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TERMINATION OF A PREGNANCY- *VARIOUS ASPECTS*

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ABSTRACT

Termination of pregnancy has been practiced since the time immemorial and is an important part of reproductive health care scheme of any country, with more than 56 million abortions taking place each year globally. Type of procedure used in pregnancy termination is primarily determined by how far a woman is into pregnancy. First trimester pregnancy termination includes both medical and surgical methods. Second trimester pregnancy termination mainly includes medical methods. Surgical evacuation is required only when medical method is contraindicated or in case of hemodynamic instability, with an increased rate of complications in comparison to first trimester pregnancy termination. Third trimester of pregnancy is marked by the significant physical development of the fetus and achievement of viability, pregnancy termination at this stage requires more experience and skill in the operating physician. This article gives a review about various termination methods in each trimester and associated complications. Termination of pregnancy is an integral part of reproductive healthcare for women. Most terminations are carried out because the pregnancy was unintended, and a majority of procedures are conducted in the first 9 weeks of pregnancy. Apart from this, intrauterine fetal death and congenital anomalies in fetus are leading causes requiring termination.

First Trimester Termination of Pregnancy: Globally, 56 million abortions take place every year. According to the study published in lancet 2017, by Guttmacher Institute, New York, 15.6 million abortions took place in India in 2015.[1] Out of these only 22% took place in health facilities, rest have been done through other methods, highlighting the need for strengthening public health system to provide safe abortion services. First trimester abortion can be provided using either medical drug-induced abortion (up to nine weeks) or surgical techniques. If both options are suitable, then patient's choice should be respected.

Medical abortion	Surgical abortion
Advantages	
• Avoids surgery and anaesthesia	• Quicker
• More 'natural' like menses	• More likely to have a complete abortion
• Emotionally easier for women and can be home based	• Takes place in a health care centre
• Better than surgical in very early gestation, or with severe obesity, in presence of fibroids, uterine malformations or prior cervical surgery	• Can be used up to 14 weeks (12–14 weeks by experts only)
	• Sterilization or IUD insertion can be concurrent
• No risk of cervical/uterine injury	
Disadvantages	• Invasive
• Bleeding, cramping, nausea, diarrhea	• Small risk of cervical or uterine injury
• Waiting, uncertainty and more clinic visits	• Risk of infection
• Can only be used up to nine weeks	
Contraindications	• No absolute contraindication
• Allergy to drugs used	• Use with caution in IUD in place (removal required before beginning the procedure)
• Known or suspected ectopic pregnancy	
• Long-term corticosteroid therapy	
• Chronic adrenal failure, porphyrias	
• Caution in severe anemia, heart disease, hemorrhagic disorders	

Investigations (recommended) – pregnancy test, haemoglobin, ABORh, routine urine examination. ultrasonography is optional.

Medical (Drug-Induced) Abortion Mifepristone: is an antiprogestin. It blocks the progesterone receptors in the endometrium, causing the necrosis of uterine lining and detachment of implanted embryo.[2] It causes cervical softening and increases the production of prostaglandins, causing uterine contractions. 3% of women may expel products of conception with mifepristone alone.

Misoprostol: is a synthetic prostaglandin E1 analogue. It binds to the myometrial cells, initiates uterine contractions, cervical softening and dilatation. This leads to the expulsion of products of conception from the uterus. Misoprostol has an advantage over other prostaglandins as it is well absorbed from different routes of administration, is economical, and stable at room temperatures. Sublingual route has rapid onset of action, longer duration of action but more side effects, while vaginal route has gradual and long lasting effect with less side effects.[3]

Dosage: WHO recommends- Mifepristone 200mg orally, followed 36–48 hours later by 800µg misoprostol (orally, sublingually, buccally or vaginally) at once or in two doses of 400µg two hours apart, up to 9 weeks after last menstrual period.[4] It has high efficacy (95-99%), fewer side effects, less expulsion time and is more convenient as it allows home administration of misoprostol.

MTP act INDIA- allows termination of pregnancy using medical method only upto 7 weeks from the first day of the last menstrual period. It requires three visits (Day 1, 3 and 15). On day 1- mifepristone 200mg oral along with Rh immunization (50ug) if Rh negative On day 3- 400 mcg Misoprostol (two tablets of 200 mcg each) sublingual/ buccal/ vaginal /oral On day 15- Confirm and ensure completion of abortion and offer contraception if not already done so

Other Regimens

1. Mifepristone 600mg orally, followed by misoprostol 400ug orally 48hours later. It has 92% efficacy and is approved by US FDA upto 49 days gestational age.[5]

2. Methotrexate and misoprostol - methotrexate 50mg/m^2 IM or 50mg vaginally pluis misoprostol 800ug vaginally 3-7 days later.[6]

This regimen can be used where mifepristone is not available. The combination is more than 90 per cent effective for pregnancies up to 7 weeks after last menstrual period. Once methotrexate is administered, the abortion must be completed, because both drugs are teratogenic.

