

Medical Termination of Pregnancy and Sterilization

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Medical termination of pregnancy and sterilization are commonly performed operations even in the remote rural areas of India. Certain basic information on the rules, operation technique and dealing with complications is absolutely must before undertaking the procedure.

An attempt is made to cover the above aspects in a concise form for the practicing gynaecologist. This will enable them to do the procedures correctly within the framework of law and avoid medico-legal problems by identifying the risk factors and complications early.

MTP :

It is defined as legal termination of pregnancy before the fetus becomes viable
(i.e. before 20 wks. of pregnancy)

Legalisation of abortion:

Until 1971, abortion law in India was governed exclusively by the Indian Penal Code 1860 and the code of Criminal Procedure 1898 and was considered a crime except when performed to save the life of a pregnant woman. The Medical Termination of Pregnancies Act was passed by the Indian Parliament in 1971 and came into force from 1st April, 1972 (except Jammu & Kashmir where it came into effect from 1st November, 1976). This MTP Act was revised again in 1975. The MTP Act is a health care measure, which helps to reduce maternal mortality and morbidity resulting from illegal abortion.

The Medical Termination of Pregnancy Act, 1971:

1. The conditions under which pregnancies can be terminated

Medical : Where continuation of the pregnancy might endanger the mother's life or cause grave injury to her physical and mental health in pre-existing maternal disease.

2. Eugenic : Where there is substantial risks of the child being born with serious handicaps due to physical or mental abnormalities specially in cases

- a. When previous child or children have been malformed ,(one baby affected then the risk of next being affected is 1 in 25 or if two babies are affected the risk rises to 1 in 4)
- b. When both parents or one parent and previous child or children are mentally defective.
- c. When there is a strong family history of disease known to be inherited and previous child or children are affected.
- d. Isoimmunisation to rhesus and other blood factors where previous child or children have been affected and when husband is proved to be homozygous rhesus positive.
- e. Virus disease (especially rubella) during organogenesis period.
- f. Inadvertent exposure of the young fetus to heavy irradiation or to noxious drugs.

3 Humanitarian: Where pregnancy is the result of rape.

4 Socio-Economic: Where actual or reasonable foreseeable environments could lead to risk of injury to the health of the mother.

5 Failure of contraceptive device: This condition is a unique feature of the Indian Law and virtually allows abortion on request. The written consent of the guardian is necessary before performing in a woman under 18 years of age and lunatics even if they are older than 18 years.

II The person or persons who can perform abortion:

Registered Medical Practitioner having experience in gynaecology and obstetrics is authorised to perform

abortion below 12 wks. of pregnancy. Between 12 to 20 wks. of pregnancy the opinion of two Registered Medical Practitioners is necessary to terminate the pregnancy.

III Where abortion can be done:

It is done in a hospital established or maintained by Government or a place approved for the purpose of this Act by the Government. Abortion service is provided in hospitals in strict confidence. The name of the abortion seeker is kept confidential.

MTP Rules (1975)

Rules and Regulations framed initially were altered in October 1975 to eliminate time consuming procedures involved in MTP and to make services more readily available. These changes have occurred in 3 administrative areas

Approval by Board :

Under the new rules, the Chief Medical Officer of the district is empowered to certify that a doctor has the necessary training in gynaecology and obstetrics to do abortion. The procedure for doctors applying to Certification Boards was removed.

1. Qualification required to do abortion :
 - a. Doctor (RMP) who has assisted in the performance of 25 cases of MTP in an approved institution.
 - b. 6 months housemanship in Obstetrics & Gynaecology.
 - c. A post-graduate qualification in OBG.
 - d. 3 years of practice in OBG for those doctors registered before the 1971 MTP Act was passed.
 - e. 1 year in OBG for those doctors registered on or after the date of commencement of the Act.

2. The place where Abortion is performed :

Under the new rules, non Governmental institution may also take up abortions provided they obtain a licence from Chief Medical Officer of the district, thus

eliminate the requirement of private clinics obtaining a Board Licence.

