

Misoprostol use as a method of medical abortion

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Summary

Aim: The aim of our study was to verify with the use of ultrasound (US) scanning the effectiveness of misoprostol in medical abortion. **Materials and Methods:** The study population included women with a medical miscarriage attending the 2nd Department of Obstetrics and Gynecology, University of Athens in Aretaieion Hospital, Athens, Greece. All women < 49 days since their last menstruation received 800 µg vaginal misoprostol. The diagnosis of complete abortion was possible by the US measurements as endometrial thickness of 15 mm by transvaginal US was used as a cutoff level for successful abortion. **Results:** The mean age of the study population was 27 years (ranging from 19 up to 37 years). Complete evacuation with misoprostol was performed in 149 women. The success rate was 85.2% (127/149). Twenty-two women experienced intrauterine echogenic structures with a diameter > 15 mm and all of them underwent surgical evacuation (14.8%). Vaginal bleeding was present in 17 patients after the procedure (11.4%). Less usual reported side-effects included nausea, vomiting, pain, or diarrhea. **Conclusion:** Misoprostol use is an effective, safe and acceptable method of medical abortion for women.

Key words: Misoprostol; Miscarriage; Medical abortion; Transvaginal ultrasound.

Introduction

One out of four women will face at least one miscarriage in her reproductive life. Furthermore, about 10-20% of pregnancies end in miscarriage [1]. Dilatation and curettage has been the usual treatment for early pregnancy failure. The most effective method of abortion is surgical curettage, however expectant management of incomplete miscarriage is effective and associated with lower rates of infection than surgical management. It is shown that the risk of infection is low (2-3%) after expectant, medical or surgical management of a miscarriage [2]. The advice from the Royal College of Obstetricians and Gynecologists is that expectant or medical management should be offered only in units where patients have access to 24-hour telephone advice and immediate admission [3].

Medication abortion (mifepristone-misoprostol) is used worldwide by millions of women [4]. The success rates of such a nonsurgical method range from 72 to 93% depending on the dose, the route of administration and the type of miscarriage [5-11].

Method

This was a retrospective study carried out at Aretaieion Hospital, Athens, Greece from January 2005 to December 2006. Written informed consent was given by each patient to participate in our study. Transvaginal ultrasound (TVS) was performed to confirm pregnancy. The upper limits for treatment were either crown-rump length (CRL) of 10 mm or 49 days amenorrhea. The patient received misoprostol in a dose of 800 µg vaginally. One week later, TVS was performed to investigate whether all fragments compatible with a complete expulsion

were discharged. Complete expulsion was the absence of intrauterine echogenic structures with a diameter more than 15 mm. In cases with a continuous evolving pregnancy or heavy vaginal bleeding, surgical evacuation was performed.

Results

From 160 women visiting our department, 11 did not agree to participate in our study. The mean age of the study population was 27 years (range 19 to 37 years).

Complete evacuation with misoprostol was performed in 149 women. The success rate was 85.2% (127/149). Twenty-two women experienced intrauterine echogenic structures with a diameter more than 15 mm and all of them underwent surgical evacuation (14.8%). Vaginal bleeding was present in 17 patients after the procedure (11.4%). Thirteen women experienced abdominal pain (8.7%), for which oral paracetamol was used. Nausea, vomiting and diarrhea were found in eight (5.4%), seven (4.7%) and five (3.4%) women, respectively. No cases of infection or blood transfusion were noted. Moreover no increase in uterine rupture was found in women with a previous cesarean section. The only factor that influenced the treatment efficacy was parity, as misoprostol affects uterine contractility and cervical maturation which could vary due to parity.

Discussion

“... I will not give to a woman a pessary to produce abortion...”. This phrase from the Hippocratic oath was prohibiting the ancient Greek doctors to cause abortion in a pregnant woman [12].

Miscarriage is defined as an abortion due to accidental trauma or natural causes such as chromosome factors. Induced abortion (elective or therapeutic) is an abortion caused by use of medical or surgical management. The

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rates of abortions (missed, spontaneous or incomplete) could reach even 15% of all pregnancies [13]. Surgical uterine evacuation is traditionally used for the treatment of such cases. Although it is a safe method, there are also some complications such as uterine perforation or intrauterine adhesions. Historically many herbs, e.g., tansy, pennyroyal, black cohosh or silphium were used as abortifacients [14].

