**Postpartum sterilisation**

 **Dr M.Bhavani.MD**

Sterilization for women is called tubal sterilization. In tubal sterilization, the **fallopian tubes** are closed off or removed. **Postpartum sterilization** is sterilization performed after the birth of a baby. After a woman gives birth, the fallopian tubes and the still-enlarged uterus are located just under the abdominal wall below the navel. Postpartum sterilization ideally is done before the uterus returns to its normal location, usually within a few hours or days following delivery. Postpartum and puerperal sterilisation are essentially same because it is best done not later than seven days after delivery due to high risk of acquiring infection during the rest of the puerperium. For women who have had a caesarean delivery, it is done right after the baby is born.

WHO 2002 nomenclature

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| Interval sterilisation | Post-abortion sterilisation | Postpartum/puerperal sterilisation |
| Not associated with a pregnancy within the first two weeks of menstrual cycle | immediately after an abortion within 6 hours of uterine evacuation  | Usually within 48 hours of delivery giving time for assessment of infants condition |

Laparoscopic Sterilisation:

 This procedure is restricted to specially trained surgeons and gynaecologists. Performing the procedure requires a health facility with comprehensive surgical capacity. The procedure requires delicate and expensive endoscopic equipment and ongoing maintenance and spare parts must be available. Though recovery time is short and postoperative abdominal pain is slight, laparoscopy is appropriate only for interval and first-trimester post abortion procedures.

Postpartum sterilization

Postpartum tubal sterilization is an effective permanent contraceptive option for women. It is performed by partial salphingectomy, electro-coagulation, or the use of rings or clips. The patient must be at least 21 years of age and mentally competent when consent is obtained. Postpartum tubal ligation is done within 48hrs of delivery. Informed consent may not be obtained while the patient is in labour or during childbirth. Consent may not be obtained while the patient is undergoing an abortion or under the influence of alcohol or other substances. A total of 30 days must pass between the date the consent is signed and the date the procedure is performed.

 Exceptions to the 30-day waiting period can be made for preterm delivery or emergency abdominal surgery. Consent is valid for only 180 days. In some cases the obstetrician may schedule a patient for a postpartum tubal ligation because of a fear that the patient will not return for interval tubal sterilization 6 weeks after delivery.

Techniques for tubal sterilization.

 A. Irving procedure: The medial cut end of the oviduct is buried in the myometrium posteriorly, and the distal cut end is buried in the mesosalphinx.

 B. Pomeroy procedure: A loop of oviduct is ligated, and the knuckle of tube above the ligature is excised.

C. Parkland procedure: A mid-segment of tube is separated from the mesosalphinx at an avascular site, and the separated tubal segment is ligated proximally and distally and then excised.

 D, Madlener procedure: A knuckle of oviduct is crushed and then ligated without resection; this technique has an unacceptably high failure rate of approximately 7%.

E. Kroener procedure: The tube is ligated across the ampulla, and the distal portion of the ampulla, including all of the fimbriae, is resected; some studies have reported an unacceptably high failure rate with this technique .

Recommended pre-requisites:

 Well child by expert opinion

 Informed consent

 A fasting period for solids of 6 to 8h before postpartum tubal ligation

 Aspiration prophylaxis .

Contraindications to postpartum tubal sterilization include the following:

* There is an unstable medical condition postpartum (eg, hemorrhage, infection, uncontrolled hypertension, HELLP [hemolysis, elevated liver enzymes, and low platelets] syndrome)
* The patient is ambivalent regarding the procedure
* The patient has known or suspected significant abnormalities of the uterus, fallopian tubes, or intra-abdominal cavity
* The patient consent is not mature according to state/local regulations
* The status of the newborn is unclear

Goals of anesthesia

* rapid recovery of the mother so that she can take care of her

  • A fasting period for solids of 6 to 8h before postpartum tubal ligation

 • Aspiration prophylaxis for postpartum tubal ligation

• individualized plan of anaesthesia

 Local, general, or neuraxial anaesthesia may be used successfully for postpartum tubal sterilization The literature is insufficient to evaluate the benefits of neuraxial anesthesia compared with GA for postpartum tubal ligation. In addition, the literature is insufficient to evaluate the impact of the timing of a postpartum tubal ligation on maternal outcome.

 Although general and regional anaesthesia can be used safely and effectively for puerperal sterilisation,,the number of unexpected and life-threatening complications related to general or regional anaesthesia is higher than the number associated with local anaesthesia (WHO, 1992).Thus,general and regional anaesthesia should be used only in settings that are properly equipped and staffed to provide such anaesthesia and to handle emergencies.

 General anaesthesia may be indicated for a procedure that is expected to be difficult e.g.,such as when obesity,surgical scars, uncooperative patient or other such problems are present.In instances in which a regional anaesthetic regimen has already been given e.g.,a postpartum client with a continuous epidural,the surgeon can use regional anaesthesia. Local anaesthesia with or without intravenous sedation has been successfully used as an anaesthetic technique for mini laparotomy and has allowed health institutions to provide sterilization services safely in many settings,including those with limited resources. Local anaesthesia is considerably less expensive than general anaesthesia, given the equipment and the level of training and of emergency management preparedness required for general anaesthesia. This also earns over regional anaesthesia in that altered coagulation status and predisposition to infection and prolonged time for discharge from postoperative ward can complicate.

