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Misoprostol for Termination of Second Trimester Pregnancy

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ABSTRACT

Introduction: The termination of second trimester pregnancy is challenging due unfavorable cervix. This study evaluate the efficacy and maternal side effects of intravaginal misoprostol for termination of second trimester pregnancy.

Methods: During one year period from 15th June 2011 to 14th June 2012, Department of Obstetrics and Gynaecology of Patan Hospital, women admitted for second trimester termination of pregnancy for fetal congenital anomalies and intrauterine fetal demise were studied using the International Federation of Gynaecology and Obstetrics recommended doses of vaginal misoprostol. For congenital anomalies, 400 mcg 3 hourly to a maximum of 5 doses were used. For fetal demise, gestational age of 13-17 weeks received 200 mcg every 6 hourly to a maximum of 4 doses, and 18-26 weeks dose was adjusted to 100 mcg. Main outcome measures included success rate of abortion within 48 hours, induction to delivery interval and maternal side effects.

Results: There were 40 patients during study period. Success rate for termination of 2nd trimester pregnancy within 48 hours was 88.8% for congenital anomalies. For fetal demise, success of termination was 90.9% at 13-17 weeks and 100% at 18-26 weeks. Median time from induction to delivery was 26.8 hours for congenital anomalies. For fetal demise, it was 18 hours for 13-17 weeks and 24 hours at 18 to 26 weeks respectively. Abdominal pain was seen in all doses of misoprostol.

Conclusions: Vaginal misoprostol is an effective method for termination of second trimester pregnancy.

Keywords: misoprostol, pregnancy, second trimester termination

Plain Language Summary

The study was conducted to see the effectiveness of vaginal misoprostol for termination of second trimester pregnancy. The success rate of termination for congenital abnormality and fetal demise was high. Vaginal misoprostol was an effective method for termination of second trimester pregnancy.

INTRODUCTIONS

The termination of second trimester pregnancy is risky because of its complications and psychological trauma to patients. It constitutes 10-15% of all induced abortions usually done for intrauterine fetal demise (IUID), fetal congenital anomalies and medical disorders associated with pregnancy.¹ Early detection of lethal structural and chromosomal abnormalities, and IUID has increased the demand of rapid second trimester termination.² The termination of second trimester pregnancy is a significant problem in the presence of unfavorable cervix and is often prolonged and tedious.³

Among various methods of second trimester termination, evacuation and curettage induces risk of bleeding, infection, uterine perforation and cervical trauma.⁴ The introduction of misoprostol, a synthetic prostaglandin E₁ analog (PGE₁) has become an important for cervical ripening and uterotonic action.⁵ It is economic, stable at room temperature and is associated with few side effects such as fever, vomiting and diarrhea.⁶⁻¹² There is still debate about doses, routes and regimes of PGE₁ for termination of pregnancy during second.⁷ Studies have demonstrated greater efficacy with vaginal misoprostol than oral misoprostol.⁸⁻¹⁰ The Federation of International of Gynecologists and Obstetricians (FIGO) recommendation for second trimester termination with vaginal misoprostol states "400 mcg at 3 hours interval to a maximum of 5 doses for induction of congenital anomalies and for IUID, the doses are adjusted to gestational age: 13-17 weeks 200 mcg every 6 hours to a maximum of 4 doses, and for 18-26 weeks 100 mcg every 6 hours to a maximum of 4 doses".¹¹ The aim of this study was to assess the efficacy and maternal side effects of misoprostol as per FIGO guidelines for termination of second trimester pregnancy.

METHODS

This was a cross sectional study of one year period from 15th June, 2011 to 14th June 2012 in the Department of Obstetrics and Gynecology, Patan Hospital. Forty pregnant women with fetal congenital anomalies and intrauterine fetal demise (IUID) admitted for second trimester (13-26 weeks) termination were included. Counseling was done regarding the procedure, advantages and disadvantages and possible side effects. Informed consent were obtained. The gestational age was determined by menstrual history, pelvic examination

and confirmed by ultrasound when last menstrual period (LMP) was not confirmed. Routine investigations were done including blood grouping, hematocrit, platelets and random blood sugar. Exclusion criteria were known hypersensitivity to prostaglandins, previous caesarean section or any surgical intervention in uterus, gravidity more than five, intrauterine contraceptive device in situ, low lying placenta, hydatidiform mole, ectopic pregnancy, adnexal mass, cardiac disease and coagulopathy.

We followed vaginal misoprostol as per FIGO protocol.¹¹ The misoprostol tablets were placed in the posterior vaginal fornix. Cervical status was assessed by vaginal examination before insertion of next dose or at the onset of uterine contraction. Pethidine hydrochloride 50 mg intramuscularly was given for abdominal pain. acetaminophen 500mg oral for fever (temperature \geq 100.4° F), and metoclopramide (10 mg) intravenous for vomiting.

Treatment success was defined as expulsion of the fetus within 48 hours after the insertion of initial dose of misoprostol. Induction to delivery interval was defined as the time from the initial dose of misoprostol to the expulsion of fetus. Maternal side effects such as abdominal pain, fever (temperature \geq 100.4° F), nausea, vomiting, diarrhea and excessive bleeding requiring blood transfusion based on clinical examination and hematocrit less than 23% were recorded. Completion of termination was assessed by visual examination of abortus, bleeding, pain, and vaginal examination to see the status of cervical os. Uterine curettage was performed if retained product of conception was detected on vaginal examination after expulsion of fetus and placenta. All women who did not abort within 48 hours of misoprostol induction, depending on their cervical status and amniotic membrane integrity received a transcervical Foley catheter 18 Fr, balloon inflated with 50 ml of distilled water and kept in situ for 24 hours or intravenous oxytocin infusion.