Methods of Medical Termination of Pregnancy

1st trimester:

Menstrual Regulation is the treatment of the delayed menstrual period up to 14 days irrespective of pregnancy. In medical induction different forms of prostaglandin and their analogues are tried by different routes of administration – vaginal, oral & parenteral.

(a) Antiprogesterone, Mifepristone i. e. RU. – 486, 600 mg. is administered orally in conjunction with a small dose of prostaglandin used 48 hrs. later either orally or vaginally or as an injection. It gives a success rate of 95%.

(b) A prostaglandin – 9 methylene PGE₂ (Metenoprost) available as vaginal gel. 200 mg. of RU-486 followed by 600 mg of oral misoprostol are used for MR.

Currently available method of MR is vacuum Aspiration (VA), also called as endometrial aspiration, minisuction, miniabortion, lunch time abortion. This is an out patient procedure done without anaesthesia or with paracervical nerve block in 5 to 10% of cases.

The most commonly used equipment is a 50ml. Long syringe with flexible plastic cannula of 4 to 6 mm. size (Karman). Best time to perform MR is between 35 to 45 days. Vacuum produced by Karman syringe is 625 mm. of Hg. at sea level.

Complications

Immediate: Uterine perforation, cervical laceration syncope, vomiting, severe uterine cramps & blood loss more than 100 ml, cannula tip is sometimes broken and left inside uterine cavity

Delayed: Persistent bleeding, incomplete evacuation, fever and pelvic infection, pain, ectopic pregnancy, con-

tinuation of pregnancy and vaginal discharge.

Late: Cervical incompetence, recurrent abortions, premature labour and sec infertility.

Precautions: For multipara, 5 to 6 mm. size cannula is used and in nullipara 4 mm. canula is used.

- If UCL is more than 8 cms. then procedure should be abandoned in favour of suction evacuation. If the blood loss is more than 100 ml. then inj. ergometrin I.V. is injected and bimanual compression with 2 fingers in vagina is given. Curettage should be done if bleeding persists. If the canula tip is broken then remove it with a large size canula or by a small ovum holding forceps. If difficulty encountered, then leave the patient alone. It will come out safely later or can be removed at a later date when uterus size is back to normal.
- Anti D Globulin of 100 mcg. following MR is given in Rh negative cases.
- If symptoms of pregnancy persist then continuation of pregnancy or ectopic pregnancy is suspected.

Between 6 wks. to 12 wks. of pregnancy

Medical Methods:

Prostaglandins : PGF₂α methyl-ester (carboprost) injections or PGF₂α dimethyl ester (gemeprost) vaginal suppositories give success rate of 80 to 90 % .Side-effects: nausea, vomiting and diarrhoea.

Anti Progesterones: Only RU 486 is not much effective, therefore RU-486 followed after 36 to 48 hrs. by PGs give success rate of 96%. RU 486 given orally with metenoprost vaginal gel gives success rate of 89.5%. 600 mg. of RU 486 with 400 to 600 mcg. of mifoprostol give success rate of 97% .Bleeding follows 1 to 3 days after taking RU 486 and lasts for 10 to 12 days. If bleeding is more, then D & C is needed.

Complications: Pain, nausea, incomplete abortion and infection. Contraindicated (relatively) in cardiovascular insufficiency and adrenal insufficiency.

Advantages:

- (1) Avoid risk of cervical and intrauterine injuries following surgical method.
- (2) Risk of infection reduces.

Surgical Methods:

- (1) Vacuum Aspiration or Suction Evacuation, which is the method of choice.
- (2) Dilatation and Curettage:
Preoperative haemoglobin, blood group and urine are checked and vaginal infection should be treated if present. Vacuum created should be 625 mm. of Hg or one to one and a half atmosphere. At the time of dilatation 5 units of pitocin 1ml, or 0.25 mg. Ergometric given IM will reduce blood loss and reduce the risk of uterine perforation. Cervix should be dilated one size more than cannula to be used. For 8 wks. pregnancy 8 mm cannula to be used for 10 wks. 10 mm. cannula and so on. If no tissue is obtained then think of the possibility of (1) failure to interrupt the pregnancy (2) non-pregnancy (3) ectopic pregnancy (4) incomplete abortion (5) very early uterine pregnancy (6) false passage (7) uterine perforation.

