Original Article

A Comparative Study of Misoprostol with that of Manual Vaccum Aspiration in Treatment of Incomplete Abortion

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Abstract:

Background: Incidence of both spontaneous and induced abortion is high in our country. Poor socio-economic condition and lack of awareness of family planning methods lead women for unsafe induced abortion. Treating incomplete abortion by a safeand effective means is necessary to reduce maternal mortality and morbidity. **Objectives:** To investigate the safety, efficacy and acceptability of misoprostol as an alternative to Manual Vacuum Aspiration (MVA) for treatment of incomplete abortion. **Material and methods:** A prospective randomized study was carried out in a tertiary hospital. Fifty cases were selected from the admitted patients of incomplete abortion according to inclusion and exclusion criteria. Consenting women were randomized to either group 1(n=25)- a single dose of 600 microgram of oral misoprostol or group 2(n=25)-MVA. Patients were followed-up to assess completeness of evacuation of uterus. **Results:** The types of abortion presented by the responders were mainly induced abortion in both groups. Amongthe women receiving medical treatment, 76% patients had expulsion of the product of conception within 24 hours. The complete expulsion after one dose of misoprostol was 92% which is similar to MVA. Patients with incomplete evacuation in both groups required MVA. Majority of women accepted medical treatment over surgical treatment. **Conclusion:** Misoprostol provides a safe,effective and acceptable treatment option for women who do not have access to surgical treatment or who wish to avoid invasive procedures.

Keywords: Incomplete abortion, Misoprostol, Manual vaccum aspiration

Introduction:

12% to 15% of clinically recognized pregnancies end in abortion. The World Health Organization (WHO) defined abortion as the expulsion or extraction from its mother of an embryo or fetus weighting 500 grams or less when it is not capable of independent survival. It usually corresponds to gestational age of 20 to 22 weeks[1].Expulsion of some but not all of the products of conception before 20th completed week of gestation is referred as incomplete abortion. Incomplete abortion can be treated by surgical evacuation of uterus or by medical treatment to expel out the retained product of conception. Women having unsafe induced abortion by non-trained personnel, may present with incomplete abortion with or without sepsis. Women also experiencing spontaneous incomplete abortions and not receiving treatment in time, may present with complications of abortion. To minimize these complications, medical treatment is becoming reliable cost effective alternative[2].The present study is to assess the role of a single dose of oral misoprostol as an alternative method to MVA for evacuation of the uterus following incomplete abortion.

Materials and methods:

This is a prospective randomized study carried out in the Department of Obstetrics and Gynecology of a tertiary Hospital over six months. Fifty cases were selected by purposive sampling from the admitted patients of incomplete abortion according to inclusion and exclusion criteria. Before starting of the study, permission was taken from proper authorities. A questionnaire was prepared keeping in view of the selected variables of the study. Informed consents were obtained from the patients and/or her legal guardian before her inclusion in the study.

Gestational age was evaluated by the last menstrual period (LMP), bimanual examination and ultrasonography. Incomplete abortion was diagnosed with evidence of retained products of conception by transabdominal ultrasonography. Vital parameters, blood grouping and Rh typing, hemoglobin level was recorded before treatment. Inclusion criterions were, pregnancy less than 12 weeks, spontaneous or induced incomplete abortion, on examination uterine size less than 12 weeks with opened cervical os, patient hemodynamically stable and willing to return for follow up. Women were excluded if they had signs of severe infection (foul smelling discharge, fever, tachycardia, known allergy to misoprostol and haemodynamically unstable. All eligible women were counseled about available treatment options with risks and benefits of each options. Participating patients were randomized to either group 1(n=25)-a single dose of 600 microgram of oral misoprostol or group 2(n=25)-MVA.Group-1 patients were admitted in the ward to deal with any heavy episode of bleeding that might occur. Pulse, blood pressure, temperature and systemic symptoms were monitored following administration of misoprostol. The patients were instructed to report cramps and/or vaginal bleeding initially and within 48 hours of administration of misoprostol. The patients were also instructed to report the time of the spontaneous expulsion of the product of conception. The procedure was considered to be successful if whole of the product of conception was expelled out spontaneously and was confirmed on visual inspection. The side-effects, such as nausea, vomiting, diarrhea, headache, fever and severe cramping were evaluated. Group-2: Women allocated to MVA were given surgical evacuation by the trained clinician. They were admitted in the ward to deal with any complication that might occur. Patients of both groups were discharged and scheduled to return to the hospital for follow-up care after 7 days. They were also instructed to report immediately if developed warning sign like heavy bleeding (changing 2 menstrual pad hourly for 2 consecutive hours),foul smelling vaginal discharge, fever. At follow-up visit, detailed history recorded, a bimanual examination and a transabdominal ultrasonography done. All the patients with incomplete evacuation during follow up were treated by MVA. All relevant data were recorded in predesigned data collection sheet. Every effort was made to keep all information confidential. Collected data were compiled and statistical analyses were done using Statistical Package for Social Science (SPSS) software.

