Original Article

Aspiration Versus DNC in First Trimester Pregnancy Failures in Terms of Efficacy and Safety at Peripheral Hospital Settings of Balochistan

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Abstract

Objective: To compare the efficacy and safety of Manual vacuum aspiration (MVA) with dilatation and curettage (DNC) in the management of early pregnancy failures at primary care Hospital.

Methodology: This comparative study was conducted in the obstetrics and gynecology department of CMH Zhob from January 2018 to December 2018. A total of one hundred and twenty patients with pregnancy failures of <12 weeks (spontaneous miscarriages, missed abortion, incomplete miscarriages, blighted ovum) were included. Using a Random table these patients were assigned to MVA and DNC. Data was collected via study proforma and analysis was done by using SPSS version 20.

Results: A total of 120 patients were studied, the mean age of patients of the DNC group was 29.35±6.4 years, and the mean age of MVA group was 28.04±6.19 years (p= 0.296). The average time of procedure was significantly higher in DNC group as compared to MVA group (p=0.001). Average of hospital stay was significantly lower in MVA group. Mean VAS was significantly higher among patients of DNC group 6.23±2.12 as compared to the MVA group as 3.22±2.13. Infection rate, cervical trauma and heavy bleeding were also significantly higher among patients of DNC group as compared to the MVA group (p=0.001). However RPOCs and uterine perforation were statistically insignificant among both groups, p-values were quite non-significant.

Conclusion: In this study, MVA was observed as reliable, safe, non-invasive and effective techniques as conventional dilatation and curettage for the treatment of early pregnancy failures in the first trimester.

Keywords: Complications, Dilatation and curettage, Early pregnancy failures, Manual vacuum aspiration.

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Introduction

Failure of early pregnancy is the commonest health issue of females throughout the world, which comprises 15 to 20% of pregnancies.[1] In developing nations like Pakistan, around 10 to 18% of maternal mortality is caused by the complications of miscarriages. It is estimated that 24% of pregnancies end in miscarriages per year and about twenty million of these are thought to be unsafe. Estimably 68, 000 females die yearly due to unsafe abortion and hundreds of

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thousands of more females suffer very serious injuries and disabilities.[2] It executes serious consequences on health of women in short term or according to half sum among long term as well. On other hand, it is reported that around 8% maternal death caused by unsafe abortions.[3,4] In the treatment options of early pregnancy failure, termination by medicine (misoprostol tablets) and surgical evacuation are commonest.[5]

Usually, 1st line surgical intervention has been dilatation and curettage that needs skilled persons, operating room , blood transfusions and anesthetist presence. Despite meticulous and skilled intervention even in the best hand and well-equipped set-up complications as incomplete evacuation, uterine cavity perforation, bleeding, and infections can occur.[6] Manual vacuum aspiration (MVA) as the uterine contents removing was introduced during 1958 by the Yuantal and Xianzhem in the country of China, which much eventually led to a technique becoming common and protected obstetric method. Due to lesser complications rate linked to vacuum aspiration and medications induced pregnancy termination, World Health Organization also chooses these methods over the procedure of curettage and dilatation.[7] Manual vacuum aspiration also prefers as the effective, safe and less time consumer alternative procedure for pregnancy termination in Royal College of obstetricians and gynaecologist “RCOG” indication-based guidelines. Women’s care requesting induced abortions.[8] In 1972 Harvey Karman introduced a vacuumed syringe, a flexible and soften cannula that substituted the previously utilized solid metal cannula to reduce the perforation risk and also labeled the MVA principles for the uterus evacuation. MVA principles just like the routine surgical treatment of the early pregnancy failure excepting that it involving the hand-held syringe use as the source of suction as a substitute of an electric suction machine.[9] It was used for the termination of pregnancy of first trimester, missed abortion, incomplete miscarriage, a biopsy of the endometrium, and following the medical failure pregnancy termination.[8] This safe and effective procedure can be used easily in any medical setting like outpatient department (OPD), operating room or emergency room and it can be done by trained and skilled nurses and midwives also. For cost-saving and time saving it can be used at the outpatient department (OPD) instead of the operating room. This procedure consumes the time around 5-7 minutes as compared to 10-12 minutes by DNC. MVA is highly portable, virtually silent, reusable and available at low cost.[10] The present study was conducted to evaluate the effectiveness (pain, safety, cost-effectiveness) of MVA versus DNC in the management of early pregnancy failures in the first trimester. It is also to evaluate that MVA can be practiced in rural areas (Zhob, in Balochistan) where accesses to medical facilities are limited.

