Bangladesh J Obstet Gynaecol, 2021; Vol. 36(1): 42-48

Medical Management of Incomplete Abortion Using Pervaginal Misoprostol in Chittagong Medical College Hospital

ZAKIA MAMATAZ[1], SUMAN NAZMUL HOSAIN[2], SULEKHA BHATTACHARJEE[3], JAHANARA AKTAR [4], ROWSHAN AKHTAR[5]

Abstract

Background: *A miscarriage is a pregnancy that ends before the baby can survive outside the womb because it has not yet reached viability. A miscarriage may be early - during the first 14 weeks of pregnancy, or late. Objective of the study was to see the outcome of pervaginal misoprostol in the medical management of incomplete abortion.*

Methods: *This cross-sectional study was performed between July and December 2015 on patients with incomplete abortion, who wanted to undergo medical management at the Department of Gynecology and Obstetrics, Chittagong Medical College Hospital. 100 consecutive incomplete abortion cases, who fulfilled the inclusion and exclusion criteria were enrolled for the study. Information about management with per vaginal misoprostol, possible side effects and success rate was given to the women. 600 microgram misoprostol was given per vaginally. Interval between administration of misoprostol and expulsion of product of conception was recorded.*

Result: *The mean age was found 25.0±6.4 years and the mean gestational age was found 10.2±2.0 weeks. The mean duration of bleeding was found 8.6±10.9 days. No side effect was found in 86 (86%), nausea in 7(7%), vomiting in 5 (5%) and cramping in 2 (2%) patients. For majority (76%) of the patients, single dose of Misoprostol was enough to achieve the goal. However, 24 patients didn't respond and received a second dose. The mean induction expulsion interval was 10.83±5.45 hours. Retained product of conception was found in 14 patients. Medical management failed in these 14 patients and ultimately Dilatation & Curettage (D & C) was done.*

Conclusion: *Pervaginal Misoprostol is as effective as method of treating incomplete abortion at uterine size of <12 weeks. Treatment with misoprostol can reduce the demand for surgical evacuation in cases of incomplete abortion. The acceptability of misoprostol appears higher. Pervaginal Misoprostol appears suitable for the treatment of incomplete abortion in the developing countries.*

Background

Incomplete abortion means that although the fetus is expelled, part or the entire placenta retained. According to estimates, 50% of pregnancies terminate spontaneously before the first missed menstrual period; these miscarriages usually are not clinically recognized. Spontaneous miscarriage is typically defined as a clinically recognized (ie. by blood test, urine test, or ultrasonography) pregnancy loss before 20 weeks' gestation. Approximately 5-15% of diagnosed pregnancies result in spontaneous miscarriage. Approximately one in five recognized

1. Medical Officer, attached to the Department of Cardiac Surgery, Chittagong Medical College Hospital, Chattogram.
2. Head of the Department of Cardiac Surgery, Chittagong Medical College & Hospital, Chattogram.
3. Outdoor Medical Officer, Dept of Gynecology and Obstetrics, Chittagong Medical College, Chattogram.
4. Perfusionist, Department of Cardiac Surgery, Chittagong Medical College, Chattogram.
5. Professor of Gynecology and Obstetrics, Chittagong Medical College, Chattogram.

Address of Correspondence: Dr Zakia Mamataz, Medical Officer, attached to the Department of Cardiac Surgery, Chittagong Medical College Hospital, Chattogram. Email: zakia.mamataz@yahoo.com

pregnancies are spontaneously miscarried in the first trimester[1] and an additional 22% end in induced abortion. An incomplete abortion can result from either spontaneous or induced pregnancy loss and occurs when products of conception are not completely expelled from the uterus[2]. The pathophysiology of a spontaneous miscarriage may be suggested by its timing[3].

A spontaneous miscarriage is a process that can be divided into 4 stages, as threatened, inevitable, incomplete, and complete. The patients usually present with history of expulsion of a fleshy mass per vagina followed by continuation of lower abdominal pain, colicky in nature and persistence of vaginal bleeding of varying magnitude. The uterus is usually smaller than the period of amenorrhea with patulous cervix.