Medical management of abortion became an accepted practice in the 1990s. The advantages of medical versus surgical abortion are no requirement for anesthesia and lower risk of infection or perforation [13]. In a Finish study, it was shown that although surgical treatment is associated with more infections, the patients were more satisfied and experienced less pain with the surgical management [15].

It was shown in a randomized trial that while using 800 mg vaginal misoprostol vs curettage for the treatment of early pregnancy failure, bleeding was heavier and more prolonged in the misoprostol group, however other interventions were rarely required [16].

Misoprostol is an FDA-approved drug for the prevention of NSAID-induced gastric ulcers. In other countries, it has also been approved for labor induction or as an abortifacient. In many countries, it is used in conjunction with mifepristone as an abortifacient.

These medical abortion regimens used in different studies include 600 mg oral mifepristone followed 48 hours later by 400 µg oral misoprostol. Many obstetricians use a regimen of 200 mg oral mifepristone followed by 800 µg vaginal misoprostol. Mifepristone is an antiprogesterone whereas misoprostol is a prostaglandin analogue. Misoprostol (Cytotec, Searle AG, USA) is a synthetic prostaglandin E1 analogue [17, 18]. It is used as a method of medical abortion for early pregnancies up to 49 days as later on it is less effective. It is more practical to be used orally, however fewer gastrointestinal side-effects are mentioned when used vaginally.

The protocol used in our institution is 800 µg vaginal misoprostol as a method of medical abortion for early pregnancies up to 49 days.

Vaginal misoprostol is more effective than vaginal prostaglandin E in avoiding surgical management. Furthermore, it has been found that vaginal misoprostol is more effective than oral misoprostol and it was shown that sublingual misoprostol has equal efficacy to the vaginal regimen, although it was associated with more episodes of diarrhea [19, 20]. It has been revealed that successful misoprostol treatment is significantly more likely in nulliparous women with localized lower abdominal pain or active vaginal bleeding within the previous 24 hours or with Rh-negative blood type [21]. It has also been shown that long-term conception rate and pregnancy outcome after misoprostol use is similar to that after surgical management [22]. Misoprostol treatment of miscarriage seems to be the least expensive method (1000 US dollars) when compared with expectant (1,172 US dollars) or surgical management (2,007 US dollars) [23]. Minimal side-effects have been noted such as light bleed-

ing, diarrhea, vomiting or headaches, something which was also found in our study with the exception of headaches.

Serum beta-hCG is used to discriminate abortion status after misoprostol use; hCG measurement can detect a persistent gestation or an incomplete medical abortion. Specifically, a cutoff level of 20% of the initial value might lead to a diagnosis of complete expulsion in 98.5% of pregnant women, whereas the sensitivity of ultrasound reaches 89.8% [24]. In our study, we preferred to use US scanning as a criterion of effective abortion instead of the hCG measurement because the initial values of hCG were not available in the majority of the women as the first measurement was done in other hospitals.

Although Fiala *et al.* showed that measurement of hCG before treatment and at follow-up is more effective than US to confirm a successful medical abortion, there is still no agreement in the verification of medical abortion outcomes [24].

US on the other hand is easier to perform and could exclude the possibility of ectopic pregnancy. US can often reveal an inhomogeneous endometrial thickness leading to unnecessary surgical interventions [24].

Endometrial thickness of 15 mm by TVS was used as a cutoff for successful abortion, although many disagree with this cutoff level because it could cause unnecessary interventions [25]. Furthermore, absence of the gestational sac is of course necessary [26]. The US criterion used by El-Rafaey *et al.* [27] to define complete abortion was the absence of an intrauterine gestational sac, whereas Chung *et al.* [28] used the criterion of a chorionic reaction 5 cm² and 6 cm² in the transverse and sagittal planes, respectively. Leung *et al.* used stricter criteria for defining an "empty uterus" after medical abortion. Patients with a homogeneous intrauterine dimension of less than 11 cm² in combined transverse and sagittal planes were regarded as having complete expulsion [29]. We preferred to use the US cutoff measurement of 15 mm of endometrial thickness as a criterion of successful abortion. The success rate was 85.2% in our study.

Conclusion

Misoprostol use is an effective, safe and acceptable method of medical abortion. The diagnosis of complete abortion was possible by the US measurement of endometrial thickness of 15 mm by TVS and was used as a cutoff for successful abortion.

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