

## Effectiveness of Manual Vacuum Aspiration PLUS in The Treatment of Incomplete Abortion in the First Trimester of Pregnancy

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### ABSTRACT:

**Background & objective:** With the advent of Misoprostol, medical termination of pregnancy in the first trimester has become a popular choice. But its indiscriminate use with inadequate doses more often results in incomplete abortion. Manual Vacuum Aspiration PLUS (MVA-PLUS) is claimed to be an effective treatment modality for incomplete abortion. The present study was intended to evaluate the effectiveness of MVA-PLUS in the treatment of incomplete abortion.

**Methods:** This cross-sectional study was conducted in Sherpur District Hospital, Sherpur, Bangladesh. Pregnant women of 8-12 weeks of gestation receiving tablet Misoprostol by untrained personnel and presented to us with incomplete abortion were included in the study. Patients with complete abortion, ectopic pregnancy, signs of pelvic infection or sepsis were excluded from our study. MVA-Plus was done by paracervical block, analgesia and/or mild sedation and verbal reassurance. Successful outcome was defined in terms of complete evacuation of the product of conceptus.

**Result:** The study subjects were generally young, married with low educational background. Treatment with MVA-PLUS showed that majority (98%) of the patients have had complete evacuation with minimum duration of hospital stay (1-2 days) in majority of the cases (82%). The need for blood transfusion varied from 1-2 units (76%) to more than 5 units (4%). No major complications were noted.

**Conclusion:** Manual Vacuum Aspiration PLUS (MVA-PLUS) is highly effective in the treatment of incomplete abortion in the first trimester of pregnancy with no side effect and minimum stay in the hospital.

**Key words:** MVA-PLUS, Misoprostol, incomplete abortion, effectiveness etc.

### INTRODUCTION:

Five decades ago in 1967, the world health assembly identified unsafe abortion as a serious public health problem for women in many countries.<sup>1,2</sup> Following this, safe motherhood

conference was held in Nairobi, Kenya in February 1987. The first report of abortion-related deaths was published in 1989, which showed that at least 11,500 abortion related-deaths occurred annually due to unsafe abortion. Only then the extent of this public health problem was understood. Unsafe

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abortion contributes substantially to the global burden of maternal mortality and morbidity.<sup>2,3</sup>

Mortality owing to unsafe abortions was calculated to be 13% of all maternal deaths. At the Nairobi conference, Halfdan Mahler, the then Director-General of WHO, highlighted the importance of access to family planning services and essential obstetric care for avoiding maternal deaths because of illegal abortion from unwanted pregnancy.<sup>4,5</sup> Unplanned pregnancy opts for the abortion method which is unsafe in most of the cases. Most of the unsafe abortion occur in developing countries in low-income groups and the unmet need for contraception is high. Rate of unsafe abortion & maternal mortality is still high in Bangladesh.<sup>6</sup> Emergency treatment of complications from incomplete & unsafe abortion is an effective intervention to reduce maternal mortality. MVA-PLUS is a recent addition to the management of incomplete abortion in N'Djamena Hospitals, Chad.<sup>7,8</sup>

Emergency treatment of incomplete abortion by MVA-Plus coupled with adequate follow-up and contraception saves life of patients. WHO recommends MVA-Plus as a preferred method for uterine evacuation of incomplete abortion in early pregnancy.<sup>9</sup> There is no known contraindication of MVA-Plus for treatment of incomplete abortion for uterine size upto 12 weeks of last menstrual period (LMP) or first trimester abortion. MVA-Plus is a safe & effective clinical procedure. Studies report effectiveness rate of MVA-Plus to be in excess of 98% with extremely lower complications rate. Other studies demonstrate that MVA-Plus achieves greater safety than sharp curettage.<sup>10,11</sup> MVA-Plus is done by paracervical block, analgesia and or mild sedation and verbal reassurance. This method is sufficient for women`s comfort during the procedure.<sup>9,10</sup> The present study was intended to evaluate the effectiveness of MVA-PLUS in the treatment of incomplete abortion in patients attending at the Department of Obstetrics and Gynecology, Sherpur District Hospital, Dhaka, Bangladesh who took inadequate doses of misoprostol by untrained personnel.

## METHODS:

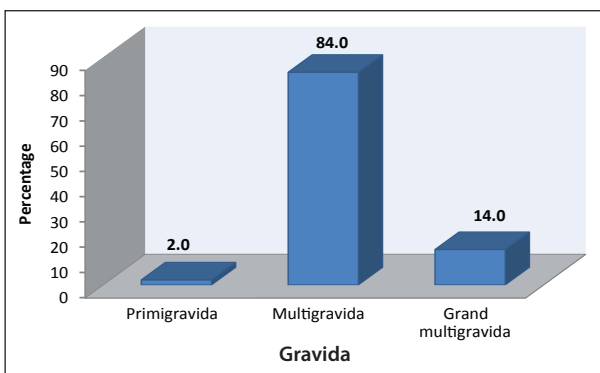
This cross-sectional study was conducted in Sherpur District Hospital, Sherpur, Bangladesh. Pregnant women of 8-12 weeks of gestation receiving tablet Misoprostol by untrained personnel and presented to us with incomplete abortion were included in the study. Patients with complete abortion, ectopic pregnancy, signs of pelvic infection or sepsis were excluded from the study. Baseline characteristics studied were age, educational status, marital status, occupational status, gravida, while treatment related variables were blood transfusion needed, hospital stay and outcome of MVA-Plus. MVA-Plus was performed by paracervical block, analgesia and/or mild sedation and verbal reassurance. Successful outcome was defined in terms of complete evacuation of the product of conceptus.