Results:

My study shows that most of the responder belonged to age group 21-30 years (56%) followed by age group ≤20 years (28%). There is no significant difference in parity of patients receiving medical treatment and surgical treatment.

Table-I: Gestational age (weeks) and type of incomplete abortions in current pregnancy

	Misoprostol Group (n=25)	MVA Group (n=25)	p-value
Gestational age (weeks)			
up to 8 weeks	8 (32%)	11 (44%)	0.39
8-12 weeks	17 (68%)	14 (56%)	
Type of incomplete abortions			
Spontaneous	8 (32%)	6 (24%)	0.53
Induced	17(68%)	19 (76%)	

Table I shows that the highest percentages of abortion were in between 8-12 weeks in both groups. Percentage of abortion less than 8 weeks were less in both groups. Types of abortion presented by the responders were mainly induced abortion in both groups. Percentage of spontaneous incomplete abortion were less than induced abortion in both groups.

Table-II: Duration (hours) of expulsion of product and outcome of treatment after misoprostol intake

	Misoprostol Group (n=25)	Percentage %
Duration (hours) of complete expulsion of product		
≤ 24 hours	19	76%
24 -48 hours	04	16%
Treatment outcome		
Complete evacuation	23	92%
Incomplete evacuation	02	8%

Table II shows that among the women receiving medical treatment, time required to expel the product of conception was highest within 24 hours (76%). 2(8%) responder failed to expel the product of conception within 48 hours which required MVA Effectiveness of misoprostol was 92%.

Table-III: Treatment outcome following MVA

Treatment outcome	MVA Group (n=25)	Percentage
Complete evacuation	23	92%
Incomplete evacuation	2	8%

Table III shows that effectiveness of MVA was 92%. Repeat MVA required in 2 patients (8%).

Table IV: Adverse events of Misoprostol & MVA among the study patients

Adverse events	Misoprostol Group (n=25)	MVA Group (n=25)
Profuse per vaginal bleeding	3 (12%)	5 (20%)
Severe lower abdominal pain	4 (16%)	3 (12%)
Fever	1 (4%)	1 (4%)
Vomiting	2 (8%)	0 (0%)
Diarrhea	1 (4%)	0 (0%)

Table IV shows that in both groups profuse per vaginal bleeding and severe lower abdominal pain were the most common adverse events.

Table-V: Acceptability by the responder the study patients

Acceptability	Misoprostol Group (n=25)	MVA Group (n=25)	p-value
Accepted	23(92%)	21(84%)	0.3
Not accepted	2(8%)	4(16%)	

TableV shows that majority of women accepted medical treatment over surgical treatment. But the difference was statistically insignificant.

TableVI: Duration of hospital stay of the study patients

Hospital stay	Misoprostol Group (n=25)	MVA Group (n=25)
24-48 hours	19 (76%)	25(100%)
48-72 hours	4 (16%)	0

TablesVIshows that maximum responder of MVA were discharged from hospital within 48 hours.