Methodology

This comparative study was conducted in the obstetrics and gynecology department of CMH Zhob over one year from January 2018 to December 2018. Ethical approval was taken from the ethical review committee of the hospital. All the patients presenting with spontaneous miscarriages (missed and blighted ovum), incomplete or missed miscarriages with gestational age less than 12 weeks and no sign of sceptic abortion (fever >37.7°c, purulent vaginal discharge, tachycardia or abdominal pain) were included. Patients with septic abortion, molar pregnancy, ectopic pregnancy, pregnancy with fibroids and unwilling patients were excluded. Informed consent was taken from each patient and routine laboratory investigations were carried out. Patients were randomly divided in two groups by lottery method. Patients of group A underwent MVA and patients of group B underwent DNC. Dilatation and curettage procedures were carried out at the operating room under general anesthesia, while MVA procedures were done in the examination room under local anesthesia (paracervical block). Cases of both groups having missed abortion and close cervical os underwent 200mg misoprostol vaginally before the three hours of the procedure and ibuprofen 400mg was given each patient before half hour of MVA procedure and 10 units of oxytocin were given during the procedure. All the procedures were conducted by a consultant having minimum experience of 5 years. Efficacy and safety were defined in terms of pain, complications of evacuation, duration of the procedure, cost, and duration of hospital stay. After the procedure’s patients were transferred to the recovery room and were discharged on stable condition and a Hospital stay was noted. Antibiotics and pain killers were given in all cases for 5 days. Patients were followed for one week. All the data was recorded by study proforma. Data was analyzed by using SPSS version 20. Mean and standard deviation were computed for numerical variables. Frequency and percentage were computed for categorical variables. Chi-square and T-test were applied. A p-value $\leq$0.05 was considered as significant.

Results

A total of 120 patients were studied and equally underwent DNC and MVA. The mean age of patients of DNC group was 29.35±6.4 years and the mean age of the MVA group was 28.04±6.19 years (p= 0.296). The gestational age in DNC group was 8.46±1.88 weeks and 8.32 ±1.56 weeks in MVA group (p=0.298). The mean duration of the procedure was significantly higher in DNC group at 10.02±3.00 minutes as compared to MVA group 4.08±1.5 minutes (p=0.001). The average hospital stay was also only 3.50±1.5 hours in MVA group, which was significantly lower in contrast to the DNC group at 8.15±1.60 hours. (Table I)

Table I: Descriptive statistics of age, gestational age, procedure duration and Hospital duration in both groups (n=120)

Variables	Study groups		P–Value
	DNC	MVA	
Age (years)	29.35± 6.4	28.04± 6.19	0.296
Gestational Age (weeks)	8.46± 1.88	8.32± 1.56	0.298
Mean duration of procedure (minutes)	10.02±3.0	4.08± 1.5	0.001
Duration of hospital stay (hours)	8.15± 1.6	3.50± 1.5	0.001

On the pain assessment, mean VAS was significantly higher among patients of DNC group 6.23±2.12 as compared to the MVA group as 3.22±2.13. Infection rate, cervical trauma and heavy bleeding were also significantly higher among patients of DNC group as compared to MVA group (p=0.001). However, RPOCs and uterine perforation were statistically insignificant among both groups, p-values were quite non-significant. (Table II)

Table II: Comparison of complications among both groups (n=120)

Variables	Study groups		P–Value
	DNC	MVA	
Pain VAS 9mean)	6.23+2.12	3.22+2.13	0.001
Infection	04	01	0.001
RPOC	01	01	1.000
Uterine perforation	02	01	0.073
Cervical trauma	03	00	0.001
Heavy bleeding	05	01	0.001

