



## Gynecology

**COMPARATIVE STUDY OF MANUAL VACUUM ASPIRATION AND DILATATION & EVACUATION FOR THE SURGICAL MANAGEMENT OF FIRST TRIMESTER ABORTION AT TERTIARY CARE HOSPITAL IN WESTERN RAJASTHAN**

<b>Dr. Santosh Khajotia</b>	Professor, Department of Obstetrics & Gynaecology, S.P. Medical College & A.G.H., Bikaner (Rajasthan)
<b>Dr. Banshi Dhar Balai*</b>	Resident, Department of Obstetrics & Gynaecology, S.P. Medical College & A.G.H., Bikaner (Rajasthan) *Corresponding Author
<b>Dr. Ruchi Saxena</b>	Associate professor, Department of Obstetrics & Gynaecology, S.P. Medical College & A.G.H., Bikaner (Rajasthan)
<b>Dr. Deepika Malik</b>	Resident, Department of Obstetrics & Gynaecology, S.P. Medical College & A.G.H., Bikaner (Rajasthan)

**ABSTRACT** **Objective:** To compare the safety and efficacy between manual vacuum aspiration and dilatation & evacuation as the method of surgical abortion in 1st trimester.

**Methodology:** A prospective study was conducted on 200 females in first trimester abortion.

**Results:** The mean age for study in MVA group was 23.24±2.67 years & in D&E group were 24.0±4.03 years. Mild to moderate pain experienced by women in MVA group and moderate to severe pain experienced in cases of D&E group. Higher blood loss occurred in cases of D&E group and 10% cases required blood transfusion. Mean duration of hospital stay in MVA group was 4.16±2.4 hours and in D&E group was 7.91±2.99 hours. Mean duration of procedure in MVA group was 6.5±2.65 minutes and in D&E group was 10.26±2.68 minutes. MVA was effective in 99% cases whereas D&E was effective in 94% cases.

**Conclusion:** MVA is safe, effective, cheaper less time consuming method and requires shorter hospital stay. It does not require general anaesthesia and complications are also less.

**KEYWORDS :** Dilatation and evacuation, Manual vacuum aspiration, Miscarriage, Incomplete abortion.

### Introduction:

The miscarriage of an early pregnancy is the commonest medical complication, affecting 10-20% of clinically recognized pregnancies<sup>1</sup>. Unsafe miscarriage is a major risk factor of mortality in pregnant females.<sup>2,3</sup>

Treatment options for abortion include expectant management, surgical and medical management<sup>4</sup>. Traditionally, first-line surgical management has been dilatation and evacuation (D&E).<sup>5</sup>

In order to avoid these complications alternatives to traditional surgical evacuation, other methods has been developed. These options are medical management, using a combination of antiprogesterone and prostaglandin analogue (success rate 95%), expectant management (success rate 79%) and manual vacuum aspiration (success rate 98-99%)<sup>1</sup>.

However, over the last few decades, manual vacuum aspiration (MVA) has emerged as an effective and safe alternative for surgical management of miscarriage.<sup>6</sup>

Overall effectiveness and patient satisfaction for MVA are much higher, and complication rates are much lower than D&E<sup>7</sup>. This method of evacuation is safe and can be easily performed in any setting and may be performed by a wide range of trained medical personnel including midwives and nurses.<sup>8</sup>

### Material and methods

A prospective study was conducted on 200 females in first trimester abortion in the Department of Obstetrics and Gynaecology, S.P. Medical College and associated group of hospitals, Bikaner.

**Inclusion criteria:** Pregnant women with gestational age less than 12 weeks, having a confirm diagnosis of incomplete miscarriage and missed abortion was included in the study. **Exclusion criteria:** Patients with molar pregnancy, Septic abortion, other co-morbidities like uterine anomalies, coagulation disorders etc. were excluded from the study.

This study population was randomly divided into two groups "A" and "B". The women in group A (100 Pregnant women) were undergo MVA (manual vacuum aspiration) and the others in group B (100

Pregnant women) were undergo dilatation and evacuation for the management of incomplete abortion or missed abortion.

