GUIDELINES FOR MEDICAL TERMINATION OF EARLY PREGNANCY

This Policy Statement has been reviewed and approved by the Social and Sexual Issues Committee of the Society of Obstetricians and Gynaecologists of Canada and was approved by its Council in November 1998.

SOCIAL AND SEXUAL ISSUES COMMITTEE MEMBERS

Principal author
Dr. Victoria J. Davis, MD, FRCSC, Toronto, Ont.
Diane Francoeur, MD, FRCSC, Ville Mont-Royal, Que,
Lorna Grant, MD, FRCSC, Winnipeg, Man,
Barbara Parish, MD, FRCSC, Halifax, N S,
Marc Steben, MD, FRCSC, Montreal, Que.

*Policy Statement: this policy reflects emerging clinical and scientific advances as of the date issued and is subject to change. The information should not be construed as dictating an exclusive course of treatment or procedure to be followed. Local institutions can dictate amendments to these opinions. They should be well documented if modified at the local level. None of the contents may be reproduced in any form without prior written permission of SOGC.
ABSTRACT

The objective of this Policy Statement is to provide a protocol for the medical termination of pregnancy. The usual method of termination of pregnancy in Canada is surgical. Medical abortion is technically simple but demands careful follow-up. It can be performed in the office and carried out either by gynaecologists or family physicians. Medical abortion avoids surgical complications, and is particularly useful when the uterine cavity is distorted with fibroids.

Methotrexate, which has no adverse effects on reproductive function, is injected into the deltoid. Five, six or seven days later, misoprostol (a prostaglandin of the E1 series) is administered vaginally.

The entire procedure is described in the guidelines. It should be carried out within seven weeks of the last menstrual period. The advantages of medical over surgical abortion are: patient autonomy; early and easy access; cost-effectiveness and technical simplicity.

The expected successful abortion rate will be over 90 percent. Side effects include nausea (7%), vomiting (3%) and diarrhea (8%). As with all medical procedures, medical termination must be discussed in detail with the patient and her consent must be obtained.

KEY WORDS

Medical termination of pregnancy, methotrexate, prostaglandin.

INTRODUCTION

Induced abortion is a legal medical procedure in Canada, and it is currently effected by surgical methods. In Europe and China, the medical termination of pregnancy, using mifepristone (RU-486) and a prostaglandin, has been available since 1989. In North America, political and social forces have delayed the testing and introduction of mifepristone for medical abortion.

Medical abortion has important benefits, as surgical complications, including uterine perforation and cervical lacerations, are avoided. Medical abortion may be preferable to surgical evacuation of the uterus when access to the uterine cavity is complicated by fibroids or other genital tract abnormalities.

Since 1952, methotrexate has been known to have cytotoxic effects on trophoblastic tissue, and has been used to treat molar pregnancies and choriocarcinoma.1 When used as a chemotherapeutic agent, methotrexate treatment had no adverse effect on reproductive functions.2 Since 1989, selected ectopic pregnancies have been treated medically with intramuscular methotrexate (50 mg/m²), and studies have shown that future fertility is not impaired.3 The low dose of methotrexate used to treat ectopic pregnancies is not associated with the side effects seen with chemotherapeutic regimens. In 1993, Creinin and Darney4 described the use of methotrexate (50 mg/m²) and misoprostol to induce abortion in women with a gestational age of up to eight weeks from the last menstrual period (LMP), and the complete abortion rate was reportedly 90 percent.4 Since that time, there have been several studies using these medications to induce abortion in early gestations, all reporting success rates of 90 percent or more.5–9 When Creinin used oral methotrexate followed by vaginal misoprostol, the efficacy was similar to that of intramuscular methotrexate but there were more gastrointestinal side effects. Over 25 tablets (2.5 mg each) are required to achieve a dose of 50 mg/m² and this is more costly than intramuscular methotrexate.9 The level of evidence for methotrexate and misoprostol to induce early pregnancy termination is II-3, that is evidence based on comparison with or without the intervention. It would be unethical to have an untreated control group when pregnancy termination is requested, therefore, all patients fall into the “intent to treat” group.

