

## Effectiveness Evaluation Of The 'Medicinal Curettage' In Women With A Uterine Scar In The Second Trimester Of Gestation

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### Abstract

**Research objective:** to compare the effectiveness of different drug abortion schemes in late pregnancy in women with a uterine scar in the Republic of Buryatia.

**Material and research methods.** The study involved 47 women with a scar on the uterus who were shown to terminate a pregnancy for medical reasons in the second trimester. The patients were divided into 2 groups by the method of random numbers. In the first group, the method of pregnancy termination with the Mifepristone 200mg tablet orally and laminar sticks, then after 12-24 hours the Misoprostol 200mcg tablets into the vagina; in the second group, the method of pregnancy termination with the Mifepristone 200mg tablet orally and laminar sticks, then after 12-24 hours the Misoprostol 400mcg tablets into the vagina. The analysis of the miscarriage outcomes, depending on the methods of medical pregnancy termination, taking into account the anamnesis, especially the course of miscarriage, post-abortion period and ultrasound examination data of pelvic organs.

**Results:** the average time of fetus and placenta expulsion in the first group was 6 hours and 40 minutes, In the second group it equaled 7 hours and 45 minutes. Efficiency in group number 1 was 96.7%, in group number 2 it was 94.1%. The miscarriage was complicated by the incomplete abortion in 4 cases in the first group and in the second group in 2 cases. Control ultrasound examination of the pelvic organs showed an expansion of the uterine cavity from 8 mm to 37 mm, the average value was 15 mm on days 3 and 4 of the post-abortion period.

**Conclusion.** The most effective and safest method of terminating a pregnancy is medical termination. The scheme of using Mifepristone 200mg tablets orally once, laminar sticks, after 12-24 hours, the 200mcg Misoprostol tablets into the vagina are the most 'physiological'.

**Keywords:** medical abortion, mifepristone, misoprostol, dilatation and evacuation.

## Introduction

In the modern world, caesarean section is the main method of fast and gentle delivery for the fetus, therefore it is the most frequently performed surgical intervention in obstetric practice. Currently, both in Russia and around the world, there is an annual increase in the frequency of caesarean sections. According to the World Health Organization, the frequency of caesarean section ranges from 10% to 15% in economically developed countries. The incidence of caesarean section in clinics in Western Europe and the United States reaches 20-27% and 60% in Latin America [1]. The World Health Organization has identified the optimal caesarean section rate as 15%. In Russia, the frequency of operative delivery is on average 15-16%, but in some obstetric hospitals it reaches 50% and does not tend to decrease [1,2]. The frequency of caesarean section in the State autonomous health care institution the 'Republican perinatal center', which admits generally high-risk patients, in 2018 the number was 40.7%, in 2019 38.5%, although the efficiency ratio of caesarean section in the republican perinatal center in 2019 was 1.0, then there is a correlation between the reduction of perinatal losses due to timely operative delivery. The increase in the frequency of surgical delivery is correspondingly accompanied by an increase in the number of women with one or more scar on the uterus. With the increase in the number of women with a scar on the uterus, modern medicine is faced with a new problem, i.e. termination of pregnancy for medical reasons in the second trimester in women with a scar on the uterus.

Unfortunately, until now, the identification of many Congenital malformations of the fetus is possible only after 18-21 weeks of pregnancy, and therefore the termination of pregnancy at this time is forced, inevitable, since some genetic diseases and congenital malformations of children are not compatible with life and are the cause infant mortality. In other cases, Congenital malformations in children seriously affect the quality of life for both the child and the family. Thus, the problem of 'safe' artificial termination of pregnancy in late terms remains one of the urgent and difficult problems in obstetric and gynecological practice [3]. Due to the increase in the frequency of caesarean sections, there is an increase in the incidence of abortion in the second trimester with scars on the uterus.

Currently, abortions in the second trimester in the world make up about 10-15% of all abortions, but they are the cause of two-thirds of the main complications associated with them, which is also relevant for Russia [3,4]. At the same time, the risk to a woman's health increases up to 3-4 times. Over the past decade, about 40% of deaths occurred after termination of pregnancy for medical reasons [4].