3. Mifepristone 200mg, followed 36–48 hours later by gemeprost 1mg vaginally is also used. Gemeprost is expensive, must be kept frozen and have more side-effects.

4. Misoprostol alone - This regimen is less effective and has more side-effects than the combination regimens. Effectiveness is lower than for surgical methods (84 per cent compared with 95 per cent). Repeated doses of misoprostol 800µg, vaginally or sublingually, every three hours until abortion takes place, but with a maximum of three doses.[7] With three-hourly intervals the side-effects are stronger than with 12-hourly intervals which can be used when only vaginal route is preferred.

Surgical Abortion can be performed by aspiration or by dilatation and evacuation (D&E). Both can be used upto 12 weeks (upto 14 weeks by expert) and are more than 99% effective.

There are two types of vacuum aspiration.

- Manual vacuum aspiration (MVA) uses a hand-held aspirator to generate a vacuum. The aspirator is attached to cannulae (4 to 14 mm in diameter) and can be used without electricity.

- Electric vacuum aspiration (EVA) uses an electric pump to generate a vacuum and can accommodate cannulae even up to 14–16mm in diameter. The abortion procedure is performed similarly, regardless of the type of vacuum used.

Dilatation and evacuation is an outdated surgical technique that should be replaced, whenever possible, by aspiration or medical (drug-induced) abortion. Incidence of haemorrhage, pelvic infection, cervical injury and uterine perforation is lower in aspiration than with dilatation and curettage, and less cervical dilatation is necessary. The costs of the procedure, the staff time and resources needed are lower in case of aspiration. No operating theatre or general anaesthesia is needed in case of aspiration.

To reduce the risk of post-procedure infection, prophylactic antibiotics should be initiated preoperatively or perioperatively. Cervical ripening (with 400ug misoprostol sublingually 2 hours before the procedure) should be performed if required.

Complications

1. Continuation of pregnancy (failed abortion) - it requires a repeat aspiration (preferably) or dilatation and curettage.

2. Acute haematometra (sometimes called post-abortion syndrome) -the uterus is tender and distended by blood, Cramping is present, along with vagal symptoms. The treatment consists of prompt aspiration of both liquid and clotted blood, leading to rapid resolution. An oxytocic (misoprostol, oxytocin or ergometrin) is administered after the repeat evacuation along with antibiotic cover.

3. Shock - results from blood loss and/or sepsis, treat immediately, start IV perfusion and critical care. Treat the shock first; then treat the cause.

4. Severe genital bleeding – can be due to retained products of conception which require evacuation or due to cervical trauma which may require suturing.

5. Sepsis - can be due to or unrelated to retained products of conception. Infection may be limited to the cervix or uterus, or there may be generalized sepsis. Monitor carefully for signs of septic shock. Treatment includes broad spectrum antibiotics immediately and critical care.

6. Allergy to a drug – requires antihistaminics, in severe cases- requires critical care and adrenaline.

7. Suspected uterine or cervical perforation with incomplete evacuation- Stop the procedure immediately and remove the cannula. May require laprascopic completion of procedure/ laparatomy and rule out abdominal injuries (mainly gut).

8. Venous air embolism (very rare).

Second Trimester Termination of Pregnancy

Circumstances that can lead to second-trimester pregnancy termination

1. Delay in suspecting and testing for pregnancy. Poverty and low education level have been associated with higher rates of seeking second-trimester abortion (8)
2. Major congenital anomalies may be detected in the fetus in the second trimester and women may choose to terminate their pregnancies.
3. Obstetric and medical indications for second-trimester termination includes-severe preeclampsia, eclampsia, preterm premature rupture of membranes at early gestation and chorioamnionitis
4. Fetal demise due to any cause

The management may involve awaiting spontaneous miscarriage or a planned induction. In cases of second trimester miscarriage where there is evidence of maternal compromise such as sepsis, severe pre-eclampsia or massive placental abruption, immediate steps towards delivery may be required. Medical management - A combination of mifepristone and misoprostol is recommended as the first-line intervention for termination in second trimester as it is safe, easy to use and also has an average time-to-delivery interval less than other induction regimes. Administration of misoprostol occurs in the health-care facility and women should remain in the facility until expulsion of the pregnancy is complete. Beyond 20 weeks, some service providers consider pre-procedure fetal demise.

