POLICY STATEMENT

INDUCED ABORTION GUIDELINES

This SOGC Policy Statement has been prepared by the Social and Sexual Issues Committee of the Society of Obstetricians and Gynaecologists of Canada and approved by its Council in December 1995.

INTRODUCTION

Induced abortion is a subject which generates a great deal of emotion and controversy in our society. This document is not meant to support either side of the ethical debate. As however, induced abortion is a legal medical procedure in Canada, it is the responsibility of physicians willing to provide this service to do so safely and effectively. This document was developed to assist physicians in developing their own quality management program and to act as a guide for assessing the quality of patient care provided in their facility.

In developing these clinical practice guidelines, the objective is to create a range of appropriate options for given situations based on the available research data and the best professional consensus. The recommendations contained in these guidelines, therefore, should not be thought of as being "cast in stone" but, rather, should be subject to individual interpretation, based on clinically significant patient differences.

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COUNSELLING

Every woman seeking abortion should receive supportive and compassionate counselling responsive to her circumstances. Abortion is not a means of contraception; it is the last recourse for a pregnant woman who does not want to give birth.

Every effort should be made to encourage the woman's partner to be present at counselling sessions. She must be advised appropriately so that she understands her options: to carry the pregnancy to term and keep the child or have it adopted, as well as the opportunities which exist in society for assistance. The maintenance of strict confidentiality is imperative.

If she chooses abortion, she must fully understand the nature of the proposed procedure, including anaesthesia, the safety, possible immediate and future side effects, as well as potential complications.

Contraceptive counselling, both before and after abortion, should be comprehensive and should include information about the relevant contraceptive methods available, including their advantages and disadvantages.

Counselling pregnant adolescents seeking abortion requires special skill, care, and attention. The proportion of second trimester abortions in this group is high, as adolescents tend to delay seeking advice and present later.¹²

All patients choosing abortion are entitled to quality care by practitioners who are qualified to perform these procedures, as well as to identify and manage their complications.

The physician must assure the patient of post-abortion counselling.

ABORTION FACILITY

First trimester abortion can be performed safely in a clinic, a free-standing or independent health care facility, or a surgery centre that has met the standards of the governing College of Physicians and Surgeons.³⁴ Mid- and late-second trimester induced abortions are performed more safely in a hospital setting where emergency facilities can be available immediately.

INFORMED CONSENT

As in the case of any surgical procedure, it is essential to obtain the patient's written consent. The surgeon must make sure that the woman understands the nature and the consequences of the procedure, and that she has the necessary information to make an informed decision.
PRE-OPERATIVE EVALUATION

An adequate pre-operative history and physical examination must be conducted and the following points should be noted:

1. Confirm the diagnosis of pregnancy by urinary or quantitative serum β-hCG measurements.

2. Determine the gestational age by one of the following:
   a) bi-manual pelvic examination to ensure that uterine size is consistent with dates
   b) diagnostic pelvic ultrasound when gestational age is questionable or the presence of an intra-uterine pregnancy is uncertain.

3. Pelvic ultrasound could be used to determine the gestational age in cases scheduled for second trimester induced abortions between 13 to 16 weeks, and should be used to determine the gestational age in all cases of late second trimester abortions greater than 16 weeks.

4. The identification of any pre-existing conditions or complications, including diabetes, heart disease, blood coagulation disorders, anaemia, mental disorders, obesity, cardio-respiratory disease, inability to cooperate during pre-operative evaluation and abortion, and malignant hyperthermia.

5. Detection of any factors which could influence the choice of procedure, anaesthesia, or the pre-and post-operative management.

SCREENING

Routine pre-operative screening of haemoglobin levels and Rh factor is recommended for all pregnant women (treat with Rh Immune Globulin following surgery if Rh negative).

Other screening procedures, including, but not limited to rubella (treat if susceptible), sexually transmitted diseases (syphilis, gonorrhoea, chlamydia, hepatitis B, HIV), cervical cytology, and sickle cell anaemia, may be carried out and the appropriate treatment, follow-up, and treatment of partners, if necessary, may be arranged accordingly.
FIRST TRIMESTER ABORTION PROCEDURES

Menstrual Extraction

Early diagnosis of pregnancy within one week of a missed period is now possible by using sensitive pregnancy tests. Abortion of these early pregnancies with a small bore vacuum cannula is called "menstrual regulation", "menstrual extraction", or "mini suction". A properly trained physician can perform these procedures in the office. The only instruments required are a speculum, a tenaculum, the Karman cannula, and a modified 50ml syringe. At the end of the procedure, it is imperative to examine the tissue obtained by floating it in a clear plastic dish over a light source. In this manner, chorionic villi and/or the gestational sac can be identified. As the failure rate, because of continuing pregnancy or incomplete abortion, is as high as 12 percent, and complication rates are similar to those of early vacuum aspiration (seven to eight weeks), there seems to be no advantage to menstrual extraction over vacuum aspiration.