Complications:

Uterine hemorrhage, Cervical injury:

In suspected stenosed cervix, Cerviprime gel or Laminaria tent 24 hrs. prior to procedure is put in cervical canal or RU 486, 600 mgs. is given orally 36 hrs. prior to procedure.

Uterine perforation:

If occurs or suspected then the patient should be checked for bleeding and complete the evacuation carefully. If needed Laparoscopy should be done and procedure completed under laparoscopy control. Patient should be observed for 24 hrs. and antibiotics should be started. If diagnosed or suspicious of injury to bowel and omentum or hemorrhage, then Laparotomy should be performed and followed up by necessary steps. During the procedure if patient goes into vasovagal shock, uterine perfo-

ration with omental pull is suspected.

Incomplete Abortion.

Persistent bleeding and pain observed. Maternal mortality 1.3 per 1,00,000 procedures.

Continuation of Pregnancy:

If Signs of Pregnancy continue then ongoing Pregnancy is suspected.

Long term: Menstrual disturbances, recurrent abortion, premature labour, low birth weight infants, Rh Isoimmunisation (5 to 10% cases), sterility, ectopic pregnancy, endometriosis of vagina and cervix, rupture uterus in next pregnancy. Complications rate increases steeply after 8 wks. of gestation.

Ind trimester MTP is done by

1. Induction of abortion by uterine stimulation
2. Surgical methods.

Induction of abortion is done in 3 ways:

(a) by drugs (b) by devices (c) by combination procedure

(a) **Drugs :** Quinine, ergot preparation, hormones, high concentrations of oxytocin drip. Intrauterine instillation of glucose, mannitol have been abandoned due to high failure rate & infection. Other effective drugs are intrauterine instillation of hypertonic saline or urea or rivanol and prostaglandin by various routes.

(1) Hypertonic Saline: 150 to 200 ml. Of 20% NaCl is instilled by intramniotic route. This procedure which was first widely used is now abandoned following several maternal deaths.

Mechanisms of action:

- (i) Liberation of prostaglandin from degenerated decidua and fetal tissue
- (ii) Suppression of progesterone synthesis from the placenta.
- (iii) Acute salt poisoning of the products of conception.

(iv) Release of oxytocin from the pituitary gland.

(v) Distension of the uterine owing to drawing of fluid by hypertonic solution.

The other drugs used for intra-amniotic routes are 130 to 200 ml. upto 60% urea, glucose, mannitol, prostaglandin. This method is suitable in cases after 16 wks. of pregnancy. Induction Abortion interval is 36 to 48 hrs. in 30 % and 72hrs in 88 to 97% cases. Usually abortion is complete. Occasionally check curettage or MRP may be needed.

1. **Hypernatraemia:** A mild degree will complain of thirst, headache, hypotension, bradycardia and apnoea. Severe hypernatraemia is characterised by coma and convulsion due to brain oedema. This can lead to death. It should be treated urgently by I.V. 5% dextrose with 40 mg frusemide with careful monitoring of vital signs and urinary output.
2. Haemorrhage
3. Infection
4. Retained products of conception (13 to 20%)
5. Cervical injuries and uterine necrosis
6. Coagulopathies: Treatment is blood transfusion and early evacuation
7. Maternal mortality.

Contraindication

Severe anaemia, sickle cell disease, cardio-vascular disorders and renal disorders.

Ethacridine lactate: (Rivanol or Emcredil) used extra-amniotically 10ml of 0.1% ethacridine is used for each gestational week up to maximum of 150 ml. It is very safe, cheap, easily available. Induction abortion interval is 48 to 72 hrs in 86% of cases. Re-instillation after 72 hrs gives 98 to 100 % success rates. There are no apparent contraindications. When this is given in conjunction with PGs or oxytocin, it reduces Induction abortion interval tremendously. This method gives good result even when pregnancy is between 13 to 15 wks.