Incomplete abortion can be treated with expectant management, which allows for spontaneous evacuation of the uterus, or active management, using surgical or medical methods. Expectant management is not preferred by many providers due to its relatively low efficacy and the fact that the time interval to spontaneous expulsion is unpredictable. The standard of care for active management varies by setting but has traditionally been surgery with general or local anesthesia. Surgical methods are highly effective for treatment of incomplete abortion. However, these treatments require trained providers, special equipment, sterile conditions and often anesthesia, all of which are limited in many settings[4].

Medical methods for treatment of incomplete abortion require few resources and can be administered by low- and mid-level providers[5]. Such technologies can increase access to services for women far from surgical care facilities. Misoprostol is the most common and thoroughly studied form of medical management and offers a highly effective alternative treatment for women wishing to avoid invasive surgery and anesthesia. In environments with few resources and limited access to surgical methods, such as primary and secondary care centers, misoprostol allows for the vast majority of cases to be treated without needing referral to higher level facilities[6]. Additionally, misoprostol is widely available, easy to administer, stable at room temperature, accessible, and inexpensive in most countries. Misoprostol offers women and providers a safe, effective, and non-invasive treatment option for incomplete abortion that is particularly useful where supplies are limited and skilled providers are few. In settings where special postabortion care (PAC) services have been introduced to address morbidity and mortality associated with unsafe abortion, misoprostol can be integrated easily within existing services.

Misoprostol, a methyl-ester of PGE1, marked for prevention and treatment of peptic ulcer disease, although it is not approved to be used in obstetric and gynecologic practice in many countries[7]. It is being very successfully used for the termination of pregnancy, induction of labor and management of 3rd stage of labor and post-partum hemorrhage in many set up, it is now considered to be a very good drug to be used in these conditions[8]. When administered per-vaginally, Misoprostol has an onset of action in 20 minutes and duration of action for four to six hours.

Given growing emphasis on improving female health, it is undoubtedly become more important to evacuate the retained products of conception in case of incomplete abortion by a safe method or drug. If misoprostol proves safe and effective, a large number of patients will be benefited and will escape from surgical intervention and complications.

Chittagong Medical College Hospital is a tertiary care center, where a large number of patients come from adjacent to the city for better management. Incomplete abortion being a very common problem in gynecological practice and many patients present in this institute for management. Though most of the cases of incomplete abortion were treated by surgical evacuation (D&C or E&C) but with the introduction of 600µg misoprostol vaginally medical termination of incomplete abortion have been considered in a number of cases with very promising results. So, management of incomplete abortion cases with pervaginal misoprostol in CMCH has been selected for the study.

Objective of the study is to evaluate the outcome of pervaginal misoprostol in the medical management of incomplete abortion and to record the proportion of cases needed surgical evacuation after using per vaginal misoprostol.

Materials and Methods:

This cross-sectional observational study was performed between July and December 2015 on

patients with incomplete abortion, who wanted to undergo medical management at the Department of Gynecology and Obstetrics, Chittagong Medical College Hospital. Ethical clearance was achieved from the Protocol clearance committee of Bangladesh College of Physicians & Surgeons (BCPS). 100 consecutive incomplete abortion cases, who fulfilled the inclusion and exclusion criteria were enrolled for the study.

Inclusion criteria were hemodynamically stable 1st trimester incomplete abortion patients diagnosed clinically and by ultrasound. Exclusion criteria include hemodynamically unstable, septic abortion, fever, bronchial asthma, patient having known medical diseases and patient having history of hypersensitivity to misoprostol. Information about management with per vaginal misoprostol, possible side effects and success rate was given to the women. 600 microgram misoprostol was given per vaginally. Interval between administration of misoprostol and expulsion of product of conception was recorded. Data was collected by interview, physical & lab examination using a structured questionnaire containing all the variables of interest. Written informed consent was obtained from all participants. Information's about pervaginal misoprostol management, possible side effects and success rate was given to the women. A base line blood sample was obtained for Hb%, Post prandial blood sugar and blood grouping (ABO and Rh typing). Vaginal administration of 600 microgram misoprostol was done. Interval between administration of misoprostol and expulsion of product of conception was recorded.