Vacuum Aspiration

Vacuum aspiration can be performed easily and safely with little discomfort in the first trimester under local anaesthesia and pre-medication with narcotics and/or sedation if necessary. The advantages over using general anaesthesia are:

1. decreased anaesthetic risk from complications of general anaesthesia;
2. decreased incidence of blood loss, perforation, and cervical laceration;
3. quicker recovery from anaesthesia with less disorientation;
4. faster turnover in the recovery room;
5. quicker discharge and resumption of normal activity;
6. patient acceptance; and
7. greater economy.

Exceptions would include:

1. definite known allergic response to local anaesthesia;
2. conditions where local anaesthetic and/or drugs used for pre-medication are contra-indicated;
3. non-compliant patients who are difficult to manage;
4. very young nulliparous women who are extremely difficult to examine; and
5. any patient who is psychologically or physically unable to cope with the procedure under local anaesthesia.
Pre-insertion of Osmotic Dilators

There are currently three alternatives to "forcible and instrumental dilatation" of the cervix: laminaria tents, a synthetic dilator made of polyacrylonitrile (Dilapan), and the magnesium sulphate sponge (Lamicel). Laminaria is the stem of a seaweed, laminaria japonicum, or laminaria digitata. These osmotic dilators are hygroscopic. The great advantage of using these dilators in gynaecology, and especially in cases of therapeutic abortion, is that they bring about gradual and safe dilatation of the cervix with a reduction in rates of cervical laceration and uterine perforation.

Laminaria tents require six to eight hours to achieve dilatation. Polyacrylonitrile and magnesium sulphate sponges cause dilatation faster, with the former producing both dilatation and softening and the latter primarily producing softening. Other alternatives which are still under investigation include low-dose prostaglandin given by vaginal administration and mifepristone (RU486).

Procedure for the Insertion of Osmotic Dilators

1. The cervix is visualized by inserting a speculum and then washed with an antiseptic solution.
2. The anterior lip of the cervix is grasped with a single-toothed tenaculum or another appropriate instrument.
3. The cervical canal is then straightened by pulling on the tenaculum, and the canal is probed in order to determine its length and diameter as well as the position and tightness of the internal os.
4. The size and number of laminaria tents required are then determined.
5. The tent is grasped at its distal end with uterine forceps and inserted into the cervical canal just through the internal os while counter traction is applied to the cervix.
6. The tent may then have to be held in place for several seconds or even twisted in the os in order to ensure it remains in the correct position.
7. One or multiple 4x4 gauze sponges are then placed against the external os of the cervix and lateral vagina. They are left in place until the removal of the tent.

Pre-operative Medications

Several analgesic/sedation regimens have been suggested using varying dosages and routes of administration. If an anaesthetist is not present during the procedure, the attending physician must assume the ultimate responsibility if any complications arise.

All physicians using pre-operative intravenous medication and local anaesthesia must be trained in resuscitation/stabilization techniques and the use of equipment, and must be prepared to initiate the management of complications if they arise.

ALL PATIENTS RECEIVING PRE-OPERATIVE ANALGESIA/SEDATION SHOULD HAVE THEIR BLOOD PRESSURE MONITORED AS WELL AS BE ATTACHED TO A PULSE OXYMETER TO MEASURE BLOOD O2 SATURATION.

It is important that post-operative discharge instructions be developed to reflect the use of these medications and that appropriate precautions be taken regarding the need for an escort. Post-procedure activities should be defined.
Pre-operative Class of Medications and Complications

Local Anaesthesia:  
- anaphylaxis
- minor allergies
- toxicity (central nervous system excitation, convulsion, cardiac and respiratory arrest)

Narcotics and Sedation:  
- minor allergies and sensitivity
- over-sedation
- respiratory depression
- regurgitation and aspiration

Operative Procedure

The first steps in approaching a surgical problem are the application of sound principles of surgical technique and the prevention of complications, and should include:

- accurate pre-operative diagnosis and evaluation:
- high level of operator skill;
- sound sterile technique;
- atraumatic surgical technique;
- thorough removal and identification of tissue; and
- careful post-operative supervision and follow-up.