Prostaglandins: Very costly, not freely available drug. It is used as I.V., I.M. vaginal suppository, extra-

amniotically and intra-amniotically. I.V. and oral routes are given up due to severe side effects. Natural PGs are $PGF_2\alpha$, PGE₁, PGE₂. The PGE₂ is 10 times potent than $PGF_2\alpha$ but no clinical advantages and has less stability. When PGs are used extra-amniotically they require 10 to 20 times less doses than for systemic routes hence side effects are decreased by five times.

Intra-amniotic $PGF_2\alpha$ is very effective and has less side effects. A test dose of 5 mg followed initially after a few minutes by 35mg (total 40mg). 10 to 40 mg repeated after 48 hrs if abortion does not take place. Vaginal suppository of 20 mg PGE₂ & $PGF_2\alpha$ have very high side effects. PGs analogues have less side effects and increased effectiveness and have easy method of administration. 15 methyl $PGF_2\alpha$ in trimethamine salt form used as intra-amniotic and extra-amniotic and 1mg. 15 methyl $PGF_2\alpha$ in its methyl ester form is used vaginally. 15 methyl $PGF_2\alpha$ is 10 to 20 times potent than natural PGs. Recently PGE₁ analogue (misoprostol) is used orally and has promising results.

Advantages:

- (I) Induction-Abortion interval is less than 24 hrs.
- (II) Does not interfere with uterus (III) complete abortion in 57% cases (IV) gives best result even in pregnancy 12 to 14 wks.

Complications:

- i) Severe nausea, vomiting and diarrhoea. hence antiemetic and antidiarrhoeal drugs are given prior to PGs administration and whenever required. ii) Fever iii) Pelvic infection iv) severe haemorrhage v) cervical tear (bucket handle type) vi) Bronchospasm vii) convulsion viii) mortality.

- a. Antiprogesterone: RU-486 when used with PGs gives better results.
- b. Devices: Currently (1) Laminaria tent (2) Catheters are used. (3) Laminaria tent is used before D & C and with other agents like PGs. It causes softening and dilatation of cervix by its Hygroscopic action and stimulates uterine contraction. It reduces incidences

of cervical tear, cervical fistula, haemorrhage and perforation.

Disadvantages:

- i) Infection ii) patient has to go to the operation theatre twice. (iii) Catheters alone are ineffective but are useful when used with other methods. It causes mechanical stimulation of uterus.

Combined procedures: These have synergistic effects on uterine stimulation hence reduces Induction-abortion interval.

- (i) PGs-saline (ii) PG-urea (iii) PG-Ethacridine (iv) PG-laminaria tent v) PG-laminaria -oxytocin vi) Catheter - oxytocin vii) Catheter-ethacridine -oxytocin viii) Catheter-urea-saline-oxytocin.

II Surgical methods

- 1) D & E (Aspirotomy) 2) Hysterotomy 3) Hysterectomy

D & E (aspirotomy)

Principles:

- 1) dilate the cervix upto no.12
- 2) Crush the bones with embryotomy forceps
- 3) Long bones are removed in vertical direction

Adv: Can go home on the same day.

Complications:

- i) severe haemorrhage and shock
- ii) increase risk of injury to uterus and cervix
- iii) infection
- iv) incomplete abortion.

Therefore this method is not recommended after 16 wks of pregnancy

Hysterotomy:

It is done when there is failure of induction of abortion by other methods. It was a method of choice when patient was for sterilization. But due to relatively high risk this method is not used routinely now. Complications are same in next pregnancy as classical caesarean section.

Chances of endometriosis are high and caesarean section is must in future pregnancy.

Hysterectomy :

very rare except when associated with malignancy.

Pregnancy termination and contraception :

usually 75% women ovulate within 20 days. Contraception is must by IUCDs or O.Cs. to be started on the same day or Barrier contraception advised from the 1st day or sterilization.