Discussion:

Incomplete abortion may occur following spontaneous or induced abortion. The most common type of clinically evident abortion occurs between 7th and 13th weeks[3]. Retained tissue within the uterus is evident by continued bleeding, a patulous cervix and an enlarged bogey uterus. Commonly intense cramps are present in the suprapubic area which may radiate to the lower back, buttocks, genitalia and perineum. Often patients describe passage of tissue or the examiner observes the evidence of tissue with in the vagina. Sonographic findings of incomplete abortion are 1) misshaped or collapsed gestational sac containing a nonliving embryo or 2) an irregular complex mass (echogenic material) or debris within the endometrial canal or endocervical canal representing retained products of conception or clotted blood. Histological findings of presence of placental and/or fetal tissue will confirm the diagnosis. Mostly incomplete abortion caused by chromosomal defect (abnormal karyotype)[4,5].

Untreated incomplete abortions may lead to anemia, hypovolemic shock, septic abortion, septic shock and psychological distress to the mother. Expectant management involves allowing the uterus to evacuate the products of conception spontaneously without intervention.

With expectant management in 84% cases completed their miscarriage within14 days[6]. However expectant management showed lower success rates compared to surgical management[7].

Surgical evacuation procedures are evacuation and curettage (E&C) and manual vacuum aspiration (MVA). These methods have achieved high success rate (91.5-100%), shortens the duration and heaviness of bleeding but carries a small risk of serious complications including infection, cervical laceration and uterine perforation. Surgical management may not be feasible in many settings. In MVA is a cannula is inserted through the cervix and attached to a syringe that contains a vacuum to aspirate (provides suction) the intrauterine contents. Cochrane review of trials evidenced that MVA was associated with statistically significantly decreased blood loss, less pain and shorter duration than E& C. Serious complications such as uterine perforation and other morbidities were rare in MVA[8].

Misoprostol is a synthetic analogue of natural prostaglandin E_1having a very effective uterotonic and cervical ripening properties. For which it is used as medical treatment of incomplete abortion. Efficacy of misoprostol depends on the number of prostaglandin receptor sinuterus which varies according to the gestational age[9]. Misoprostol has benefits over other prostaglandins such as it is stable at room temperature, effective in all route, relatively cheap, no clinically significant effects on the bronchi or the blood vessels and have no side except for transient pyrexia[10].Studies shows various route of administrationof misoprostol and its success rates. Misoprostol dose ranged from 100 microgram to 800 microgram can be given orally, sublingually, vaginally and rectally depends on the preference of the patient and the clinical situation[11,12]. Absorption of misoprostol is fast in all routes of administrations and the first uterine contractions appear after 5-10 minutes[13].Misoprostol avoids considerable number of operation and when complete expulsion does not occur, it usually provides adequate cervical dilation making surgical evacuation easy and less complicated. Different misoprostol alone regimen has been reported in the literature for medical abortion in the first trimester[14-16]. A misoprostol alone regimen will be considered effective if the complete abortion rate reaches 90%. A randomized trial in West Africa comparing the effectiveness of a single dose of oral misoprostol (600 microgram) versus MVA for treatment of incomplete abortion showed a complete uterine evacuation in nearly all participants (misoprostol=94.5%; MVA=99.1% difference not significant). Acceptability and satisfaction ratings were similar and high for both misoprostol and MVA[17].Single 600 micrograms oral dose of misoprostol for treatment of incomplete abortion found successful in 94% of cases in a study of our country[18]. In my study the complete expulsion after one dose of misoprostol was 92% which is similar to MVA and acceptability found higher in misoprostol group. Studies shows that side effects of different route of administration are insignificant[19,20]. In my study, the short-term side effects between the study groups did not show any significant difference. Failed evacuation (Retained products of conception) can occur after medical or surgical evacuation but are more common after medical treatment. Madoue GB et al showed that majority of patients stayed in hospital less than 12 hours in MVA group in comparison to misoprostol group[21]. In my study, maximum responder of MVA were discharged from hospital within 48 hours.

Conclusions:

Abortion related complications continue to cause maternal death throughout south Asia. Misoprostol allows a significant reduction in the cost of management by avoiding anesthetic and theater cost. It has as additional benefit of being highly acceptable to women as it is less invasive. The safety of misoprostol suggests that it can be used as an outpatient treatment for incomplete abortion.

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