An intravenous infusion should be started prior to the surgical procedure. Prophylactic intra-operative administration of oxytocin has not been shown to be effective in reducing blood loss.

1. The patient is prepared and draped in the lithotomy position in comfortable stirrups.
2. A screen is not recommended, as communication between the physician and the patient is imperative.
3. A bi-manual examination is performed in order to assess uterine position and size. The use of a metal probe for this purpose is not recommended, because perforation of the uterus or cervix could occur.
4. The cervix is visualized with the aid of a speculum.
5. Five cc of a local anaesthetic solution are injected into the anterior lip of the cervix prior to grasping it.
6. The anterior lip of the cervix is then grasped with atraumatic forceps.
7. A uterosacral block is then commenced (see Figures I and II). Eight cc of a local anaesthetic solution is injected into each uterosacral ligament, and a further two cc is injected under the mucosa at the needle insertion site. The patient should be informed prior to the injection that she will feel a pinch or slight sensation.
8. Wait approximately three to four minutes before commencing the dilatation but continue to converse with the patient.
9. The cervix is then dilated gently until the desired dilatation is achieved by using such tapered dilators as Pratt’s dilators rather than Hegar dilators. It is suggested that the cervix be dilated to a #27 Pratt’s dilator in a uterus up to eight weeks gestation, #31 to 33 Pratt’s dilator in a uterus up to ten weeks gestation, and #37 to 39 in a uterus up to 12 weeks gestation. These recommendations are dependent upon the size of the cervix, the firmness of the cervix, and the prior use of laminaria tents. A thin laminaria tent will dilate the cervix to a diameter of a #31 to 33 Pratt’s dilator.

10. During the dilatation, inform the patient that she will feel pain similar to menstrual cramps. It is important to work slowly, thus decreasing patient discomfort.

11. Vacuum aspiration is then performed in the usual manner, trying to avoid repeated trauma to the internal os. The greatest discomfort during the aspiration occurs when the suction curette is pulled over the internal os.

12. Once the uterus seems empty, the uterine cavity can be examined with a sharp curette following the above-mentioned principles.

Examination of Tissue

All tissue should be examined grossly during or at the end of the procedure. In the absence of visible fetal parts or placenta, the tissue should be examined by floating it in a clear plastic dish over a light source. If chorionic villi cannot be identified, the possibility of an ectopic pregnancy, or incomplete or failed abortion must be entertained. The tissue should be submitted to the laboratory with all possible haste for microscopic examination.

When the tissue removed from the uterus has been examined post-operatively to the satisfaction of the physician, it should either be disposed of by the institution or submitted to a pathologist for examination and subsequent disposal. The disposal of abortal tissue should be done in a manner consistent with good medical practice.

Postoperative Care

A physician must be available to treat the patient should significant complications arise. Prior to discharge, postoperative care should be directed towards confirming that the patient is at minimal risk of serious complications. Periodically, the patient's pulse rate, blood pressure, external bleeding, and general physical condition must be observed by an individual who is trained in the care of postoperative patients. If systemic drugs are used for analgesia/sedation, the patient may be discharged after a reasonable length of time with appropriate discharge instructions. The patient must also be accompanied, and should not drive a vehicle. She must be informed where she may obtain emergency care should complications arise.
Complications

Cervical Shock

Even after local anaesthetic block of the cervix, vasovagal reactions can occur. A tonic clonic reaction may be confused with a seizure but is distinguished by the presence of bradycardia, the patient's rapid recovery, and the absence of any post-ictal state. Routine use of laminaria tents or routine use of atropine with cervical anaesthesia prevents cervical shock.

Perforation

The clinical presentation of perforation depends on the precise anatomical location of the injury. Perforation at the isthmic portion of the uterus can lacerate the ascending branch of the uterine artery within the broad ligament and can give rise to severe pain, a broad ligament haematoma, or intra-abdominal bleeding. The immediate management is laparotomy and ligation of the severed vessels as well as repair of the uterine injury. Hysterectomy may be required to manage such an injury in unusual circumstances.