Preliminary investigations like haemoglobin estimation, blood grouping & Rh typing, random blood sugar and viral markers were done. Written informed consent was taken. The procedure and its probable complications were explained to the patients. Dilatation & evacuation was done under IV sedation (Injection Diazepam + Injection Pentazocin), and MVA was carried out under local (Para cervical block) anaesthesia, with Ipas MVA system which consist of an aspirator and cannula. The patients in each group with missed abortion and closed cervical os were given 200 mg of misoprostol per vaginally 3 hours before the procedure. Tablets ibuprofen in dose of 400mg was given to the patient orally half an hour before MVA. Ten unit oxytocin in 5% dextrose drip was given to every patient during the procedure. Blood loss was assessed by amount of blood present in the aspirator syringe, while in D&E, the blood loss was collected in the kidney tray and measured. Antibiotic & pain killer were given in all cases for 5 days. Patients were kept under observation for any complication for few hours.

### Observations:

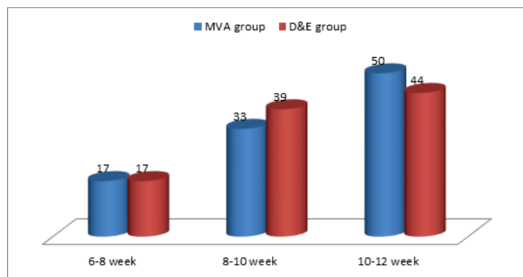
In present study the mean age of cases in MVA group was 23.24±2.67 years and in D&E group was 24.0±4.03yrs. The mean parity in MVA group was 2.49±0.92 and in D&E group was 2.69±0.83. The difference was not statistically significant. In MVA group all the cases had blood loss less than 100 ml and the mean blood loss was 41.17±6.4 ml. In D&E group 90% cases had blood loss less than 100 ml and only 10% cases had blood loss greater than 100 ml with the mean blood loss was 82.63±13.23 ml. In MVA group 98% cases did not required any blood transfusion and only 2% cases required blood transfusion. In D&E group 90% cases did not required any transfusion and 10% cases required blood transfusion. Mean hospital stay in MVA group was 4.16±2.4 hrs. And, in D&E group was 7.91±2.99 hrs. No cervical laceration was found in MVA group. In D&E group only 1 case had cervical laceration and 99 cases had no cervical laceration. The mean duration of procedure in MVA group was 6.5±2.65 min and in D&E group was 10.26±2.68 min. In MVA group 99% cases were successful and failure was in 1% cases. In D&E group 94% cases were successful and failure was in 6% cases.

Here, in MVA group majority of women experienced mild (46%) to moderate (48%) pain and 6% cases experienced severe pain. In D&E group 4% cases had mild, 81% cases had moderate pain and 15% case experienced severe pain (Table: 1).

**Table: 1 Level of Pain in patients in MVA and D&E group**

Pain	MVA group	D&E group	P-value
Mild	46 (46%)	4 (4%)	0.001
Moderate	48 (48%)	81 (81%)	0.001
Severe	6 (6%)	15 (15%)	0.001

Here, in MVA group 17% cases were having gestational age between 6-8 weeks, 33% cases had gestational age between 8-10 weeks and 50% cases had gestational age between 10-12 weeks. In D&E group 17% cases were having gestational age between 6-8 weeks, 39% cases had gestational age between 8-10 weeks and 44% cases had gestational age between 10-12 weeks (Fig: 1).



**Fig: 1 Gestational age (in weeks) of patients undergoing procedures in MVA and D&E group**

Here, in MVA group the mean Hb level before and after procedure was  $8.7 \pm 0.32$  gm% and  $8.6 \pm 0.37$  gm% respectively. Whereas in D&E group it was  $8.7 \pm 0.55$  gm% and  $8.4 \pm 0.65$  gm% respectively. There was no significant difference between mean Hb level before procedure in both groups and there was significant difference in mean Hb after procedure (p-value=0.0081) (Table: 2).

**Table: 2 Mean haemoglobin value before and after the procedure in MVA and D&E group**

	Hb before procedure (gm%)	Hb after procedure (gm%)
MVA group	$8.7 \pm 0.32$	$8.6 \pm 0.37$
D&E group	$8.7 \pm 0.55$	$8.4 \pm 0.65$
P-value	1.0000	0.0081

## DISCUSSION

The present study was conducted to evaluate the safety and efficacy of manual vacuum aspiration (MVA) compared to dilatation and evacuation (D&E) in the management of first trimester abortion. It is also to evaluate MVA that can be practiced in rural area where the access to the medical facilities are limited<sup>9</sup>.