If complete expulsion does not occur within 24 hours, then a second dose of 600 microgram of misoprostol was given vaginally in the same manner and the patients were discharged from the hospital with the instruction to come on day 8 if expulsion does not occur or if there is excessive vaginal bleeding. The patients without obvious features of expulsion were sent for sonographic examination on day 8. When sonography on day 8 showed incomplete expulsion, surgical evacuation was done. The patients were explained the procedure and advised to keep count of the number of pads used per day. An estimated amount of bleeding was measured by the number of pads used as reported by the patients and was recorded. Physical examination, ultrasound and hemoglobin estimation was done in every visit. Visit schedule was done according to need depending on amount of bleeding. Each patient was advised to come for follow up on the day fifteenth and to complete the questionnaire about the amount of bleeding, intensity of pain, side effects of the treatment e.g.: fever, diarrhea, headache etc. Following administration of misoprostol, pulse, BP, temperature and systemic symptoms were monitored.

Statistical analysis was carried out by using the Statistical Package for Social Sciences version 20.0 for Windows (SPSS Inc., Chicago, Illinois, USA). The mean values were calculated for continuous variables. The quantitative observations were indicated by frequencies and percentages.

Results:

Fig 1 shows age of the study patients, it was observed that more than one third (35.0%) of the patients belonged to 21-25 years age group. The mean age was found 25.0±6.4 years with range from 16 to 45 years.

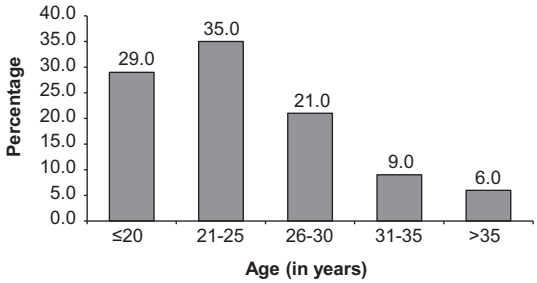

Fig.-1: *Bar diagram shows age distribution of the patients*

Table-I

Distribution of the study patients according to parity (n=100).

Parity	Number of patients	Percentage
Primi	43	43.0
Multi	57	57.0

Table 1 shows the parity of the study patients, it was observed that majority (57.0%) of the patients were found multi para, whereas 43(43.0%) were primi para.

Table-II

Distribution of the study patients according to gestational age (n=100).

Gestational age (weeks)	Number of patients	Percentage
6-7	7	7.0
8-9	32	32.0
10-12	61	61.0
Mean±SD	10.2	±2.0
Range (min, max)	(6, 12)	

Table 2 shows the gestational age of the study patients, it was observed that almost two third (61.0%) of the patient's gestational age was between 10 and 12 weeks. The mean gestational age was found 10.2±2.0 weeks with range from 6 to 12 weeks.

Table-III

Distribution of the study patients according to clinical features (n=100).

Clinical feature	Number of patients	Percentage
Duration of bleeding (days)		
Mean±SD	8.6	±10.9
Range (min, max)	(1	- 30)
Amount of bleeding		
Mild	51	51.0
Moderate	35	35.0
Severe	14	14.0
Lower abdominal pain		
Yes	54	54.0
No	46	46.0

Table 3 shows clinical feature of the study patient. The mean duration of bleeding was found 8.6±10.9 days with range from 1 to 30 days. More than half (51.0%) of the patients had mild bleeding and 54(54.0%) patients were found with lower abdominal pain.

Table-IV

Distribution of the study patients according to per vaginal findings at the time of enrollment (n=100).