Low cervical perforations, on the other hand, may injure the descending branch of the uterine artery within the dense collagenous substance of the cardinal ligaments. This is usually a result of forceful dilatation of the cervix. Osmotic dilators are useful in preventing this complication. In this case, there is no intra-abdominal bleeding; the bleeding is usually outward and may subside temporarily as the artery goes into spasm. Deaths have occurred as a result of bleeding several hours, or even days, after an unrecognizable low cervical perforation. This complication has usually been managed with hysterectomy, but consideration should be given to arteriography and selective embolization of the hypogastric arteries.

If perforation occurs at the end of the procedure and is fundal, expectant management is usually all that is necessary.

Perforation before or during evacuation of the uterus (false passage) can be managed best by either laparoscopy followed by completion of the procedure under direct observation or by evacuation using ultrasonic guidance. If perforation occurs prior to evacuation of the uterus, and omentum and/or bowel are brought into the uterine cavity or through the cervix with a suction curette or other instrument, laparoscopy and/or laparotomy may be necessary to complete the procedure and examine the intra-abdominal contents for injury.

Haemorrhage

Excess bleeding may indicate uterine atony, a low-lying implantation, a pregnancy of more advanced gestational age, or perforation. Intravenous oxytocin should be administered, and the abortion completed. The uterus is then massaged between two hands to ensure contraction. If this fails, giving intramuscular/intramyometrial 15-methylated prostaglandins F sub 2 alpha may be effective. Persistent post-abortal bleeding strongly suggests retained tissue or clot (haematometra) or trauma, and the best management would be prompt surgical intervention (repeat curettage or laparoscopy).
**Hematometra (Post-Abortal Syndrome)**

Lower abdominal pain of increasing intensity in the half-hour after an abortion suggests haematometra formation. The uterus is large, globular, tense, and could be mistaken for a broad ligament haematoma except that the mass is midline and arises from the cervix. The treatment is immediate re-evacuation.

**Prophylactic Antibiotics to Reduce Infection**

Prophylactic antibiotics seem to be the strongest single factor contributing to the reduction of post-abortion infection. Most studies show about a 50 percent reduction in risk, and either tetracycline or doxycycline seem to be excellent choices. Pre-operative administration is not practical and leads to significant gastro-intestinal upset. If given after surgery, they are just as effective. Most studies suggest doxycycline 200mg one dose immediately after surgery or tetracycline 500mg followed by three further doses six hours apart.

**Medical Follow-up**

The patient should report for a gynaecologic examination two to four weeks after the procedure and should inform the physician if she does not have a menstrual period within six weeks following the abortion. The oral contraceptive can be started within one week following the procedure, and an intra-uterine device can be placed safely within two weeks. Contraceptive compliance and continuation must be discussed and the emotional response to the abortion evaluated.
SECOND TRIMESTER ABORTION PROCEDURES (14 WEEKS GESTATION OR GREATER)

There is a considerable amount of controversy regarding which method of pregnancy termination in the second trimester is safest, produces the least number of complications, produces the least stress for the patient and provider, and is the most cost effective.\textsuperscript{20} However, dilatation and extraction (D&E) abortion is safer than instillation abortion, and both are safer than hysterotomy and hysterectomy.\textsuperscript{21} Dilatation and evacuation is definitely safer than instillation procedures up to 16 weeks\textsuperscript{21} and, in experienced hands, morbidity and mortality are greatly reduced using modern D&E techniques.\textsuperscript{22}

Dilatation and Extraction (D&E)

\textit{Osmotic Dilators}

Overnight placement of several osmotic dilators is usually sufficient preparation prior to 18 weeks but, beyond 18 weeks, serial sets of osmotic dilators inserted over two days are preferable.\textsuperscript{22} In general, greater dilatation and softening of the cervix are achieved by using several smaller tents rather than one large tent. A utero-sacral block or topical application of a local anaesthetic at the time of insertion may be useful in difficult cases to decrease morbidity.

\textit{Procedure}

Because of decreased morbidity,\textsuperscript{23} it is preferable to use local anaesthesia with intravenous sedation/analgesia rather than general anaesthesia for D&E procedures. If multiple or serial osmotic dilators are used, it is usually unnecessary to dilate the cervix further. The uterus can usually be evacuated up to 15 to 16 weeks gestation with a #16 suction curette or with the use of extraction forceps. After 16 weeks gestation and prior to a forceps extraction, the amniotic fluid should be slowly and carefully evacuated with a suction curette or other instruments.