At present, artificial termination of pregnancy in the second trimester with a scar on the uterus can be performed in the following ways, i.e. hysterotomy, dilatation and evacuation of the fetus with the placenta from the uterine cavity, medical termination of pregnancy. Not only among medical personnel, but above all among patients there is a concept 'once a caesarean section, always a caesarean section', and this phrase is associated primarily with such a formidable complication as rupture of the uterus along the scar. Therefore, when proposing to women about the possibility of conservative management of a miscarriage at the first moment, it first of all causes fear and confusion, only then, after considering, 2/3 of the patients agree to this procedure. Of the above methods, the most innovative, effective and safe is the drug method, which is accompanied by less blood loss. Medical termination notes not only small blood loss, but all complications associated with the provision of surgical and anesthetic interventions are excluded. The only and most dangerous complication of this method is rupture of the uterus along the scar and the development of intra-abdominal bleeding, blood transfusion, loss of an organ and a threat to a patient's life. Thus, in order to reduce such a formidable complication in 2017, on the basis of the State autonomous health care institution the 'Republican Perinatal Center' Ministry of Health care of the republic of Buryatia, drug abortion schemes have been developed in late gestation in women with uterine scars. These regimens include the combination of mifepristone 200 mg per os, dilatation of the cervical canal with laminar sticks and, 12-24 hours later, intravaginal misoprostol in a dose of 200 mcg or 400 mcg. Given its high efficacy, low complication rate and minimal side effects of misoprostol, this technique has been widely used in the State autonomous health care institution the 'Republican Perinatal Center' Ministry of Health care of the republic of Buryatia.

In December 2018, the Russian Federation issued clinical guidelines called 'Artificial termination of pregnancy at a later date for medical reasons, i.e. fetal malformation', where the recommended dose of misoprostol was 800 mcg into the vagina. Further, it is recommended to re-take misoprostol 400 mcg sublingually every 3 hours for up to 4 doses or until expulsion of the fetus under dynamic observation of the patient in a stationary setting. In this case, the effectiveness of the recommended scheme is up to 95-98% [5]. It should be taken into account that an increase in the dose of misoprostol is in direct correlation with an increase in the risk of rupture of the uterus along the scar with medical abortion in the second trimester, therefore, the use of the proposed scheme in this group of patients is not relevant.

Therefore, developed on the basis of the State autonomous health care institution the 'Republican Perinatal Center' schemes for drug abortion in late gestation in women with scars on the uterus have been widely used in practical medicine in the Republic of Buryatia. In addition, it should be noted that at present, not only a scar on the uterus, but the age and number of scars are not contraindications for medical termination of pregnancy.

**Research objective:** to compare the effectiveness of different drug abortion schemes in late pregnancy in women with a uterine scar in the Republic of Buryatia.

### Material and research methods

The study involved 47 patients with a scar on the uterus with a gestational age of 12 to 22 weeks, who applied to the State autonomous health care institution the 'Republican Perinatal Center' of the Ministry of Health care of the republic of Buryatia for artificial pregnancy termination for medical reasons. The patients are divided into 2 groups depending on the scheme. The 1st group consisted of 30 patients who underwent abortion according to the 1st scheme, i.e. tablet Mifepristone 200mg orally single dose (Mifepristone, JSC 'Nizhpharm', Russia), laminar sticks (set of sticks of laminaria 'Juno', 'Medical enterprise Simurg', Belarus), after 12-24 hours, tablets of Misoprostol 200 mcg into the vagina (Misoprostol, JSC 'Nizhpharm', Russia). The 2nd group included 17 patients who underwent pregnancy termination according to the 2nd scheme, i.e. Mifepristone 200mg tablets orally, then laminar sticks, after 12-24 hours Misoprostol 400 mcg tablets into the vagina once.

The criteria for inclusion in the study were gestational age from 12 to 22 weeks, indications for artificial termination of pregnancy in accordance with the Order of the Ministry of Health of Russia dated December 3rd, 2007 No. 736, as well as additional ultrasound examination of the pelvic organs to diagnose a non-developing pregnancy, an ongoing miscarriage, the location of the placenta in relation to the scar and internal pharynx, the state of the scar on the uterus. All patients signed voluntary informed consent.

The criteria for excluding patients from the study, i.e. acute or chronic hepatic or renal failure, the presence of severe extragenital pathology, adrenal insufficiency or long-term glucocorticoid therapy, hereditary porphyria, contraindications to the use of Mifepristone, Misoprostol, the inability to miscarry through the vaginal birth canal (development of urogenital systems or uterine fibroids of large sizes), ultrasound data of the pelvic organs (ingrowth of the placenta into the scar on the uterus, placenta previa 3-4 degrees or inconsistent scar on the uterus), the desire of the woman herself.

After establishing the diagnosis, conclusion and decision of the Perinatal Council, all patients underwent a standard examination in accordance with the Order of the Ministry of Health of Russia dated November 12<sup>th</sup>, 2012 No. 572n (as amended on January 12<sup>th</sup>, 2016). Antiemetic drugs were not used, as in rare cases vomiting was noted up to 2 times. Spasmolytic therapy with Drotaverine was used as an analgesia.

The primary criteria for evaluating the effectiveness were considered the ratio of medical miscarriage and instrumental evacuation of the fetus with the placenta from the uterine cavity. Additionally, the following criteria were taken into account, i.e. the presence of an ultrasound picture of the delay in the products of conception, the time from the start of misoprostol administration to a miscarriage, the ratio and analysis of the causes of miscarriage complications and the post-abortion period.