Per-vaginal findings	Number of patients	Percentage
OS (cm)		
1.5	53	53.0
2	4	4.0
Close	43	43.0
Uterus (weeks)		
6	23	23.0
8	35	35.0
10	31	31.0
12	11	11.0
Product of conception		
Felt	80	80.0
Hanging	2	2.0
Not felt	18	18.0

Table 4 shows per vaginal findings of the study patients, it was observed that in case of more than half (53.0%) of the patients os was found 1.5 cm. Uterus was found 8 weeks size in 35% patient. In 80% of the patients, the product of conception was felt by per vaginal examination. For majority (76%) of the patients, single dose of Misoprostol was enough to achieve the goal. However, 24 patients didn't respond and received a second dose. The mean induction expulsion interval was 10.83±5.45 hours. Retained product of conception was found in 14 patients. Medical management failed in these 14 patients and ultimately D & C had to be done.

Table-V

Distribution of the study patients according to induction expulsion interval (n=86).

Induction expulsion interval (hours)	Number of patients	Percentage
d" 6	20	23.3
7-12	42	48.8
13-18	14	16.3
>18	10	11.6
Mean±SD	10.80	±5.49
Range (min, max)	(4, 29)	

Fourteen patients needed surgical evacuation. So, induction expulsion interval was found in 86 patients. Induction expulsion interval was found 7-12 hours in case of almost half (48.8%) of the patient. The mean

induction expulsion interval was 10.83±5.45 hours with range from 4 to 29 hours.

Figure 3 shows the side effect of the study patients, it was observed that no side effect was found in 86, nausea in 7, vomiting in 5 and cramping in 2 patients.

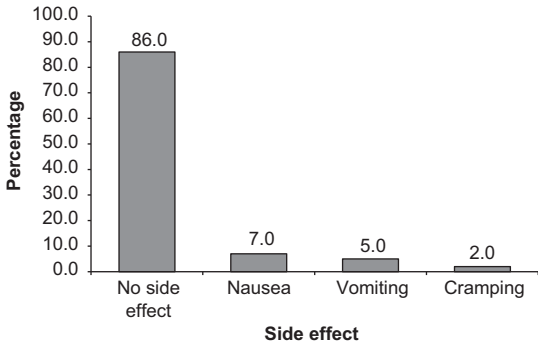

Fig.-2: *Bar diagram shows side effect of the study patients*

Table-VI

USG findings after 7 days (n=100).

USG findings after 7 days	Number of patients	Percentage
Normal	86	86.0
Retained product	14	14.0

Table 6 shows the USG findings of the study patients after 7 days, it was observed that normal USG was found in 86 and retained product was in 14 patients. In these 14 patients, medical management had failed and D & C had to be done. Medical management using per vaginal misoprostol was successful in 86 cases and 14 cases needed surgical evacuation.

Discussion:

In this cross-sectional study, it was observed that more than one third (35.0%) patients belonged to age group of 21-25 years with. The mean age was found 25.0±6.4 years with range from 16 to 45 years. The majority (57.0%) were multi para. Similarly, Shokry et al[7]found multiparous were predominant in their study, where they found 79.6% were multiparous. Pang et al.[8] have shown almost a half (47.6%) patients were primi gravida; 29.5% 2nd gravida, 17.0% 3rd gravida and 5.7% 4th gravida and above, which is similar with the current study. In this present study it was observed that almost two third (61.0%) of the patients were found with gestational age of 10-12 weeks. The mean gestational age was found 10.2±2.0 weeks with range from 6 to 12 weeks. Shokry et al. found the mean gestational age was 8.4±1.3 week with range from 7 to 12 weeks, which is closely resembled with the present study[7]. Similar observations regarding the gestational age were also made by Pang et al.[8], Tang et al.[9] and Bagratee et al[10].