There are various forceps which have been developed for the extraction of fetal parts and placenta at later gestations. The type of forceps required depends upon the length of gestation and the degree of cervical dilatation obtained. It is suggested that, during a forceps extraction, the physician keep one hand on the fundus so that the top of the uterus can be felt, thus preventing perforation. Some people prefer to carry out the forceps extraction under direct ultrasound guidance.

It is important not to remove fetal tissue forcefully through the cervix in later second trimester procedures. Bone spicules can tear the cervix. Crushing and rotating techniques have been developed to minimize the cervical trauma.\textsuperscript{22}

After a forceps extraction, a large curette should be inserted to ensure complete evacuation, and the products of conception are examined for completeness. If the uterus has not been emptied completely, the evacuation should be repeated.
If bleeding seems to be heavier than expected, oxytocin can be given intravenously, and 0.25 mg ergometrine can be injected directly into the cervix. Not many centres are performing D&E procedures in the very late second trimester, and those that are, are doing them for serious medical, psychiatric, or genetic reasons. At this stage, further modifications have been developed using multi-stage laminaria treatment, urea injection into the amniotic sac followed by extraction after labour begins and after fetal maceration has occurred.

**Prostaglandins F, a (PGF, a) Amnio-Infusion**

**Pre-insertion of Laminaria Tents**

Pre-insertion of multiple laminaria tents six to 24 hours prior to amnio-infusion may shorten the instillation-abortion time (A-I time) and decrease the risk of cervical laceration. One very serious complication which is virtually eliminated is posterior uterine wall rupture with or without cervical laceration.

**Pre-medication**

Since there is a higher incidence of gastro-intestinal side effects with PGF, a, a recommended pre-medication regime is prochlorperazine 10 mg IM or IV, or any other anti-emetic, and loperamide 4 mg orally one hour prior to amnio-infusion.

**Techniques for Amniocentesis**

The optimal site for amniocentesis is approximately one inch below the most prominent part of the uterus palpated through the abdominal wall. Some physicians prefer to perform amniocentesis with a #16 Teflon extracath. Once the amniotic cavity is entered and amniotic fluid is identified, the rigid central needle should be removed and drainage of amniotic fluid should continue.

A Ph test should be performed in order to confirm that the fluid is amniotic fluid. Prostaglandin F2 a is then injected into the amniotic cavity.

**Recommended Dose of PGF, Alpha**

Forty or fifty milligrams of PGF, a in one injection is quite satisfactory and produces the required result. It is mandatory to give a test dose of five mg over one minute in order to detect those patients who have extreme sensitivity to the drug or have received an accidental intravascular injection. The remainder can be given over the next few minutes. Constant confirmation of the catheter's position in the amniotic cavity must be assured. A booster dose of 20 to 40 mg of PGF, a can be beneficial if the membranes are intact and if there is no evidence of cervical effacement or adequate uterine activity.
Care Following Amnio-Infusion

Intravenous oxytocin should not be used before delivery of the fetus unless the membranes are ruptured and there is no uterine activity. Prostaglandin suppositories, if available, or intramuscular 15-methyl-prostaglandin are quite useful in this situation.

Once the fetus has been passed, a high dose intravenous infusion of oxytocin should be administered at a concentration of 80 to 100 IU/ml per 1,000 ml of lactated Ringer solution. It is imperative that the patient should be examined immediately after passage of the fetus from the uterus, as bleeding because of a partially or completely retained placenta can be significant and very brisk. If the placenta is retained in the uterus, the patient is afebrile, and bleeding is minimal, it is appropriate to wait for up to two hours for spontaneous evacuation of the uterus. If the placenta is retained longer, the uterus should be evacuated. It should be noted that it is rarely necessary to go to the operating room. Evacuation in an examination room with appropriate instruments is usually quite satisfactory.

The cervix should be examined in all cases following prostaglandin amnio-infusion.

Hyperosmolar Urea Amnio-Infusion

Intra-amniotic PGF, a in doses of five, 10, or 20 mg added to hyperosmolar urea can be used to procure second trimester abortion. The urea solution is prepared by dissolving 80 grams of urea in 100 cc of five percent dextrose in water to make a solution of 59.7 percent concentration.

