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# Comparison between sublingual and vaginal route of misoprostol in management of first trimester missed abortion

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**Abstract**
**Aim:** The aim of the present study is to compare between sublingual administration of misoprostol and vaginal administration in the management of missed abortion.
**Materials and Methods:** This was a prospective study conducted in the Department of Obstetrics and Gynecology in SMGS hospital. A total of sixty women diagnosed as missed miscarriage in first trimester on UGS in the out-patient clinic. Participants were randomly divided to receive 400 µg of misoprostol either sublingually or intra vaginally every three hours for a maximum of 4 doses.
**Result:** During the follow-up of our cases we found that sublingual route is more effective than vaginal route in the management of missed abortion. The difference between the two groups in percentage of conceptus expulsion was statistically significant, 80 % in the sublingual group and 62 % in the vaginal group. Compared with vaginal group, those women in sublingual group experienced more complications including altered taste (62% vessus4%) vomiting (20 versus 10%), and diarrhea (10% versus 4%).IAI between two group was also significant, 14.25±1.5 in vaginal group versus 10.2± 1.6 in sublingual group.
**Conclusion:** From our study, we conclude that sublingual misoprostol is an effective and safe medical method for completion of abortion in missed abortion in first trimester, although side effects are more common in sublingual group.

**Keywords:** sublingual, vaginal route, misoprostol

## Introduction

Abortions constitutes approximately 12% of pregnancies [1] Missed abortion is defined as death of conceptus without expulsion of its contents with closed cervix before fetal viabilitity. Management of missed abortion includes the following: Surgical evacuation, Medical evacuation, Expectant management [2]. Surgical procedures to terminate pregnancy include dilatation and curettage, aspiration and evacuation. Surgical procedures have complications such as anesthesia complications, cervical rupture, uterine perforation, and sometimes even damage to the abdominal viscera. Sometimes, it causes cervical insufficiency in subsequent pregnancies due to cervical dilatators [3, 4] Expectant and medical management of first trimester abortions have significant economic advantages over traditional surgical management. However there is emotional trauma of carrying a nonviable pregnancy for a prolonged period as the timing is uncertain and it may be stressful for some women [6, 7]. Medical management is considered to be a safe method of management of abortion [7] As regards effectiveness, side effects, route of administration, and drugs should be evaluated for medical management. Misoprostol has become widely acceptable for medical abortion. Systemic bioavailability of vaginal misoprostol has been found to be higher than that after oral administration.8. However several problems have been identified with vaginal misoprostol like inconsistent absorption and incomplete absorption in addition to women finding vaginal administration uncomfortable [9, 10, 11] Subsequently a new route of giving misoprostol by sublingual administration has been developed [12] The sublingual mucosa, being very vascular, serves the purpose of better absorption. Sublingual application also avoids the first pass effect through the liver. The misoprostol tablets, when placed under the tongue, dissolve within 10-15 min. This study was undertaken to compare the efficacy of 400 µg sublingual misoprostol with 400µg of vaginal misoprostol, in repeated doses, for medical management of missed miscarriage.

## Material and Method

This was a prospective study conducted in the Department of Obstetrics and Gynaecology on in SMGS hospital. A total of hundred women diagnosed as missed miscarriage in first trimester on UGS in the out-patient clinic after doing a pelvic examination and taking an informed verbal consent. The inclusion criteria was an ultrasound diagnosis of missed miscarriage < 13 weeks gestation. Patients having incomplete miscarriage and retained products of conception (RPOCs) were excluded from the study. Women were divided into two groups Women in group 1 received 400 µg of misoprostol sublingually every three hours for a maximum of 4 doses and those in group 2 received 400 µg of misoprostol vaginally every three hours for a maximum of 4 doses. From intake of the first dose till 24 h after the last dose, follow-up was done and closely observed for gastrointestinal side effects such as

nausea, diarrhea, stomach cramps, passage of part of conceptus, and amount of vaginal bleeding. UGS was repeated after 24 h after the last dose and after expulsion of parts of conception to assure complete evacuation of the uterine cavity. The absence of remnant of conception or endometrial interface thickness less than 15 mm is mandatory to diagnose complete abortion. Surgical evacuation was done to all other cases that showed no uterine colic, internal os dilatation, and complete evacuation with endometrial interface less than 15 mm within 24 h from the last dose

## Results

Total number of 100 patients were included in the study. Age group parity and the mean gestational age of the patients are comparable as shown in table 1.the induction to abortion interval is more in vaginal group (14.25±1.5) vs sublingual group (10.2± 1.6) which was significant statically. Also rate of complete evacuation was high in sublingual group 80% vs 62%in the vaginal group. In complete evacuation are followed by surgical evacuations.