Statistical Package for Social Sciences (SPSS) version 13 was used for descriptive analysis.

The study was approved by the institutional review committee of PAHS.

RESULTS

There were forty women, 31 with IUID and nine congenital anomalies for termination of pregnancy during the second trimester of 13-26 weeks.

Table 1. Characteristics of patient undergoing second trimester abortion (n= 40)

Characteristics	
Mean Age \pm SD (years)	26.30 \pm 5.04
Mean GA \pm SD (weeks)	20.32 \pm 4.05
Mean Gravidity \pm SD	1.88 \pm 1.04
Primigravida	19 (47.50%)
Multigravida	21 (52.50%)
Congenital Anomalies	9 (22.50%)
IUFD	31 (77.50%)

Note: n = Total number of patients, SD = Standard Deviation, GA = Gestational Age, IUFD= intrauterine fetal demise

Of 31 fetal IUFD, 11 (35.49%) were of gestational age 13-17 weeks and 20 (64.51%) of 18-26 weeks.

At 48 hours, the successful termination in 31 IUFD was 90.9% (10 of 11) at 13 to 17 weeks and 100% (20 of 20) at 18-26 weeks. The success rate was 88.8% (8 of 9) for congenital anomalies. Median induction to delivery time was 26.8 hours with 400 mcg Misoprostol for congenital anomalies. For IUFD, it was 18 hours with 200 mcg at 13 to 17 weeks and 24 hours with 100 mcg at 18 to 26 weeks

Table 2. Vaginal Misoprostol induction to delivery time in patient undergoing second trimester abortion (n=40)

Vaginal dose of misoprostol (mcg)	Number of patients	Mean gestational age \pm SD (weeks)	Total doses required (number of patient; %)	Number of patients with induction to delivery time		Induction to delivery time (hrs) Median (q1*, q3*)
				<48 hrs	>48 hrs	
400	9	20.36 \pm 3.44	5 (8; 88.9)	7	1	26.8 (20, 41.5)
			4 (1; 11.1)	1	0	
200	11	15.90 \pm 1.81	2 (3; 27.3)	3	0	18 (12, 26)
			4 (8; 72.7)	7	1	
100	20	22.73 \pm 3.09	1 (2; 10)	2	0	24 (14, 26)
			2 (3; 15)	3	0	
			3 (1; 5)	1	0	
			4 (14; 70)	14	0	

Q= quartile

For women who did not abort within 48 hours of misoprostol induction, 11.2% (1 of 9) for congenital anomalies received trans-cervical Foley catheter whereas 9.1% (1 of 11) for IUFD at 13 to 17 weeks received intravenous oxytocin infusion. All of them expelled the fetus successfully.

Abdomen pain was seen at all doses and nausea vomiting at high dose of misoprostol

Table 3. Maternal complications of vaginal Misoprostol induction in patient undergoing second trimester abortion (n=40)

Side Effects	400 mcg (N=9)		200 mcg (N=11)		100 mcg (N= 20)	
	N	%	N	%	N	%
Abdominal pain	4	44.44	6	54.54	5	25
Pyrexia (>100.4°F)	1	11.11	0	0	0	0
Nausea vomiting	2	22.22	0	0	0	0

None of our patient required transfusion for excessive bleeding. There was no mortality in this series.

DISCUSSIONS

In this study the success rate within 48 hours of misoprostol induction was 88.8% (8 of 9) for congenital anomalies which is comparable to 90.5%.¹² For IUFD, the success rate was 90.9% (10 of 11 cases of 13 to 17 weeks) and 100% (20 of 20 cases of 18-26 weeks), higher than 87.2% reported by Jain et al.⁵

The required amount of misoprostol not only decreases with increasing gestational age, but has also been found to be lower in women with a dead fetus. This may be due to intrinsic changes in the uterus and cervix that make the myometrial cells sensitive to stimulant and cervical tissues favorable to ripening agent after fetal death.¹² The cervix of pregnant women with dead fetus tends to efface more readily and dilate when compared with that of the live fetus.¹² J. Srisomboon and S. Pongpisuttinun have also concluded that intrauterine fetal death had higher success rate and aborted earlier than those with a live fetus by comparing the efficacy and safety of 200 mcg of intravaginal misoprostol administered every 12 hours between live and dead fetuses in second trimester.¹⁷

In this study, the median induction to delivery interval was 26.8 hours (Q1, Q3: 20, 41.5 hours) in 400 mcg for congenital anomalies whereas 18 hours (Q1, Q3: 12, 26 hours) in 200 mcg for IUFD at 13 to 17 weeks and 24 hours (Q1, Q3: 14, 26 hours) in 100 mcg for IUFD at 18 to 26 weeks respectively.

Several studies have evaluated the use of misoprostol for induction of labour in the second trimester.¹⁻³ There are different regimes for the use of misoprostol in termination of second trimester pregnancy.¹³ In this study, we used the protocol recommended by the FIGO for second trimester termination with vaginal misoprostol: 400 mcg at every 3 hours interval to a maximum of 5 doses for induction of congenital anomalies. For IUFD, doses were

adjusted to gestational age: between 13-17 weeks 200 mcg every 6 hours interval to a maximum of 4 doses, and between 18-26 weeks 100 mcg every 6 hours interval to a maximum of 4 doses.¹¹

The most common maternal side effects observed in this study were abdominal pain followed by nausea, vomiting and pyrexia. Symptomatic management was successful. Other authors have observed fever as the most frequent side effects.¹³⁻¹⁷

CONCLUSIONS

Vaginal misoprostol was effective with minimal side effects for termination of second trimester pregnancy for fetal congenital anomalies and intrauterine fetal demise.

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