Following successful amniocentesis and removal of approximately 200 cc of amniotic fluid, the solution is slowly infused by gravity feed. Prostaglandin F, a (5, 10, or 20 mg) can be administered immediately following the infusion of urea. Forty grams of urea have also been used with various doses of PGF, a.

Some advantages of this combination include:
1. a low failure rate,
2. the need for re-injection of booster doses of PGF, a is eliminated; and
3. the abortion of live fetuses, particularly in gestations of more than 18 weeks duration, is eliminated.

Extra-amniotic Prostaglandin F, Alpha

Extra-amniotic prostaglandin E and F, a have been used to terminate pregnancies complicated by intra-uterine fetal death, congenital anomalies incompatible with life, and life-threatening maternal disease prior to fetal viability. Despite the reported usefulness of this route, the technique has not been widely adopted in North America. This is probably related to the fact that approval for prostaglandin use is limited at present to oral and vaginal PGE, for induction of labour and intra-amniotic prostaglandin F, a for a second trimester termination of pregnancy.
The extra-amniotic route for delivering prostaglandin Fα can be used quite successfully in selected cases of late second trimester abortion in which there is minimal amniotic fluid, or access into the amniotic cavity is quite difficult. A small (12 gauge) Foley catheter with inflation of the bulb with 15 ml of saline minimizes trauma to the extra-amniotic space and reduce the risk of intravascular infusion and subsequent hypertonic contractions. Small doses of 0.5 to one mg prostaglandin Fα diluted in saline given intermittently and titrated to the severity of contractions reduce the risk of hypertonic contraction and lead to successful evacuation of the uterus. It is very important to leave a time interval between PGFα and oxytocin administration in order to decrease the risk of hypertonic contractions and the more serious complication of uterine rupture.

The extra-amniotic PGFα intermittent infusion technique can be considered a safe, effective, well accepted alternative in the management of those patients requiring termination of pregnancy in the late second and, even, third trimester of pregnancy.

Carboprost (15-Methylprostaglandin Fα, Alpha, Prostin/15M, Hemabate)

Carboprost has been used for the following indications:
1. failed second trimester abortion using conventional therapy (i.e. oxytocin, intra-amniotic PGFα);29
2. termination of pregnancy in late second trimester and third trimester in selected cases with minimal or no amniotic fluid;30,31
3. Refractory post-partum or post-abortal uterine bleeding.32

Intra-amniotic failures with PGFα occur as a result of a low rate of transfer or a high rate of metabolic degradation leading to sub-therapeutic concentrations reaching the myometrial cells. The absence or a decrease in the amniotic fluid volume as a result of ruptured membranes or genetic abnormalities may require an alternate route for the administration of prostaglandins.

Carboprost, the synthetic 15-methyl form of PGFα, is more potent and has increased uterine smooth muscle stimulating potency as well as a longer duration of activity than PGE1 and PGFα because of its increased resistance to enzymatic degradation. Thus, it can be administered intramuscularly.

Successful use of carboprost given IM in patients not responding to conventional therapy has been demonstrated in approximately 95 percent of patients within ten to twenty hours.29

Use of this drug as a reserve treatment for intra-amniotic failures will avoid unnecessary morbidity and anxiety for the patient associated with prolonged evacuation procedures.

Oxytocin should not be used concurrently with carboprost and should not be started until at least four hours after the final dose unless the fetus has been passed.

The use of multiple laminaria tents should decrease the injection to abortion time. The recommended dosage for failed abortion and/or late second trimester termination is 250 ug given by deep intramuscularly injection. The dose can be repeated q2h as needed. Total doses used have ranged from 1,250 to 2,500ug.28,30,31
Some advantages of carboprost over other forms of prostaglandins and oxytocin are:

1. It is more potent, allowing individualization of the dose used in contrast to intra-amniotic methods;
2. The IM route is less painful and easier with less danger of infection because it is less invasive;
3. It can be used in patients with ruptured membranes where there is no amniotic fluid present;
4. It allows the patient to be ambulant for a longer period of time; and
5. After diagnosis of intra-uterine death, there is no need to wait for spontaneous onset of labour, as the non-term uterus does respond to Carboprost.

Some disadvantages of carboprost include a significant incidence of vomiting and diarrhoea.