DOSAGE

Weeks	Mifepristone Available	Mifepristone Unavailable
13-24Wks	• Mifepristone, 200 mg orally, followed in 24–48 hours by • Misoprostol, 800 micrograms vaginally, followed by 400 micrograms vaginally/sublingually every 3 hours for up to a maximum of 5 doses.[9] or • Misoprostol, 400 micrograms buccally every 3 hours for up to a maximum of five doses *If the abortion is not complete after five doses, the woman may be allowed to rest for 12 hours before starting the cycle again.	Misoprostol, 400 micrograms, vaginally or sublingually every 3 hours for up to 5doses. Vaginal dosage is superior to sublingual dosage for nulliparous women.[10] or 600–800 micrograms misoprostol vaginally followed by 400 micrograms vaginally /sublingually every 3 hours may be more effective *Due to the risk of uterine rupture , women with a scarred uterus should receive half the dose of misoprostol
25-26wks	Same regime as above except misoprostol dose is halved (200ug) and is given vaginally/ sublingually/buccally every 4 hourly	Same regime as above except misoprostol dose is halved (200ug) and is given vaginally/ sublingually/ buccally every 4 hourly

Other Regimes

- **Oxytocin** - 20–100 units, infused intravenously over 3 hours, followed by 1 hour without oxytocin to allow diuresis. It can be slowly increased to a maximum of 300 units over 3 hours. High-dose oxytocin is not commonly used in the second-trimester because of the inefficient response of the uterus to oxytocin at this gestational period.
- Ethacridine lactate, hypertonic urea and hypertonic saline are not used nowadays
- Foleys catheter

Surgical Evacuation

1. A Modified D & E

baby's legs are gripped and pulled out with help of a pair of forceps. Since the skull is usually formed, it often requires being crushed. Sharp bony chips may cause a cervical laceration and profuse bleeding. Retained products of conception may require a follow-up vacuum aspiration. It is not a preferred method in India.

Cervical preparation before surgical abortion is recommended for all women with pregnancies over 12–14 weeks (using 400 µg misoprostol Vaginally 3–4 hours

prior to the procedure or osmotic dilators).[11] It decreases the morbidity, including the risk of cervical injury, uterine perforation and incomplete abortion.

2. Hysterotomy / Hysterectomy

In rare instances, second-trimester abortion may be performed by hysterotomy. It is associated with a much higher risk of complication than D&E or medical abortion and should only be performed when the latter two procedures have failed or are contraindicated. Hysterectomy is sometimes required in cases of severe blood loss, haemodynamic instability, rupture uterus and morbidly adherent placenta.

Complications: All Complications of first trimester termination of pregnancy can occur at higher rate in second trimester termination. There is a significant increased risk of infections in second trimester termination.

Third Trimester Termination of Pregnancy

The third trimester of pregnancy is marked by the significant physical development of the fetus and achievement of viability.

- Need for termination of pregnancy at this stage may result from the diagnosis of a severe fetal anomaly for the first time in the third trimester, either due to failure of an earlier screening test or due to the late onset of the disease itself. The major anomalies involved at this stage are neurological defects, multiple malformation syndromes, and chromosomal anomalies.
- Severe maternal medical conditions
- In case of fetal demise along with maternal physical illness or emotional instability

Pregnancy termination at this stage requires more experience and skill in the operating physician.

Management

In case of intrauterine fetal demise

1. If the maternal condition is stable, expectant management can be considered till 4 weeks from the day of fetal demise. Majority of women goes in spontaneous labor during this time period (85%). After this, there is increase risk of maternal coagulopathy requiring induction of labour.[12]

2. However in case of preeclampsia, eclampsia, massive placental abruption, preterm premature rupture of membranes, chorioamnionitis, urgent termination is required.

Methods- In Unscarred Uterus: Prostaglandins are recommended as the first-line intervention for induction of labour. Misoprostol can be used in preference to prostaglandin E2 because of equivalent safety and efficacy with lower cost.[13]

Misoprostol dosage- dose is reduced with advancing gestational age. After 27 weeks, dose is 25–50 micrograms 4-hourly for 24 hours.[14] This is followed by oxytocin 4 hours after last misoprostol dose. Studies have suggested that pre induction with oral mifepristone (200mg) shortens the time needed for labour induction, however it is not widely available Prostaglandin E2 -2 gel 6 hours apart, followed by oxytocin after 6 hours of second gel Amniotomy is contraindicated as it increases the risk of infections.

In Scarred Uterus: mifepristone (200mg three times a day for 2 days) can be used alone to increase the chance of labour within 72 hours (avoiding the use of prostaglandin).

In women with a single lower segment scar, in general, induction of labour with prostaglandin E2 is safe but not without risk. Women with two previous LSCS should be advised that the absolute risk of induction of labour with prostaglandin is higher than for women with a single previous LSCS.

Misoprostol is contraindicated in women with previous caesarean delivery because of a high rate of uterine rupture.[15]

Transcervical balloon catheter are not used in scarred uterus with fetal demise because of increase risk of ascending infections VBAC is not recommended for women with three previous caesarean sections, previous uterine rupture or upper segment incision.

Contraindications to medical management

- allergy to the drug used
- In cases where vaginal delivery is contraindicated like placenta previa, transverse lie at term and in conditions where VBAC is not recommended. Cesarean section is required in such cases even for dead fetus.

In Live Fetus

Many institutes consider pre procedure fetal demise by injecting digoxin or inj Kcl in fetal heart, followed by induction of labour by the above mentioned methods.

CONCLUSION

Termination of pregnancy done in whichever trimester should be done after proper counseling, informed and signed consent, and within the legal aspects. It should be done using safe techniques by a trained person.

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