Misoprostol, a prostaglandin of the E1 series, is an inexpensive oral preparation that, unlike other prostaglandin preparations, is stable at room temperature. Misoprostol is marketed for the prevention of gastric ulcers in people taking anti-inflammatory drugs, but is known to have uterotonic and cervical ripening properties. In the United Kingdom and France, misoprostol is used to augment medical abortion with RU-486. Several studies have shown that vaginal placement of misoprostol is more effective and has fewer gastrointestinal side effects than oral administration.10 Misoprostol (800 ug) is placed in the vagina on the fifth, sixth or seventh day after the methotrexate has been given.5–7 The success rate is lower if misoprostol is placed on the third day.

ABSTRACT

The objective of this Policy Statement is to provide a protocol for the medical termination of pregnancy. The usual method of termination of pregnancy in Canada is surgical. Medical abortion is technically simple but demands careful follow-up. It can be performed in the office and carried out either by gynaecologists or family physicians. Medical abortion avoids surgical complications, and is particularly useful when the uterine cavity is distorted with fibroids.

Methotrexate, which has no adverse effects on reproductive function, is injected into the deltoid. Five, six or seven days later, misoprostol (a prostaglandin of the E1 series) is administered vaginally.

The entire procedure is described in the guidelines. It should be carried out within seven weeks of the last menstrual period. The advantages of medical over surgical abortion are: patient autonomy; early and easy access; cost-effectiveness and technical simplicity.

The expected successful abortion rate will be over 90 percent. Side effects include nausea (7%), vomiting (3%) and diarrhea (8%). As with all medical procedures, medical termination must be discussed in detail with the patient and her consent must be obtained.

KEY WORDS

Medical termination of pregnancy, methotrexate, prostaglandin.
following methotrexate administration.6,11

Medical abortions are limited to a gestational age of seven weeks from the LMP in France and China, and nine weeks from the LMP in the UK and Sweden.12 There is evidence to suggest that the efficacy of medical abortion decreases with increasing gestational age, increasing gravidity (>4) and in members of the Asian race.5 The studies in Europe and in North America indicate that medical abortion is highly acceptable to women, and in order to avoid the psychological and physically invasive surgery, women will tolerate multiple visits and the wait for the products of conception to pass.13

The objective of these guidelines is to provide a protocol, based on current literature, for the medical termination of pregnancy. Although medical abortion is technically simpler than suction curettage, it is logistically more complex due to the need for close follow-up and commitment by the patients and physicians. Medical abortion may be initiated at an office visit either by gynaecologists or family physicians.

**COUNSELLING**

Every woman seeking abortion needs supportive, compassionate counselling. As recommended in the 1996 SOGC Guidelines,14 counselling should include discussion about the issue of continuing the pregnancy.

When discussing medically induced abortion, it must be emphasized that the procedure has a failure rate of approximately five percent, and that a surgical evacuation of the uterus may be necessary. Medical abortion involves several clinic visits and blood tests to determine if the termination has been successful. Women who cannot commit to follow-up should be offered suction curettage.

Miscarriage normally occurs within the first 24 hours after insertion of the misoprostol and will involve cramps of varying severity, bleeding with clots and the passage of tissue. Women who cannot tolerate these symptoms, or the sight of the products of conception, should be offered surgical abortion. Less than one percent of patients require a dilation and curettage for bleeding following medical abortion.13

A approximately ten percent of successful medical terminations will be “delayed”, in that the complete evacuation of the uterus may take several days and, on occasion, weeks. If the woman seeking medical abortion is aware of this possibility, she will be more likely to accept the delay and avoid unnecessary surgical intervention.

In the event of a continuing viable gestation, immediate suction curettage is strongly advised, as methotrexate and misoprostol are reportedly associated with birth defects.6,13

The safety of the medications and the lack of effect on future fertility should be discussed, together with side effects, including nausea (7%), vomiting (3%) and diarrhoea (8%).5

Medical abortion can be offered up to nine weeks from the LMP as long as the woman is made aware that the failure rate may be increased after seven weeks gestation. The same is true for those who have had more than four pregnancies.

When patients are well informed, the need for intervention in the event of a delayed reaction or heavy/ protracted bleeding will be reduced. The patient should feel free to contact the office to ask further questions, to seek reassurance, to discuss her progress and for post-abortion counselling. It should be made clear that the patient can request a suction curettage at any time, and that in the event of a complication, surgery will be arranged without delay.