### Severity of pain:

In our study, in MVA group majority of women experienced mild (46%) to moderate (48%) pain and only 6% cases experienced severe pain. In D&E group, 4% cases had mild, 81% cases had moderate pain and 15% cases experienced severe pain and consistent with study done by Butt et al<sup>10</sup> found that MVA is particularly appealing because it is convenient and extremely safe. It is not associated with an increased risk of pain. Jayashree et al<sup>11</sup> found that Manual Vacuum Aspiration is associated with less pain and no need for anaesthesia.

### Gestational Age:

In our study, there were no statistically significant differences in the mean gestational age between the two groups. In a study by Sonali agarwal and Dolly gupta<sup>12</sup> found that 45 and 48 cases were in 5-6 weeks in MVA and EVA group respectively, 56 and 49 cases were in 6-8 weeks in MVA and EVA group respectively, 64 and 78 cases were in 8-10 weeks in MVA and EVA group respectively, 35 and 25 cases were in 10-12 weeks in MVA and EVA group respectively.

### Success Rate:

In our study the success rate of MVA group was 99% cases. In D&E group success rate was 94%. In a study by Rohana Salam found that MVA was 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<sup>13</sup>.

## Conclusion:

MVA is safe, effective, cheaper less time consuming, and requires shorter hospital stay. It does not require general anaesthesia and complications are also less. So the judicious use of MVA comes with a promise to make early abortion safe and easily accessible to women of both rural and urban societies, specially where high-tech equipments and power supply are not available.

## REFERENCES:

- Miligos D, Mathur M, Smith N, Ashok P. Manual vacuum a safe alternative for surgical management of early pregnancy loss. Br J Obstet Gynecol. 2009;116:1268-71.
- Parmar PH, Gosai KI, Dudhreja KM, Goswami KD, Prajapati SS, Mane RR. Manual vacuum aspiration in first trimester induced abortion: A randomized comparative prospective studies of 100 cases. Int J Med Sci Public Health. 2015;4(2):211-13.
- Wang X, Chen C, Wang L, Chen D, Guang W, French J. Conception, early pregnancy loss, and time to clinical pregnancy: a population-based prospective study. FertilSteril. 2003;79(3):577-84.
- Sharma M. Manual vacuum aspiration: an outpatient alternative for surgical management of miscarriage. The Obstetrician & Gynaecologist. 2015;17:157-61.
- Dalton V K, Harris L, Weisman Carol S, Guire K, Castleman L, Lebovic D. Patient Preferences, Satisfaction, and Resource Use in Office Evacuation of Early Pregnancy Failure. Obstet Gynecol 2006;108(1):103-10.
- Royal College of Obstetricians and Gynaecologists. The Care of Women Requesting Induced Abortion: Evidence-based Green-top Guideline No. 7. London: RCOG; 2011.
- Pereira PP, Oliveira AL, Cabar FR, Armelin AR, Maganha CA, Zugaib M. Comparative study of manual vacuum aspiration and uterine curettage for treatment of abortion. Rev Assoc Med Bras 2006;52(5):304-7.
- Blumenthal PD, Rensburg RE. A time and cost analysis of the management of incomplete abortion with manual vacuum aspiration. Int J Gynecol Obstet 1994;45:261-7.
- Islam R, Prosad Biswas S, Halder D, Fatima K. Safety & efficacy of manual vacuum aspiration compared to dilatation & curettage in the management of early pregnancy failure. Bangladesh Medical Journal Khulna, 49(1-2), 18-22. 2014
- Butt T A., Iqbal A., Saeed M., Yousuf I., Murtaza A. Outcomes of Manual Vacuum Aspiration Versus Dilatation and Curettage in First Trimester Miscarriages. P J M H S. 2018;12(2):611-613.
- Jayashree V, Latha K, Mahalakshmi S. Comparative study between manual vacuum aspiration and dilatation and curettage in the surgical management of early incomplete abortion in RMMCH, Tamilnadu: A randomized controlled trial. International Journal of Clinical Obstetrics and Gynaecology 2018;2(5): 14-18
- Agarwal S. and Gupta D. Comparison of manual vacuum aspiration (mva) versus Traditional suction evacuation in first trimester Medical termination of pregnancy. Int J Res Med. 2013; 2(1):11-14
- Salam R, Neelofer R, Naserullah P. Comparative Study of Manual Vacuum Aspiration and Dilatation & Evacuation for the Surgical Management of Early Miscarriages: A Randomized Controlled Trial. P J M H S. 2016;1(1):183-186