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A Study of Vaginal Misoprostol for Medical Management of Missed Abortion Up To 12 Weeks of Gestation

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Abstract:
Back ground: *Misoprostol is a prostaglandin E1, used in labor induction, abortion. Misoprostol is a safe and effective alternative to a surgical technique. There is increasing evidence that misoprostol is a acceptable method to induce abortion.*
Objective: *to evaluate the safety & efficiency of vaginal misoprostol in medical management of missed abortion up to 12 weeks of gestation*
Methodology: *it was as A prospective study, was done in the department of obstetrics and gynecology in Niloufer Hospital, Hyderabad. A total of 100 patients belongs to study group with missed abortion up to 12 week gestational age were treated with vaginal misoprostol800ug and 100 cases belongs to control group were treated with suction evacuation. The results of two groups were compared accordingly.*
Results: *the success rate with vaginal misoprostol was 86% which had significant value p<0.01.the success rate is inversely proportion to gestational age, less than 8 weeks success rate was 100% and between 10 to 12 weeks the success rate was 73.9%.Side effects were minimal and tolerable. Most common side effect in the study group was fever followed by vomiting and diarrhea.*
Conclusion: *Vaginal administration of 800 microgram of misoprostol for termination of first trimester missed abortion is safe, with minimal & tolerable side effects and cost effective which is concern in developing Countries.*
Keywords: *Missed Abortion, Vaginal Misoprostol.*

I. Introduction

Missed abortion is defined as "fetal Death before 20 weeks of gestation without expulsion of any fetal or maternal tissue for $\geq$ 8 week thereafter "Missed abortion refers to the clinical situation in which an intrauterine pregnancy is present but is no longer developing. This can manifest as an anembryonic gestation or with fetal demise prior to 20 weeks of gestation. In clinically recognized pregnancies spontaneous abortion occurs in 15 – 20% of cases. Diagnosis is made much more frequently because of increased use of early ultrasound. Misoprostol is a prostaglandin analogue specifically a synthetic prostaglandin E1 that binds to myometrium cells to cause strong myometrial contractions leading to expulsion of tissue

II. Aims and objective

The aim of the study is to evaluate the safety & efficiency of vaginal misoprostol in medical management of missed abortion up to 12 weeks of gestation.

III. Materials and Methods

A prospective study in department of obstetrics and gynecology in Niloufer Hospital, Hyderabad. A total of 100 patients with missed abortion up to 12 week gestational age were treated with vaginal misoprostol and 100 cases suction evacuation.

Inclusion Criteria:
- Missed abortion confirmed by ultrasound examination.
- Gestational age up to 12 weeks.

Exclusion Criteria:
- Incomplete abortion.
- Inevitable abortion.
- History of known allergy to prostaglandin.
- Asthmatics.
- Previous two uterine incisions.

- Patient with complaint of bleeding per vaginum, or abdominal pain suggesting the onset of spontaneous abortion.
- Maternal coagulopathy.
- Signs and symptoms of infection.
- History of cardiac disease.
- Fetal gestational age and $\geq$ 12 weeks (as estimated by ultra sonography scan).
- Open internal cervical as or speculum examination (as defined by allowing passage of ring forceps).

IV. Methodology

Detailed history and clinical examination was done. Patient was counseled and then informed consent taken. Following investigations were done ,Blood grouping and Rh typing ,Complete blood picture, Bleeding time, clothing time,HIV 1 & 2, HBs Ag,Complete urine examination, Ultrasound to confirm gestational age and diagnosis. Under sterile precautions 800 micrograms misoprostol placed in posterior fornix of vagina.Treatment considered as Incomplete if retained products are present with persistent bleedings and Failure if abortion does not take place with 800ug of misoprostol. Ultrasound done after 1 week to confirm completeness of expulsion. Outcome measures were Dosage of mioprostol, Induction to abortion interval (hours), Complete or incomplete / failure and Side effects. In the control group dilatation and evacuation was done.

After the necessary investigations, informed consent for MTP was taken for all patients. For unmarried girls the parent or guardians consent is taken. Patient was admitted a day before the procedure. Preparation of the part was done. Patient was asked to pass urine. She is put to lithotomy position, perineum cleaned and draped. Bimanual examination was done to note the size and position of the uterus. Posterior vaginal wall is retracted with Sims speculum, anterior lip of cervix is held with sponge holding forceps. 8ml of lignocaine with 1:300,000 adrenaline is injection at cervicovaginal junction. After 3-5 minutes uterine sound is introduced to note position and measure the uterine cavity. According to the length the cannula size is chosen, vacuum is created and the cannula is moved against the uterine wall from above downwards to the level of internal os repeatedly in clockwise manner for 360c, then anticlockwise. Check curettage is done till grating sensation felt. Oxytocin drip of 10units and methyl ergometrine 0.2mg intramuscularly is given Bleeding is checked. The forceps and vaginal speculum are withdrawn. Bimanual examination is repeated so as to make sure that uterus is hard and smaller in size than prior to the procedure.

