. After taking informed written consent, all selected cases were randomly divided into two groups by picking one from 108 slips half of them having group “A” on them and half having group “B” on them. Group “A” patients had electric vacuum aspiration (EVA) while group “B” patients had dilatation and curettage (DNC). All procedures were performed by the three surgeons (with at least 3 years of post-fellowship experience). Outcome variables like hospital stay, blood loss, uterine perforation and incomplete procedures were noted. This all data was recorded on a specially designed Performa.

Statistical Analysis: All the data was entered and analyzed by using SPSS version 20.0. Mean and standard deviation were calculated for age, gestational age, parity, hospital stay and blood loss. Frequency and percentage were calculated for incomplete evacuation (yes/no) and uterine perforation (yes/no). Independent ‘T’ test was used to study the hospital stay and blood loss of both groups and chi square was applied to compare the incomplete evacuation and perforation. P-value ≤ 0.05 was considered as significant. Effect modifiers like age, gestational age and parity were controlled through stratification and post-stratification Independent ‘T’ test was used to see their effect on outcome and chi square was used to see their effect on outcome. P-value ≤ 0.05 was considered as significant..

RESULTS

The mean age of women in group A was 28.52 ± 4.76 years and in group B was 29.08 ± 5.83 years. Gestational age was from <12 weeks with mean gestational age of 6.93 ± 2.61 weeks.

Mean blood loss was seen in EVA as 68.72 ± 11.28 ml and 83.85 ± 8.94 ml in DNC with p-value of 0.0001. Also hospital stay was seen in EVA as 24.92 ± 3.62 hours and 38.23 ± 5.73 hours in DNC with p-value of 0.0001 (table I).

Incomplete evacuation was found in DNC group as 00 (0.0%) and in EVA group as 02 (1.85%) with p-value of 0.155. The uterine perforation was seen in 06 (11.11%) patients of DNC group and 2 (3.70%) patients of EVA group with p-value of 0.038 (table II).

Table No.1: Comparison of mean hospital stay and blood loss in patients of electric vacuum aspiration and dilatation and curettage in 1st trimester miscarriages

Outcome	Group A (n=54)	Group B (n=54)	p-value
	Mean ± SD	Mean ± SD	
Blood loss (ml)	68.72 ± 11.28	83.85 ± 8.94	0.0001
Hospital stay (hours)	24.92 ± 3.62	38.23 ± 5.73	0.0001

Table No.2: Comparison of outcome (in terms of incomplete evacuation and uterine perforation) of electric vacuum aspiration and dilatation and curettage in 1st trimester miscarriages.

Outcome	Group A (n=54)		Group B (n=54)		p-value
	Yes	No	Yes	No	
Incomplete evacuation	01(1.85%)	53(98.15%)	00(0.00%)	54(100.0%)	0.155
Uterine perforation	02 (3.70%)	52(96.30%)	6(11.11%)	48(88.89%)	0.038

DISCUSSION

Early pregnancy loss is a major health problem as 15-20% pregnancies end in early miscarriage. According to the WHO report (2003) estimated miscarriage number worldwide is 46million per year and out of it 20 million are unsafe. Around 67,000 mothers die due to unsafe abortions per year and thousands suffer morbidity due to sepsis and organ injuries. Abortion related maternal death is a major health problem in Pakistan and also a leading cause of maternal morbidity and mortality.

But with the development of better health care and new techniques maternal deaths due to unsafe abortions have declined in past few years.¹²The treatment options for first trimester miscarriages include expectant management, medical termination with misoprostol and surgical evacuation. When medical termination is failed or not recommended, there are two surgical options first is evacuation and curettage and other is suction evacuation either manually or electric vacuum evacuation. As Asherman's syndrome can occur after sharp uterine curettage, the WHO discourages the use of sharp curettage (DNC) for first trimester miscarriages, therefore, suction remains the safe option.¹³Conventional surgical management i.e. dilatation and curettage commonly known as DNC requires a trained personnel, anesthesia, operation room and some-times blood transfusion. Even in hands of best surgeons, complications for example hemorrhage, incomplete evacuation, uterine perforation and infection can occur. The preferred methods of abortion up to 12 completed weeks by World Health Organization are vacuum aspiration, or medical methods which had been shown effectiveness up to 9 completed weeks. Dilatation and curettage should be the option where none of the above methods are available or these methods have failed. Vacuum aspiration was associated with less pain, shorter duration of procedure, decreased blood loss, and reducing health care cost when compared with those of sharp curettage. Successful rate for complete evacuation of conceptive products by vacuum aspiration was 95-100%. Other advantages of this method are the acceptability of doctors and, the satisfaction of the patients.¹³ MVA is compared by many researchers with the DNC but EVA has not been much under research.

So we have conducted this study to compare the outcome of EVA and DNC in 1st trimester miscarriages. When compared efficiency, frequency of complications, duration of the procedure, and duration

of hospitalization among patients undergoing EVA and DNC for incomplete miscarriage. Duration of the procedure, hospitalization and decrease in hemoglobin level were significantly shorter in the EVA group.

Another study results show that all the DNC procedures were performed under general anesthesia whereas paracervical block was administered with and/or without analgesia in MVA and EVA.¹³The probability of complication during DNC is more likely than MVA or EVA as it involves a sharp curette resulting in and bleeding; secondly, general anesthesia itself has its own complications and contraindications. In developing countries with limited resources, expertise and lack of appropriately trained birth attendants, conventional DNC or MVA is an inexpensive, better and safe option when compared to EVA.^{14,15}Failure to perform EVA in emergency situation with incomplete miscarriage was shortcoming of this study, most probably because of non-availability of instrument and surgeon's expertise.^{14,16,17}The use and adaptation of EVA over conventional DNC by gynecologists is affected by personal and professional factors that can be overcome by practice and training.^{18,19}

CONCLUSION

This study was concluded that electric vacuum aspiration (EVA) is effective and safe procedure as compared to DNC in 1st trimester miscarriages. So, our recommendation is that electric vacuum aspiration should be offered as a first line surgical method for the women with 1st trimester pregnancy loss to reduce blood loss, hospital stay, operative time and eventually maternal morbidity and mortality.

Author's Contribution:

Concept & Design of Study: Joveria Sadaf
 Drafting: Abroo Shahnaz, Asia Aziz
 Data Analysis: Sana Ara and Aslam Mahmood Malik
 Revisiting Critically: Joveria Sadaf, Abroo Shahnaz
 Final Approval of version: Joveria Sadaf

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

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