Female Sterilization

This is a surgical procedure, which destroys the procreative function of a woman, and the effect is usually permanent.

Legal aspect:

1. The age of woman should not be less than 25 & greater than 45 years.
2. The woman must have 2 living children at the time of operation.
3. If she has 3 or more living children the lower limit of age of woman may be relaxed at the discretion of the operating surgeon.
4. It is sufficient if the acceptor declares having obtained the consent of her husband to undergo sterilization operation without outside pressure, inducement or coercion and that she knows that for all practical purposes, the operation is irreversible and also that the husband has not been sterilized earlier.

Sterilization services are provided free of charge in Government institutions.

Indications

1. Permanent ill health of potential mother or father
2. Disease or genetic faults transmissible to the fetus
3. Previous obstetric complications and operations
4. Family limitations
5. On request – socio-economic factor
6. Population control

Routes of Tubal ligation :

1. Transabdominal :

1. On Laparotomy while C.S., ectopic pregnancy or other gynaecological conditions.
2. Minilap
3. Laparoscopic
4. Open laparoscopic sterilization

2. Transvaginal:

- (a) Colpotomy T. ligation
- (b) Culdoscopic sterilization

3 Transcervical:

- (a) Hysteroscopic Fulguration
- (b) Chemical-Quinacrine

Timing of Tubal Ligation

1. Puerperal : (a) Minilap (b) during C.S..
2. In non-pregnant stage preferably done after 7 to 10 days post menses. If done after 10 days of menses or lactational amenorrhoea then D & C is a must with tubal ligation.

Pre-operation :

History physical examination, Hb, Blood group, urine, Blood sugar, Blood V.D.R.L. should be within normal limits. Written consent is taken.

Different Methods :

1. Pomeroy's: Loop of Fallopian Tube is ligated and cut. It is a simple & safe method with failure rate of 0.2 to 0.4%. In modified Pomeroy's method additional silk suture on fallopian tube near & medial to the stump is taken. Ligation success rate is 100%.
2. Irving :
3. Uchida: Both (2)&(3) are difficult and have more complications, hence not routinely done failure rate 0.1%.
4. Fimbriectomy or Kroener's technique: Abandoned due to high failure rates (2 to 3%). Success rate after reversal is very low.
5. Madlenar : Loop of tube is crushed & ligated. It is simple but has high failure rate 0.3 to 2%.
6. Parkland technique: In this 2.5cms.tube is separated from mesosalpinx. Free tube is ligated proximally &

distally. Intervening segment of 2cms.is excised.
Failure rate is 0.4%.

7. Simple ligation
8. Cornual resection
9. Total salpingectomy
Pomeroy's method with or without modification is preferred.

Advantages of minilap :

1. Safe, effective and convenient method.
2. It is possible as an outpatient procedure
3. Can be performed by junior doctors in PHC and camps. (4) Used for mass sterilization for population control (5) Complications are minor (6) No special training or equipment is required (7) it can be performed any time.

Disadvantages compared to Laparoscopy are:

1. Higher rates of wound & pelvic infection
2. Longer duration and severity of post-operative pain
3. Longer convalescence period
4. Longer incision scar.

Vaginal tubal ligation : Also known as colpotomy. Tubal ligation is done in non-pregnant cases. It is also done in patient with prolapse during vaginal plastic repairs.

Contraindications: (1) Infection (2) Previous operations (3) Endometriosis (4) Obesity.

Complications of Tubal Ligation :

1. anaesthetic hazards
2. Bowel and bladder injuries
3. Injuries to tubes and ovaries
4. Broad ligament haematoma
5. Wound infection, haematoma and dehiscence
6. Pelvic infection, peritonitis, urinary infection
7. Pelvic haematoma
8. intraperitoneal haemorrhage
9. Bowel or bladder fistulas
10. Failure of operation
11. Ectopic pregnancy

12. Menstrual disturbances
13. Psychosomatic
14. Death

Complications are more in vaginal ligation, following C.S. & following abortion compared to interval ligation. Sterilization in C.S. patients should be avoided when C.S. is being done for obstetric emergencies where patient's life is threatened. Sterilization deaths are subject to inquiry since it is part of National Family planning programme.