V. Results

The cases were analyzed according to gestational age shown in table 1.

Table 1: Gestational Age

Gestational Age	Study Group	Control Group
<8 Weeks	21	17
8-10 Weeks	56	58
10-12 Weeks	23	25

Majority of the cases (55%) were of 8-10 weeks gestation in both the group. The cases were analyzed according to induction abortion interval in each gestational age in study group as shown in table 2. With increase in gestational age induction abortion interval increases.

Table 2: Abortion Induction Interval

Gestational age (in weeks)	Total No of cases	Mean Induction Abortion Interval (in hour)	Minimum Induction Abortion Interval (in Hours)	Maximum induction abortion interval (in Hours)
<8	21	6.42	4	9
8 to 10	56	8.20	6	11
10 to 12	23	9.60	7	14

The cases in the study group were analyzed according to the relation between parity with abortion induction interval in various gestational ages as shown in table 3. The induction abortion interval decreases with increasing parity.

Table 3: Parity with Induction Abortion Interval

Gestational Age (In Weeks)	Induction – Abortion Interval (In Hours)		
	Primi	Gravida2	Gravida3 And More
<8	9	8	6
8 - 10	10	7	8
10 – 12	14	11	9

The cases were analyzed according to the outcome as shown in table 4.

Table 4: Out come

Outcome	Study Group	Control Group
Complete	86	96
Incomplete	9	4
Failure	5	-
Total	100	100

In study group Success rate was 86%, 9 cases had check curettage.6 cases had suction evacuation under general anesthesia.In control group Success rate was 96% and 4 cases had check curettage. Statistical analysis has shown that vaginal misoprostol for medical management in missed abortion causes complete abortion in significant number of patient (P Value is< 0.01)

The cases in study group were analyzed according to gestational age and outcome as shown in table 5.

Table 5: Gestational Age and Outcome

Gestational Age (in week)	Complete	Incomplete	Failure
<8	21	0	0
8 to 10	48	4	2
≥10 to 12	17	5	3
Total	86	9	5

At less than 8 weeks the success rate was 100%.Between 8 to 10 weeks the Success rate was 85.7% incomplete abortion rate was 7.1% and failure rate was 3.5.Between ≥ 10 to 12 weeks the success rate was 73.9%, incomplete

Abortion rate was 21.7% and failure rate was 13%.With increase in gestational age incomplete abortion rate and failure rate was increased.

The cases in the study group were analyzed according to the side effect as shown in the table 6.

Table 6: Side Effects

Side Effect	No. Of Patients (Study Group)
Temp > 100.4f	14
Vomiting	5
Diarrhea	2
Allergic Reaction	-
Excess Bleeding	2

Side effects were minimal and tolerable. Most common side effect in the study group was fever followed by vomiting and diarrhea.

VI. Discussion

Medical methods of termination of missed abortion (gestational age less than 12 weeks), is found to be safe, effective, economical and acceptable to patients. The present study shows on success rate 86% and only 5 % of patients required suction evacuation under general anesthesia. 9 % of patients require check curettage. The result of the study is in accordance with those conducted by Davis AR et al from Columbia University, Newyork with a success rate of 85%. The study results are also consistent with those of sakhare Anil panditrao et al, Who showed complete abortion rate of 88.09% with fewer side effects.

The success rate is in comparison with Herabutya et al whose success rate is of 83.3% and the mean induction interval which is 11.63 hours. This study shows that medical methods of termination of missed abortion by vaginal misoprostol is an effective, alternative to surgical methods of abortion and is cost effective. Also medical method is devoid of complications of a surgical procedure, Complications of anesthesia and risks of instrumentation like trauma to the cervix and long term squelae like pelvic inflammatory disease, Synechiae formation and infertility can be avoided. Also the results of the study are almost consistent with those of wood SL Brain Ph from university of Calgary, Canada where the complete abortion rate was 80%.

More over misoprostol is inexpensive, safe and can be stored at room temperature. This method can be administered in primary health centers with trained doctors with facilities available for evacuating and curettage so that patient in village do not resort to illegal abortion and there by morbidity and mortality due to criminal abortions can be decreased. The cost of misoprostol is Rs 35 per 200 microgram tablet, So Rs 140 for 4 tablets. The total cost for each patient is more economical. Compared to cost of anesthesia and surgery and also more safe.

Comparison of our study with others

Study	Results In (%) (success rate)
Harabutya Y,et al[1]	83.3
Sakhare Anil Panditrao et al[2]	88
Davis Ar et al[3]	85
Wood Sl et al[4]	80
Autry A et Al[5]	89
Our Study From Niloufer Hospital	86

VII. Conclusion

Statistical analysis has shown that vaginal misoprostol for medical management of missed abortion causes complete abortion in significant number of patients (P value is 0.01).The result of the study indicates that vaginal administration of 800 microgram of misoprostol for termination of first trimester missed abortion is safe, with minimal & tolerable side effects and cost effective which is concern in developing Countries. It is a simple effective technique, which can be given even in PHC with trained doctors. It is less invasive and less risk of introducing infection.

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