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# Manual Vacum Aspiration: A Safe Alternative for Surgical Management of Early Pregnancy Loss

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## ABSTRACT

**Objective:** To assess the efficacy of MVA in the management of first trimester early fetal demise and first and mid-trimester incomplete miscarriages.

**Study Design:** Prospective observational study.

**Place and Duration of Study:** This study was conducted at the Department of Obstetrics and Gynaecology, Ghulam Muhammad Mahar Teaching Hospital Khairpur from 1st January to 31st December 2012.

**Patients and Methods:** A total of 145 cases with early pregnancy loss at < 12 weeks gestation, with a ultrasound diagnosis of an embryonic pregnancy, incomplete, missed and molar pregnancy were included in the study. Primary outcome measures were to assess the efficacy of the procedure and secondary outcome measures included safety of the procedure and rate of complications.

**Results:** A total of 145 women were included in the study. Efficacy of the procedure was 90.3%. Incomplete uterine evacuation was seen in 14(9.6%) patients while severe hemorrhage was seen in 1(0.6%) and infection in 6(4.1%) of study population.

**Conclusion:** MVA is an effective alternative to conventional suction curettage, in terms of reduced cost, need for general anesthesia and it is also useful in low resource setting with scarcity of electricity and to avoid prolonged hospital stay.

**Key Words:** Manual vacum aspiration, Efficacy, Uterine evacuation, Safety.

## INTRODUCTION

The miscarriages occur in 10-20% of clinically recognized pregnancies.[1] 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.[2] Approximately one in four women will experience such a loss in their life time.[3] 197,000 women are treated annually for post abortion complications in the public health sector annually.[4] Treatment options for first and early second-trimester miscarriage include surgical, medical and expectant. It is reported that medical management is not accepted by women due to uncertainty in predicting the success (20%-80%).[5] surgical options for women is dilatation and curettage conducting the procedure in operating room under general anesthesia need more health care resources, patient's prolonged hospital stay and cost.

An alternative to traditional surgical method is manual vacuum aspiration. MVA is a technique for uterine evacuation, which is cost effective; simplicity and portability make it an especially valuable reproductive health technology.

During MVA, a 60-ml hand held syringe with a self locking plunger is used to produce the vacum needed for the aspiration of products of conception. It is performed under local anaesthetic in the labour room thus avoiding need of Operation Theater and risk of general anaesthesia. This technique is in use for three decades.[6] In most studies efficacy of this procedure is shown from 96-99.5%.[7]

The aim of our study was to assess the effectiveness of MVA following the diagnosis of first trimester early fetal demise, first and mid-trimester incomplete miscarriage and in molar pregnancy.

## PATIENTS AND METHODS

This prospective observational study was conducted in Obstetrics and Gynecology department of Teaching Hospital Khairpur from January to December 2012.

All patients with gestational age less than 12 weeks admitted in gynecology ward with diagnosis of an embryonic pregnancy, missed miscarriage, incomplete miscarriage, molar pregnancy and retained product of conception after delivery were included in the study.

Diagnosis was established by history, pelvic examination and ultrasonographic scanning. Patients with uterine anomalies, abnormal coagulation profile, and extreme anxiety, medically and hemodynamic ally unstable were excluded from the study.

Data was collected on specially designed Performa.

The primary outcome measures were to assess the efficacy of the procedure in term of complete uterine evacuation without the need for further treatment.

Secondary outcome measures included safety of the procedure and rate of complications. Data was entered and analyzed on SPSS version 15.

As per protocol all women were screened for genital tract infection HbsAg, Hcv and HIV to avoid the risk of transfer. 135 women were administered 400 µg of sublingual Misopriostol for cervical ripening three hours prior to procedure. Local anesthesia was achieved by paracervical block (20 ml of 0.5% xylocain at 12 O' clock, 4 and 8 O' clock position. Dilatation required in patients with early fetal demise. Ipas easy grip canula was used and negative pressure was obtained by using a 60 ml Ipas MVA plus aspirator by attaching with canulae. Procedure was ended when sign and symptoms of complete evacuation felt (red foam in the canulae, gritty sensation, uterus contracting around the canulae and increase uterine cramping felt by the patient.

Products of conception were sent for histopathology where needed, patients were given oral antibiotics for 5 days. Anti-D prophylaxis was administered to all Rhesus negative women.

All the patients who were haemodynamically stable could be discharged 2-hours post MVA. They were advised to consult the ward if they have any problem. All were offered follow-up after one week.

The primary outcome measures assessed were the success rate of the procedure, defined as complete uterine evacuation and procedure related complications including uterine perforation, bleeding and infection. Secondary outcome measures included mean hospital stay, operating time and cost of procedure.

Data was analyzed through SPSS version 15.