**INFORMED CONSENT**

Although medical abortion is not a surgical procedure, obtaining the patient’s written consent is recommended. The consent should refer to the risk of the teratogenic effect of the medications in the event of a continuing viable gestation and declare that, in this circumstance, a surgical abortion is “strongly advised”. The physician must be certain that the woman understands the nature and the consequences of the procedure in order to make an informed decision in choosing medical over surgical abortion.

**ABORTION FACILITY**

Medical abortion of gestations less than nine weeks from the LMP can be performed in a private office or in a clinic. This procedure poses no unique safety issues,
availability of facilities that could deal with women having spontaneous miscarriage is sufficient.

EVALUATION

A history and physical examination must be conducted and the following points noted:
1. Confirmation of the diagnosis of pregnancy by hCG or ultrasound.
2. Determination of gestational age (< 9 weeks from LMP) by:
   a) menstrual history;
   b) bi-manual pelvic examination to ensure that the uterine size is consistent with dates;
   c) ultrasound if the gestational age or the presence of an intra-uterine gestation is in question.
3. The identification of any condition which may contra-indicate medical abortion: emotional instability; risk of loss to follow-up; gestation >63 days; active liver or renal disease (A ST > 2 x normal, creatinine >120 umol / L); leukopaenia (count <3.0 x 109 / L); inflammatory bowel disease; anaemia (Hb < 95 gm / L); known intolerance or allergy to methotrexate or misoprostol.

SCREENING

In addition to identifying the woman’s Rh status, selective screening may include measurements of haemoglobin, WBC, A ST, creatinine and rubella immunity. Cervical cytology and cultures may need to be taken.

PROCEDURE

1. Methotrexate 50 mg/m² is given by intramuscular injection into the deltoid. Rh immune globulin is given if the woman is Rh negative.
   A nalgescics, an anti-emetic and eight 200 ug tablets of misoprostol are prescribed.
   The patient is told to abstain from intercourse and to avoid nutritional supplements and foods containing folic acid including green vegetables, legumes and oranges.
2. On the fifth, sixth or seventh day after the methotrexate was administered, the patient places four misoprostol tablets high in the vagina. If there is no bleeding or passage of tissue after 24 hours, then four more tablets should be inserted.
3. Two days after the first application of misoprostol, a quantitative hCG is drawn or an ultrasound performed.
4. The day after the hCG or the ultrasound, an office visit may be arranged to determine if the termination is a success. The judgement is made depending on the amount of bleeding, passage of tissue or loss of pregnancy symptoms. If the ultrasound shows no retained products of conception, the termination is judged to be a success.
5. The outcome is monitored by following hCG levels. One week after the first measurement, the test is repeated. The next day, the patient makes an office visit. If the hCG has fallen by more than 80 percent over the seven days, the termination was a success. If the hCG has decreased by less than this amount, weekly hCGs should be carried out until the level approaches zero or there is a one-week interval decrease of greater than 80 percent. This represents a delayed reaction, defined as the passage of tissue more than 24 hours after the last misoprostol dose. If the hCG plateaus or increases, this represents an incomplete abortion or an ongoing viable gestation, and suction curettage should be arranged.
6. Final confirmation that the termination is complete is made by bimanual examination and the discovery of a non-pregnant uterus. A t this visit, time should be taken for contraception counselling and the most appropriate method of contraception started.

COMPLICATIONS

Bleeding: most women (76%) abort within 12 hours after the insertion of misoprostol, and during this time the bleeding may be heavy. C lots may be passed. The woman should call if for more than four hours more than two pads per hour are soaked. Arrangements should be made for physical assessment. Often the products of conception can be visualized in the cervix and removed. If there are any concerns, a suction curettage should be
arranged.

**Delayed reaction:** in this situation, there is a delay in the passage of all or some of the products of conception. As long as the hCG is falling, the pregnancy is not viable. In most circumstances, the hCG will fall slowly until completion occurs, and then the hCG levels drop abruptly. Oral misoprostol (800 ug) can be given after the initiation of the procedure in an attempt to expedite the miscarriage. This may take days to weeks, and the decision about when to intervene surgically can be made between the patient and her physician.