In this current study the mean duration of bleeding was found 8.6±10.9 days with range from 1 to 30 days. More than a half (51%) patient had mild bleeding and 54% patients had lower abdominal pain. Demetroulis et al.[11] found mild bleeding was 67.5%, moderate bleeding was 10.0% and severe bleeding was 5.0%. Bagratee et al.[10] found the mean duration of bleeding was 11.65±4.4 days, which is higher with the current study. In this series it was observed that more than a half (53.0%) of the patients were found with cervical os 1.5 cm. Uterus was found 8 weeks size in 35 % patients. In this study it was observed that majority (76.0%) of the patients required single dose and 24.0% needed double doses. Bagratee et al. found one dose was 32.7% and two dose was 67.3%. Ayres-de-Campos et al. observed 14.9% required only single dose[12].

Fourteen patients needed surgical evacuation. So, induction expulsion interval was found in 86 patients. In 48.8% of the patients, induction expulsion interval was 7-12 hours. The mean induction expulsion interval was 10.83±5.45 hours with range from 4 to 29 hours. Hamoda et al. found the mean (SD) induction to abortion interval (calculated for the 43 patients for whom data were available) was 3.2 (1.3) hours[13]. Wong et al. have shown the median induction expulsion interval was 15.2 hours, which is comparable with the current study[14]. In another study Zalanyi found the mean induction expulsion interval was found 6.11±2.01 hours, which is lesser with the current study[15].

About the relation between gestational age with doses it was observed in this series that among the patients needed single dose 80% were in gestational age of 10-12 weeks and 20.0% were in between 8-9 weeks. In case of double dose 32.5% were in 10-12 weeks, 50% were in 8-9 weeks and 17.5% were in between 6-7 weeks. Roudsari et al. showed there was no significant correlation between gestational age and the number of doses administered[16]. This may be due to the fact that geographical and racial influences may have significant impacts on gestational age and the doses misoprostol needed.

The side effects reported in this study were transient and tolerable, which agrees with findings of other studies. The side effects were in 14.0%, patients, among them, nausea 7.0%, vomiting 5.0% and cramping 2.0%. Shokry et al. found the incidence of side effects was 20.4% cases. In another study Ayres-de-Campos et al. (2000) found 13.5% nausea, 5.4% vomiting, 6.8% diarrhea, and 5.4% transient hyperthermia[12]. In this present study it was observed that normal USG was found 86 (86.0%) and retained product was in 14 (14.0%). These 14 patients failed medical termination and D & C was done. Abortion was confirmed by ultrasound scan in 96.0% women observed by Hamoda et al., which is a little higher with the current study[13]. Shokry et al. found success of the treatment method was 79.6% cases. Similar findings were also made by Taylor et al.[17] and Bagratee et al. who have observed overall satisfaction level in their studies. 90% were very satisfied and would recommend the method to others. Zalanyi results were in contrast with Nielsen et al.[18] who had a success rate of only 52%, with a further 35% requiring surgical evacuation, which may be due to unknown cause.

Conclusion:

Pervaginal misoprostol appears to be an effective modality in the medical management of incomplete abortion. Single dose is adequate for most of the patients and majority of the induction expulsion interval was within 12 hours. No relationships were observed in gravida and gestational age with misoprostol doses needed for completed abortion. An insignificant number of patients had nausea, vomiting and cramping. The overall success rate of medical management was 86% and the remaining 14% had to undergo surgical evacuation. Most of the patients had full satisfaction with this treatment modality. Given the many practical advantages of misoprostol over manual vacuum aspiration (MVA) in low-resource settings, misoprostol appears suitable for the treatment of incomplete abortion in the developing countries. A large-scale multicenter study may be planned to check the outcome of our study.