Cause of deaths are

Anaesthetic

Infection (tetanus)

Haemorrhage

All these are preventable. 10 to 70 deaths / 1,00,000 procedures .

Laparoscopic Sterilization :

Is getting more and more popular because it has been found to be a safe, simple and effective procedure, which can be performed through one or two very small incisions in the abdomen mostly under sedation and LA on an outpatient basis. However, this procedure needs special training and some special instruments.

Contraindications:

1. Large abdominal masses (uterine or ovarian)
 2. Decompensated Heart Disease
 3. Severe respiratory dysfunction
 4. Hiatus hernia
 5. H/o abdominal surgery especially of the bowel.
- Relative contraindications are
6. Gross obesity
 7. Pelvic adhesions due to previous pelvic infection or operations
 8. After delivery or abortion of more than 12 wks. Pregnancy.

Methods of Tubal Occlusion:

(1) Non electrical methods using silastic band i.e. Falope ring (yoon) or spring loaded clip (Hulka – Clemens) or silicone – titanium clip (Filshie Clip) (2) Electrocoagu-

lation giving unipolar or bipolar current. This reduces pain but occasionally gives rise to severe burns to gastro-intestinal, other organs, vessels & abdominal wall. More so with unipolar cautery. Therefore nowadays electrocoagulation is not recommended.

Precautions:

- (1) To create pneumoperitoneum, air or oxygen should not be used in electrocoagulation method.
- (2) Occasionally the tube is transected, then stumps are grasped with tongs and apply band to each ends. Applying the band to the bleeding point can also control the bleeding.

Advantages:

- (1) It is very effective
- (2) It is effective from the time of operation and needs no continued motivation
- (3) Complication rate is very low
- (4) It can be performed safely in OPD and in camps in a short time 5 to 15 minutes.
- (5) If done under LA then hospitalization is not required
- (6) Small incision is required
- (7) Post-operative pain, discomfort are minimum.
- (8) Unsuspected pathological conditions can be diagnosed.
- (9) Highly reversible.
- (10) Success rate of reversal is 80%.

Disadvantages:

- (1) Complications are low but can be serious
- (2) Pneumoperitoneum leads to post-operative chest & shoulder pain & rarely, cardiorespiratory distress, gas embolism and sudden cardiac failure
- (3) Equipment is costly & difficult to maintain
- (4) Special training is required & the doctor should be a gynaecologist.

Complications:

- (1) It is related to surgical expertise: Anaesthetic hazards

- (2) Abdominal wall haematoma
- (3) Surgical emphysema
- (4) Uterine injury, large vessels injury, intestinal injury
- (5) Burns of GI Tract & other pelvic organs when fulguration technique is followed
- (6) Mediastinal emphysema
- (7) Cardiorespiratory embarrassment
- (8) Death 4 to 19 per 1,00,000 procedures.
- (9) Wound sepsis
- (10) Failure rate 0.2 to 1.3% in experienced hands
- (11) Ectopic pregnancy

Culdoscopic sterilization is not recommended.

Open Laparoscopic Sterilization: Is safe but not routinely used

Transcervical:

- (a) Hysteroscopic Fulguration: Hysteroscopically tubal ostia are coagulated. It has a high failure rate 11 to 35%. This method is abandoned because problems such as Uterine perforation & burns, ectopic and cornual pregnancies and difficulty in locating tubal orifices are common.

Chemical: Quinacrine is a sclerosing agent and is blindly instilled through cervix causing tubal occlusion.

Complications. (1) systemic toxic reactions (2) amenorrhoea (3) intrauterine adhesions (4) Chemical vaginitis (5) skin rash (6) high failure rate. (7) Solid plugs are on experimental stage.

The safety of this drug is still unproven hence given up.

Hence female sterilization is the best method for those who do not want any more children. Newer technologies are being developed to make this permanent method of contraception easier, safer and more widely useable.