**Failed termination:** most failures (5%), defined as need for surgical intervention, are incomplete abortions. Less than one percent of attempted medical abortions will have a continuing viable gestation, and arrangements for suction curettage should be made. In this situation, there may be little or no bleeding, and the symptoms of pregnancy persist. An hCG value greater than 50,000 IU two days after the misoprostol is associated with, but not diagnostic of, an unsuccessful procedure. Depending on the hCG level and the clinical assessment, a repeat hCG or ultrasound can be performed to determine if the pregnancy is viable. If there is no fetal cardiac activity, the patient can be treated as having a delayed response.

**Anxiety:** if the woman or the physician has any serious concerns, at any time, a suction curettage should be arranged. Pretreatment counselling and proper patient selection will minimize this problem.

**Teratogenesis:** continuation of a viable gestation after failed medical abortion with methotrexate and misoprostol may result in the birth of a baby with anomalies, especially the Mobius sequence and limb defects. The risk has not been quantified.

### ADVANTAGES OF MEDICAL OVER SURGICAL ABORTION

1. **Patients’ autonomy:** more privacy and control, less frightening, non-invasive, “natural.”
2. **Early access:** no surgical waiting time. Some physicians prefer to wait until more than seven weeks gestation from LMP to perform surgical abortion due to a small increase in the risk of failure when terminating earlier gestations.
3. **Avoids surgical complications:** perforation, cervical laceration.
4. **Cost effective:** medications are easily obtained and are inexpensive (cost to patient–methotrexate $50.00 and misoprostol $5.00–total $55.00; health care costs different from surgical–hCG x 3 $45.00, ultrasound $55.00, extra office visit x 2 $37.00–total $137.00), significantly cheaper than a surgical abortion in a hospital (cost to patient–laminaria tent $50.00; health care cost–surgery $100.00, anaesthesia $80.00, hospital $360.00–total $540.00).
5. **Technically simple:** can be offered through an office.
6. **Alternative to failed surgical abortion:** inability to gain access to the uterine cavity due to fibroids or uterine anomaly.

### DISADVANTAGES

1. **Patient and clinician commitment:** dedication to follow-up. There is always the worry that a patient will be lost to follow-up and that the pregnancy will continue, with the delivery of an infant with birth defects.
2. **Longer process:** from initiation to the reassurance that the abortion is complete takes a minimum of one week when monitored by ultrasound and two weeks with hCG monitoring.
3. **Higher failure rate.**
4. **More bleeding:** as the products of conception are passed.
5. **Cramps:** need for narcotic analgesia is higher.

### OTHER MEDICAL TERMINATIONS

Misoprostol is a prostaglandin that has cervical ripening properties and may be used as an alternative to laminaria tents prior to surgical abortion. However, cramps, bleeding and miscarriage may occur before the procedure. Several studies have evaluated misoprostol for the evacuation of incomplete and missed abortions. In these cases, the success rate, with 800 ug misoprostol per vagina once, is approximately 80 percent. This can provide an alternative to surgery if expectant management fails.

In the second trimester, misoprostol is a very effi-
cient agent for the termination of pregnancies complicated by genetic anomalies, ruptured membranes or fetal demise. In gestations of less than 24 weeks, misoprostol (400 μg) is given every four hours (q 4 h) for up to six doses. Once delivery occurs, intravenous oxytocin is then administered. In non-viable gestations between 24 and 30 weeks and greater than 30 weeks, 200 μg and 100 μg of misoprostol, respectively, are given as described earlier.

If there is any uterine scar, it is preferable to give three doses of 50 μg each. In this situation, the amount of misoprostol may be increased to 100 μg/dose if the patient is not in labour.

Misoprostol given orally is associated with more gastro-intestinal side effects than when given intravaginally.

**CONCLUSION**

The medical termination of early pregnancy using methotrexate and misoprostol appears to be a safe and effective alternative to surgical abortion. The SOGC believes that abortion should not be a primary means of family planning. Wide-scale programmes, emphasizing responsible sexuality and providing both information and access to reliable contraception, will do much to reduce the demand for abortion. Despite these efforts, contraceptive failures will result in a continuing demand for abortion services. Further research is encouraged to provide safer and more effective forms of pregnancy termination.

**REFERENCES**