**Table 1:** shows Characteristics of patients

| | Group 1(Vaginal miso) | Group2(sublingual miso) |
|---|---|---|
| Age | 25.6±2.5.35 | 26.5±2.6.45 |
| Parity | 1.2±1.1 | 1.4±1.2 |
| Gestational age | 9.3±3.5 | 9.2±3.2 |

**Table 2:** Clinical outcome of missed miscarriage in two groups

| | Group 1(Vaginal miso) | Group2(sublingual miso) |
|---|---|---|
| Complete | 31(62%) | 40 (80%) |
| Incomplete | 19(38%) | 10(20%) |
| IAI | 14.25±1.5 | 10.2± 1.6 |

In our study we found more altered taste (62%) in sublingual group. Table 3 shows side effects of the two different routes.

**Table 3:** Side effects of two groups

| | Group 1 (Vaginal miso) | Group2(sublingual miso) |
|---|---|---|
| Nausea | 2(4%) | 15(30%) |
| Diarrhoea | 2(4%) | 5(10) |
| Vomting | 5(10%) | 10(20%) |
| Altered taste | 2(6%) | 31(62%) |
| Excessive bleeding | 5(10) | 6(12%) |

## Discussion

Sublingual route of misoprostol is being used for termination of pregnancy, preoperative cervical priming prior to surgical termination, induction of labor and silent miscarriage. Some previous studies comparing efficacy of Misoprostol vaginally vs sublingually on completeness of abortion showed similar results whether administrated vaginally or sublingually, however some others confirmed the superiority of one prescribing protocol compared with another.

In our study we found significant difference in the success rates of two regimes sublingual 80% and vaginal 62% which was found to be statically significant In our study, the sublingual group showed more complications as altered taste (62%) nausea (30%), vomting (20%). Our study was consistent with the studied of Tanha *et al.* and ganguly *et al.* (13, 14). Tanha and colleagues found that although the effectiveness was high in the sublingual group than in vaginal group (sublingual 84.5 %, vaginal 46.4%, P = 0.000, RR = 0.54, 95 % CI = 0.442–0.681), the sublingual group experienced more prevalence rate of bleeding, pain severity, diarrhea and fever. Also, Ganguly *et al.* showed that the rate of complete abortion was higher in sublingual group in comparison to vaginal route, however gastro-intestinal side-effects more prevalent in sublingual route. Saxena *et al.* found in their study Sublingual group had a higher dilatation (9.9 +/- 2.1 mm; P < 0.001) and lower time duration of surgery (3.6 +/- 1.0 min; P < 0.01) as compared to oral (8.2 +/- 2.6 mm, 4.9 +/- 1.7 min) or vaginal routes (7.6 +/- 2.6 mm, 5.2 +/- 1.8 min). Patient acceptability was higher for sublingual (53 of 150) and oral routes (62 of 150) as compared to vaginal (35 of 150) route [15]. Milani and his college in their study found, the median induction-to-abortion interval was shorter in sublingual group (12/72 hours in sublingual and 14/67 hours in vaginal). There was no significant difference in the success rate at 24 and 48 hours and in side effects [16]. Tang *et al.* study using 400 µg sublingual and vaginal misoprostol every 3 hours achieved similar success rate in 48 hours in both groups (>90%) but the success rate in 24 hours was significantly higher in the vaginal group. Finally, tang *et al.* study suggest that both routes of application are effective in second-trimester termination but, regarding to the side effects and patients acceptability, sublingual misoprostol is a better option group and was statistically insignificant [17] In our study we found that compared with vaginal group, those women in sublingual group experienced more complications including altered taste( 62% vessus4%) vomiting (20 versus 10%), and diarrhea (10% versus 4%).IAI between two group was also significant, 14.25±1.5 in vaginal group versus 10.2± 1.6 in sublingual group.

## Conclusion

From our study we conclude although side effects are more common in sublingual route, sublingual misoprostol is an effective and safe medical method for completion of abortion in missed abortion in first trimester.

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