# RESULTS

A total of 145 patients were included in the MVA procedure. The mean patient age was 27.34 years (SD 5.35). Fifty patients (34.4%) included in our study were nulliparous, 80 (55.1%) multiparous and only 15 (10.3%) grand multiparous women.

**Table No. 1: Base line characteristics of study population N=145**

| Character | Result |
|---|---|
| Mean age in years | 27.34 (SD 5.35) |
| Parity<br>= Primigravida<br>= Multigravida<br>= Grand multi | %<br>50 (34.6%)<br>80 (55.1%)<br>15 (10.3%) |
| Mean gestational age | 10 week ± 6 days |
| Co-existing risk factors<br>=Low risk patients<br>=High risk patients<br>-previous LSCS<br>-hypertensive<br>-diabetes mellitus | %<br>130 (89.6%)<br>15 (10.3%)<br>9<br>4<br>2 |

Mean gestational age by ultrasound was 10 weeks ± 6 days. According to our protocol MVA is offered as a treatment option for gestations up to 12 weeks.

However the ten patients that had MVA at gestation greater than that were all women with retained products after term pregnancy.

The ratio of low risk patient was 130 (89.6%), while 15 (10.3%) women were high risk with history of previous LSCS, Hypertension and diabetes mellitus shown in (Table:1)

The indication for the MVA for early fetal demise in 70 (48%) patients, incomplete miscarriage in 40 (27%), retained product after delivery in 10 (6.8%) and MVA after failed medical treatment 7 (4.8%) shown in (Table: 2)

**Table No. 2: Indications for MVA N=145**

| Indication | No: | % |
|---|---|---|
| Early fetal demise | 70 | 48% |
| Incomplete miscarriage | 40 | 27% |
| Molar pregnancy | 18 | 12.4% |
| RPOCS after delivery | 19 | 6.8% |
| Failed medical treatment | 07 | 4.8% |

**RPOCS= Retained product of conception.**

Cervical ripening agent was administered in 135 (93%) patients. Ten patients 6.8% did not received Misoprostol because they had retained product after term delivery and cervical ripening was not required.

All MVA procedures were performed under paracervical block alone or in combination with systemic analgesia.

Efficacy of the procedure was 131(90.3%). Fourteen patients have incomplete evacuation and underwent standard curettage in operation theatre. 6 patients were re-admitted due to infection they were managed by injectable antibiotics shown in (Table:3).

**Table No.3: Efficacy and complications N=145**

| Indicator | No: | % |
|---|---|---|
| Complete evacuation | 131 | 90.3% |
| Incomplete evacuation | 14 | 9.6% |
| Hemorrhage need trans: | 01 | 0.6% |
| Uterine perforation | - | - |
| Infection | 06 | 4.1% |

All procedure was performed by senior doctor who had adequate training in MVA procedure.

There were no major complications in the form of uterine perforation and severe hemorrhage.

The mean total hospital stay was 15.27 (SD 25.1) hours. Most of the patients were managed as a day case; only 10 (6.8%) patients had a total hospital stay more than 24 hours.

# DISCUSSIONS

It has been shown that MVA is a safe and effective method of uterine evacuation.[8] World health organization (WHO) has listed MVA as an effective and safe method of uterine evacuation and hence

technique is being employed increasingly in developing counteries.[9, 10] Despite being simple, inexpensive and easy to handle tool, its use in most of the hospitals is restricted due to unfamiliarity of the clinicians with its use. With high success rate and no major complications with MVA provides evidence that the technique is safe easy to learn.

This preliminary study was conducted to access the efficacy and safety of MVA under local anesthesia in women who previously only had access for dilatation and curettage. Efficacy of MVA in our study was 90.3%same as reported in the literature.[11,12]

The rate of incomplete evacuation after MVA is reported approximately 2-3%,[13] but in our study 9.6% of patients presented with same problem and reason could be the same. Hope fully with experience efficacy of this procedure will be improved.

Prior randomized trial has shown no difference in complications and efficacy between standard curettage and MVA.[14] Our 4.1% patients presented with infection and 0.6% with hemorrhage, almost same as shown in published literature.[15]The procedure in general was very well tolerated.

It has been suggested that MVA has advantages over standard surgical curettage for both the patient and the health care provider in reducing hospital cost, waiting time and hospital stay.[16]In our clinical application, we performed all MVAs under local anesthesia in a treatment room. This prevents the need for a general anesthetic with all the associated risks and allows earlier discharge from hospital. This is beneficial for our practice since our operating theaters used for obstetric emergencies similar trend was observed in studies from Kenya, Mexico and Magotti where hospital stay was 49%, 45% and 40.5% less for MVA compared with conventional procedure.[17]

# CONCLUSION

Manual vacum aspiration is an effective to conventional surgical curettage, avoiding general anesthesia and the need for access to theater and no need for electricity. Complications such as uterine perforation, bleeding and retained products of conception are minimal. It is safe, easily performed and possibly cost effective procedure.

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