Statistical data analysis was performed using the STATICTICA 6.1 complex data processing package (StatSoft Inc., USA). The level of significance was taken as 5% ( $P \leq 0.05$ ) (Rebrova O.Y., 2002, Lang T.A.,

Sesik M., 2011). The study data were entered and managed using the REDCap information system deployed on the server of the FEDERAL STATE BUDGETARY SCIENTIFIC INSTITUTION 'RESEARCH CENTER FOR FAMILY HEALTH AND HUMAN REPRODUCTION' (Harris P. A., Taylor R. et al., 2009).

### Research results and discussion

All patients included in the study were re-pregnant and had a history of one or more scars on the uterus, with spontaneous pregnancies. There were twenty-four pregnant women with two scars on the uterus, with one uterus scar – 23 women and 48.9%, respectively. The age of the uterine scar ranged from 1 to 19 years.

The age of the patients ranged from 24 to 46 years old, there was no significant difference in the groups. There was no significant difference in the burden of somatic and obstetric-gynecological anamnesis in patients of all groups. Analyzing the course of this pregnancy, it should be noted that there were no significant differences in the incidence of complications such as the threat of miscarriage, anemia, inflammatory diseases of the vagina and gestational arterial hypertension.

Dynamic monitoring of the miscarriage was carried out from the moment the patient was admitted to the hospital until the early post-abortion period in round-the-clock mode in the gynecological department of the republican perinatal center. Control ultrasound examination of the pelvic organs was performed on day 3 and 4 after the induced miscarriage.

**Table 1. Clinical characteristics of patients**

Group	Age	Parity of pregnancy	One uterus scar	Two uterus scars
1-я (n=30)	32.33+/-5.66	3.77+/-2.03	17 (56.7%)	13 (43.3%)
2-я (n=17)	31.38+/-5.32	4+/-1.73	7 (41.2%)	10 (58.8%)

The reason for the termination of pregnancy in group I was congenital malformation in the fetus of 14 women (50%), decompensated somatic pathology on mother's part equaled 1 (or 3.6%), missed pregnancy equaled 9 (or 32.1%) and incipient miscarriage amidst the rupture of the amniotic membranes equaled 4 (or 14.3%). In group II, the causes were miscarriage in 6 cases (or 35.3%), Congenital malformation equaled 7 (or 41.2%), decompensated somatic pathology on mother's part equaled 3 (or 17.5%) and miscarriage amidst the rupture of the amniotic membranes 1 (6%).

The gestational age in these clinical groups is described in table 2. Dilation of the cervical canal with laminar sticks was performed in all cases.

**Table 2. Pregnancy date**

Group	12-14 weeks	14-16 weeks	16-18 weeks	18-20 weeks	20-22 weeks
1-я (n=30)		8 (26.7%)	6 (20%)	6 (20%)	10 (33.3%)
2-я (n=17)	3 (17.7%)	2 (11.8%)	8 (47%)	4 (23.5%)	

The expulsion of the fetus and placenta in group I occurred in 96.7%, and only in one case, medical termination of pregnancy was accompanied by profuse bleeding from the genital tract, as a result of which the fetus and placenta were evacuated from the uterine cavity for emergency indications without dilatation of the cervical canal at a period of 20-21 week, the same picture was observed in group II for a period of 16-17 weeks (94.1%). It should be noted that in these cases 'favorable conditions' are created for carrying out the operation to evacuate the fetus and placenta, thereby greatly facilitating the task for the surgeon. In group I in 4 cases and in group II in 2 cases, miscarriages were complicated by the incomplete abortion, therefore, vacuum aspiration of the uterine cavity was performed.

Under the control ultrasound examination of the pelvic organs on day 3 and 4 after the miscarriage, the uterine cavity expanded from 8 mm to 37 mm, the average value was 15 mm. The average time of expulsion of the fetus and placenta in group I after administration of the misoprostol tablet was 6 hours and 40 minutes, while in the second group it was 7 hours and 45 minutes

We did not observe such complications as a rupture of the cervix or the body of the uterus, endometritis with medical miscarriage in these women in all groups. We did not use routine antibiotic prophylaxis. We have not registered any side effects of abortion drugs. In the post-abortion period, in the absence of contraindications, all patients underwent physiotherapy in order to stimulate the contractile activity of the uterus.

### Conclusion

Thus, according to the results of our study, the presence of a scar on the uterus and its age are not a contraindication for medical termination of pregnancy at a later stage. Moreover, low-dose misoprostol for medical abortion in the second trimester in women with a uterine scar is effective, promising, and safe.

The scheme proposed by us is effective for maintaining reproductive health, reducing the number of additional scars on the uterus, reducing the number of complications and maternal mortality in women.

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