## RESULTS:

Age distribution shows that the respondents were predominantly in their 2<sup>nd</sup> decades (20-30 years old) of life (72%). Forty percent of the respondents were primary level educated, 30% SSC and 19% HSC level educated. Majority (96%) was married and only a few were unmarried (2%), widow (1%) and divorced (1%). More than two-thirds (68%) of the respondents were housewife, followed by service-holders (30%) and student (2%). In terms of religion, Muslims formed the majority (98%) (Table I). Most (84%) of the respondents was multigravida (2<sup>nd</sup>-3<sup>rd</sup>) and 14% were grand multigravida (4<sup>th</sup> gravida or more) (Fig. 1). Over 75% of the patients needed 1-2 units, 20% 3 – 4 units and 4% more than 4 units of blood transfusion (Table II). Majority (82%) of the respondents stayed in the hospital for 1-2 days, 16% 3 days & only 2% 4-5 days (Table III). One-fifth of the respondents took barrier methods of contraception and another 20% took injectable contraception. The rest 60% took oral contraception (OCP) (Table IV). Most (98%) of the respondents had complete evacuation (Table V).

**TABLE I.** Distribution of patients by their demographic characteristics

Demographic characteristics	Frequency	Percentage
<b>Age</b>		
< 20	8	8.0
20 – 25	36	36.0
25 – 30	36	36.0
30 – 35	16	16.0
35 – 40	4	4.0
<b>Education</b>		
Illiterate	10	10.0
Primary	40	40.0
SSC	30	30.0
HSC	19	19.0
Graduate	1	1.0
<b>Marital Status</b>		
Unmarried	2	2.0
Married	96	96.0
Divorced	1	1.0
Widow	1	1.0
<b>Occupation</b>		
Student	2	2.0
Housewife	68	68.0
Service	30	30.0
<b>Religious</b>		
Muslim	98	98.0
Hinduism	2	2.0

**Fig. 1:** Distribution of patients by their gravida (n = 100)**TABLE II.** Distribution of patients by need of blood transfusion (n=50)

Blood transfusion (units)	Frequency	Percentage
1 – 2	38	76.0
3 – 4	10	20.0
> 4	2	4.0

**TABLE III.** Distribution of patients by their hospital stay:

Hospital stay (days)	Frequency	Percentage
1 – 2	82	82.0
2 – 3	16	16.0
4 – 5	2	2.0

**TABLE IV.** Distribution of patients by their contraception history:

Contraception	Frequency	Percentage
OCP	60	60.0
Barrier methods	20	20.0
Injectable	20	20.0

**TABLE V.** Effectiveness of MVA-Plus and Paracervical block: (n=100)

Effectiveness of MVA-Plus & paracervical block	Frequency	Percentage
Complete evacuation	98	98.0
Incomplete evacuation	02	02.0

## DISCUSSION:

Induction of first-trimester pregnancy (8-12 weeks) with misoprostol by untrained persons was not found effective. These patients when admitted in the Sherpur District Hospital, were treated by Gynecologist with MVA-PLUS & paracervical block. We also provided post-abortion follow up care in our hospital which decreased maternal morbidity. Multiple studies showed that treatment of incomplete abortion by MVA-PLUS is safe and effective and is a useful tool in low resource settings for women with incomplete abortion and a uterus size of less than 12 weeks.<sup>11-15</sup> MVA-PLUS has advantages over standard surgical curettage for both the patients and the health care providers in reducing hospital cost, waiting time and hospital stay.<sup>13</sup> Koontz and associates<sup>16</sup> in a study in El Salvador on 154 women showed that MVA-PLUS reduces cost by 13% and shortens hospital stay by 28%.<sup>16</sup> MVA-PLUS procedure has a high level of patient satisfaction as evidenced by more than 90% of women who received it recommended the same to their fellows needing treatment for incomplete abortion.<sup>9</sup>

Successful outcome of treatment with MVA PLUS and paracervical block was observed to be commendably high (98%). A recent Vietnamese study examined 210 first trimester MVA abortion & provided extensive follow up. Complete evacuation was very high with no serious complications, such as infection or heavy bleeding.<sup>9</sup> When misoprostol is provided by doctors or midwives in adequate doses, complete abortion occurs in most of the cases (94-99%), as evidenced by a study in

Uganda.<sup>17</sup> Most of the patients admitted in our hospital received in adequate doses of misoprostol by untrained health care providers & that might be the reason of unwantedly high incomplete abortion. Ipas, a Women's Sexual & Reproductive Rights Organization, facilitated training on MVA-Plus for evacuation of uterus upto 12 weeks to doctors and senior staff nurses in Bangladesh. The personnel trained on MVA-PLUS found it safe and effective technique for uterine evacuation. Its low-cost, simplicity and portability has made it an especially valuable reproductive health technology. More than 30 years of clinical and programmatic research in over 100 countries has shown vacuum aspiration for uterine evacuation to be safer and more effective than sharp curettage. The present study, like other past studies, showed appreciably high success rate of MVA procedure with extremely low complication rates.

### CONCLUSION:

The study showed that MVA-PLUS is effective in the treatment of incomplete abortion. Misoprostol with adequate doses can be used when MVA-PLUS is not possible or available. Special training of health workers on MVA-PLUS is, however, needed for its beneficial application to the patients.

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