Discussion

Early pregnancy loss is defined as pregnancy loss in first 12 weeks of gestation. Different treatment modalities are available for dealing with early pregnancy failure. Each procedure claims its advantages and disadvantages. In this study, MVA was found to be an effective non-invasive procedure as compared to DNC. These findings were similar to the study of Jayashree V et al[11] as they observed that manual vacuum aspiration MVA was the more effective, less time consumer, without heavy blood loss, less hospital stay in contrast to the dilatation and curettage. Consistently Farooq F et al[12] stated that MVA is the more effective treatment option for early pregnancy failure followed by a lower rate of blood loss, shorter time consumer, less hospital stay and non-invasive including less complication as compared to the dilatation and curettage procedure. Although in this study mean VAS was significantly higher among patients of DNC group 6.23±2.12 as compared to the MVA group as 3.22±2.13 (p=0.001). On other hand, Ara J et al[13] also found less pain in the MVA group, when compared to MVA with the evacuation of retained products of conception technique.

In this study, the mean duration of the procedure was significantly higher in DNC group at 10.02±3.00 minutes as compared to the MVA group 4.08±1.5 minutes (p=0.001). In another study by Khani et al[14] reported that the average procedure duration was significantly higher in D &C group as compared to MVA group. On other hand, Jayashree V et al[11] also found similar findings regarding the comparison of procedure duration. Our findings were similar to the study of Jayashree V et al[11] in which they found the average duration of the D&C procedure was 7.89±2.08 minutes, which was significantly higher in contrast to MVA group as 5.93±1.11. Likewise, this study Islam R et al[15] reported that mean procedure duration was significantly lower in the MVA group as compared to dilatation and curettage procedure. Long surgical procedures may develop bleeding risk and infection, which can be prevented by applying the MVA procedure for pregnancy failure. By this we can reduce the burden of post-operative antibiotic uses.

In this study infection rate, cervical trauma and heavy bleeding were also significantly higher among patients of DNC group as compared to MVA group (p=0.001). Similarly, Farooq F et al[12] reported that complications including infection, blood loss, cervical laceration and incomplete evacuation were found to be higher in the dilatation and curettage procedure group as compared to MVA procedure. The rate of complications significantly linked to dilatation and curettage procedure and it is six times the dilatation and curettage procedure. In this study, the average of hospital stay was also only 3.50±1.5 hours in MVA group, which was significantly lower in contrast to DNC

group as 8.15±1.60 hours. Similarly, Islam R et al[15] reported that average time of hospital stay was 4.5 hours in the MVA groups, and 22.3 hours was in DNC group (p=0.001). On other hand, Jayashree V et al[11] found a higher average of hospital stay in MVA group as compared to DNC group, while findings were statistically non-significant. Hospital also a cost-effective factor, which is can prevent by using MVA procedure during pregnancy failure.

In this study mean age of patients of DNC group was 29.35± 6.4 years and the mean age of MVA group was 28.04± 6.19 years (p= 0.296) and gestational age was also non-significant in both groups. In the comparison of this study, Islam R et al[15] demonstrated that the mean age of MVA group's women was 24.9 years and DNC group's women were 25.3 years, while average gestational age was 9.3 weeks in MVA group and 9.5 weeks DNC group. On other hand, Jayashree V et al[11] reported that the average mean age was 24.18±3.26 years in DNC group and an average age of MVA group was 24.39±3.69 years. However, in distant rural settings, manual vacuum aspiration is becoming a procedure of choice as it is acceptable, cost-effective and less painful.[12] Dilatation and curettage is another surgical procedure for early pregnancy loss. This procedure requires general anesthesia, is more time consuming, associated with more complications, and costly.[16] The choice of procedure also depends on surgeon preference. However, this is a single center study and further trials are recommended to establish the safety and efficacy of this procedure. Also, the procedure was carried out by a classified gynecologist in our case. This may be one reason for a better outcome with MVA. In rural areas, where gynecologist may not be available, other health care provider needs to be properly trained for the better outcome with the procedure.

Conclusion

It was concluded that the MVA is the reliable, safe, non-invasive, and effective techniques as conventional dilatation and curettage for the treatment of early pregnancy failures in first trimester. It doesn't require general anesthesia, blood transfusion and the complication rate is less than dilatation and curettage.

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