References:

1. Greibel CP, Halvorsen J, Goleman TB, Day AA. 'Management of spontaneous abortion', *American Family Physician* 2005, vol. 72, no. 7, pp. 1243-50.
2. Warriner IK, Shah IH ½Preventing unsafe abortion and its consequences: Priorities for research and action¼, New York: Guttmacher Institute.
3. Inbal A, Muszbek L 'Coagulation factor deficiencies and pregnancy loss', *Semin Thromb Hemost* 2003, vol. 29, no. 2, pp. 171-4.
4. Clark W, Shannon C, Winikoff B. 'Misoprostol for uterine evacuation in induced abortion and pregnancy failure', *Expert Review of Obstetrics & Gynecology* 2007, vol. 2, no. 1, pp. 67-108
5. American College of Obstetricians and Gynecologists, ½ACOG Committee Opinion No. 427: Misoprostol for postabortion care¼, *Obstetrics & Gynecology* 2009, vol. 113 (2 Pt 1), pp. 465-468.
6. Sahin HG, Sahin HA, Kocer, M. 'Randomized outpatient clinical trial of medical evacuation and surgical curettage in incomplete miscarriage', *European Journal of Contraception and Reproductive Health Care* 2001, vol. 6, no. 3, pp.141-44.
7. Shokry M, Fathalla M, Hussien M & Eissa AA. ½Vaginal misoprostol versus vaginal surgical evacuation of first trimester incomplete abortion: Comparative study¼, *Middle East Fertility Society Journal* 2014, vol. 19, pp. 96-101.
8. Pang MW, Lee TS, Chung, TKH. 'Incomplete miscarriage: a randomized controlled trial comparing oral with vaginal misoprostol for medical evacuation', *Human Reproduction* 2001, vol. 16, no. 2, pp. 2283-87.
9. Tang O, Lau W, Ng E, Lee S, Ho P. 'A Prospective Randomized Study to Compare the Use of Repeated Doses of Vaginal with Sublingual Misoprostol in the Management of First Trimester Silent Miscarriages', *Human Reproductive* 2004, vol. 18, pp. 176-81.
10. Bagratee J, Khullar V, Regan L, Moodley J & Kagoro H. ½A Randomized controlled Trial Comparing Medical and Expectant Management of First Trimester Miscarriage¼, *Human Reproductive*. 2004, vol. 10, pp. 266-71.
11. Demetroulis C, Saridogan E, Kunde D & Naftalin AA., 'A prospective randomized control trial comparing medical and surgical treatment for

pregnancy failure', *Human Reproduction*. 2001, vol. 16, no. 2, pp. 365-69.

12. Ayres-de-Campos D, Teixeira-da-Silva J, Campos I, Patrício B. ½Vaginal misoprostol in the management of first-trimester missed abortions¼, *Int J Gynaecol Obstet*. 2000,vol. 71, no. 1, pp. 53-7.
13. Hamoda H, Ashok PW, Flett GMM, Templeton A., ½Home self-administration of misoprostol for medical abortion up to 56 days gestation¼, *J Fam Plann Reprod Health Care* 2005*,* vol. 31, no. 3, pp. 189-92.
14. Wong KS, Ngai CSW, Yeo ELK, Tang LCH, Ho PC. 2000, 'A comparison of two regimens of intravaginal misoprostol for termination of second trimester pregnancy: a randomized comparative trial', *Human Reproduction*, vol. 15, no. 5, pp. 709-12.
15. Zalanyi S. Vaginal misoprostol alone is effective in the treatment of missed abortion. *British Journal of Obstetrics and Gynaecology* 1998, Vol. 105, pp. 1026-35.
16. Vahid Roudsari F, Ayati S, Saghafy N, Shakeri M. Misoprostol alone or in combination with methotrexate for termination of pregnancy at first trimester. *Iran J Pharm Res*. 2010;9(1):89-94.
17. Taylor J, Diop A, Blum J, Dolo O, Winikoff B. ½Oral misoprostol as an alternative to surgical management for incomplete abortion in Ghana¼, *Int J Gynaecol Obstet*. 2011, vol. 112, no. 1, pp. 40–44.
18. Nielsen S, Hahlin M. ½Unsuccessful treatment of missed abortion with a combination of an antiprogresterone and a prostaglandin El analogue¼, *Br J Obsret Gynaecol.* 1997, vol. 104, p. 1096.