**Concentrated Oxytocin Infusion**

Oxytocin has not been commonly used as a means of abortion induction because it was not thought to be particularly effective for gestations of less than 24 weeks. Oxytocin administered in an increasing concentrated fashion has been efficacious in achieving mid-trimester pregnancy termination in preliminary studies with a mean induction to delivery interval of 8.2+-5.1 hours. Further exploration of its use for second trimester abortion is warranted.

**Hysterotomy and Hysterectomy**

Hysterotomy is essentially an early classical Caesarean section. With today's technology, there is rarely an indication for this procedure as a primary method for abortion. The morbidity and mortality associated with this procedure are far greater than for any other technique? In most cases, failed abortion is now managed with parenteral prostaglandins, and the only time that hysterotomy should ever be considered after a failed abortion is when a definite uterine anomaly is suspected.

If pregnancy co-exists with a separate indication for hysterectomy, as in cervical dysplasia or uterine or ovarian cancer, this may perhaps be an indication for a gravid hysterectomy. Most patients, however, would be served better by a simpler means of pregnancy termination and a more complete evaluation of their other gynaecologic problems prior to definitive therapy.
REDUCING ABORTION COMPLICATIONS

Haemorrhage from Dilatation and Curetage (D&C) and Dilatation and Evacuation (D&E) Abortions

General anaesthesia seems to increase the blood loss during D&C and D&E procedures, especially if halothane or other similar agents are used, as compared to procedures performed under local anaesthesia with intravenous narcotics and sedation.9,23

Locally injected vasoconstrictors have had some success in preventing haemorrhage, especially in later pregnancies. Epinephrine does not seem to have an effect,34 however, vasopressin significantly reduces blood loss if five units are mixed in the 20cc of local anaesthetic solution injected into the pericervical area.35 The difference in blood loss seems to be related to the gestational age, and is significant in gestations of 15 weeks or greater. There does not seem to be any untoward side effects from the injection; however, rare serious complications have been reported.35

Perforation

Complete or partial perforation of the uterus is not uncommon. There are several factors which seem to be beyond the control of the physician.36 There is a relative risk of 1.4 for each additional two weeks of gestation and, if the patient is multiparous, she has a relative risk of 3.4.

There are several factors, however, which are within the control of the physician.36 Laminaria tents are associated with a significantly decreased risk of perforation. There is a relative risk of 0.2 if laminaria are used. If general anaesthetic is used, the risk is increased and the relative risk is 1.3. The most important factor is training and experience. The relative risk of perforation by residents is 5.5, when compared to experienced physicians.

Failed Attempted Abortion

This complication occurs in approximately two per 1,000 abortions performed at less than 12 weeks gestation. There are several factors37 which increase the risk of this complication and these include:

1. Previous pregnancy: relative risk is 2.2 for gravity greater than one;
2. Gestational age: relative risk is 2.9 for gestation less than six weeks;
3. Small cannula size: relative risk is 11.1 if mm diameter is less than weeks of gestation for pregnancies less than six weeks;
4. Uterine anomaly relative risk is 90.6 if present; and
5. Physician training: relative risk is 2.2 for residents.

It is, therefore, necessary to inspect all tissue after every case and, if fetal parts are not identified, the tissue should be examined with a back light suspended in solution. A magnifying glass can be used if necessary.
MIFEPRISTONE (RU486)

Mifepristone (RU486) is an analogue of norethindrone with a high affinity for progesterone receptors. It blocks natural progesterone and acts as a false transmitter. It is effective in inducing abortion at very early gestations after a single oral dose, and its effectiveness is increased to approximately 95 percent by the addition of a low-dose prostaglandin analogue. Its use as an abortive agent has been investigated intensively; lower doses have been used with higher efficacy, and regimens are being fine-tuned. It also appears that mifepristone may be very useful in producing cervical softening and ripening prior to pregnancy termination, and may be useful in induction of labour closer to term? This drug is a very effective post-coital contraceptive, and its use as a once-a-month contraceptive is now being extensively investigated.

CONCLUSION

It should be noted that the use of all techniques to effect therapeutic abortion requires proper training. Operators must be skilled, not only in the initiation of abortion, but also in the management of incomplete and failed procedures, uterine perforation, as well as such complications as haemorrhage, infection, and cervical laceration. Adequate training and ongoing experience using modern techniques with new instruments will lead to a significant decrease in complication rates and resultant morbidity.
Uteroovarian ligament
Infundibulopevic ligament
Uterosacral ligament

REFERENCES


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