Two important questions to address during the pre-anesthetic evaluation to decide the choice of anaesthesia are as follows:

 (1) What is the duration of the fast for solids?

(2) Were parenteral opioids administered during labour?

 Pharmacological concerns:

 Any drug present in the mother’s blood will be present in breast milk, with the concentration depending on factors such as protein binding, lipid solubility, and extent of ionization. Typically the amount of drug present in breast milk is small. Opioids, barbiturates, and propofol administered during anaesthesia are excreted in insignificant amounts. Typically, progesterone concentrations decline within 2 hours of delivery, and by 24 hours postpartum, progesterone concentrations are similar to those found during the luteal phase of the menstrual cycle

Recommended drug dosages:

 Midazolam

Premedication: 2.5 to 10 mg IM (0.05 to 0.2 mg/kg)

 Conscious sedation: 0.5 to 5 mg IV (0.025 to 0.1 mg/kg)

Diazepam

Premedication or sedation: 2 to 10 mg PO, IM, slow IV (0.05 to 0.2 mg/kg)

 Promethazine

Premedication: 12.5 to 50 mg IV/IM (deep), PO

Fentanyl

Premedication: 25 to 100 mcg (0.7 to 2 g) IV/IM

Analgesia: 25 to 100 mcg (0.7 to 2 mcg) IV/IM

Pentazocine

 Analgesia: 30 mg IM

Meperidine(pethidine)

Analgesia: 25 to 100 mg (0.5 to 2 mg/kg iv )

Nalbuphine

Analgesia: 5 to 10 mg (0.1 to 0.3 mg/kg) IM/IV

 Ketamine

 Sedation/analgesia: 0.5 to 1 mg/kg IV 2.5 to 5 mg/kg IM/rectal

Anaesthesia induction: 1 to 2.5 mg/kg IV

Ideally, preoperative intravenous medication should be administered in the operating theater by a patient monitor who is trained and qualified to give these medications and to monitor the patient. An extremely obese patient.Atropine is used to decrease oral secretions,to prevent or to treat a bradycardia and to decrease the possibility of vasovagal syncope or cardiac arrest.The usual dosage is 0.6 mg,given intramuscularly or intravenously. In ambulatory surgery,nonsteroidal anti-inflammatory drugs (NSAIDs) like ibuprofen or paracetamol or diclofenac can be used before the surgery begins,to help reduce uterine cramping,to decrease postsurgical pain,and to shorten recovery time (Chauvin,2003).

The anxiolytic,sedative,light muscle-relaxant, and amnesic effects produced in the patient by sedation regimens allow surgery to be performed without difficulty.Benzodiazepines (e.g., midazolam and diazepam) and some phenothiazine tranquilizers (e.g.,promethazine) are used to decrease anxiety and to induce sedation.Most narcotic analgesics have sedative properties as well,but they primarily reduce pain .Analgesia.

 Narcotic analgesics (e.g.,pentazocine, fentanyl,meperidine,or nalbuphine) primarily reduce pain and are used to complement local anaesthesia agents.They are administered in the operating theater.

 Ketamine is a rapid-acting dissociative anaesthetic that has been found to be safe and effective for puerperal sterilisation with or without local anaesthesia. Since ketamine is likely to cause hypertension and tachycardia as unwanted side effects, a mixture of ketamine and propofol is used in certain centers nowadays.

The American Society of Anaesthesiologist's Task Force on Obstetric Anaesthesia published Practice Guidelines for Obstetric Anaesthesia in 1999 that included discussion of postpartum sterilization.[10](http://www.glowm.com/section_view/heading/Postpartum%20Sterilization%20Procedures/item/145#r10) Though considered to be a small surgical procedure, tubal ligation can produce significant pain and cause physiologic changes similar to caesarean delivery due to manipulation and peritoneal stimulation.[11](http://www.glowm.com/section_view/heading/Postpartum%20Sterilization%20Procedures/item/145#r11) In the setting of tubal ligation at the time of caesarean, the patient should have adequate anaesthesia. Choice of anaesthetic after vaginal delivery is usually to re-dose an existing epidural if the catheter is still in place and functioning.[12](http://www.glowm.com/section_view/heading/Postpartum%20Sterilization%20Procedures/item/145#r12)

The anaesthesia team must assess whether the labour epidural catheter is functioning well-enough to provide adequate anaesthesia for a postpartum tubal ligation. If the patient did not receive epidural anaesthesia during labour or it is not functioning, a spinal anaesthetic may be appropriate. Local infiltration into the abdominal wall and then into the mesosalphinx is a less common alternative and may be employed in the setting of inadequate conduction anaesthesia in order to avoid a general anaesthetic. The choices of regional anaesthesia include epidural analgesia, spinal anaesthesia, combined spinal epidural technique and transverse abdominis plane block.

It is extremely important that the patient who desires postpartum sterilization and is undergoing a routine vaginal delivery should not have any solid oral intake at least 8 hours prior to delivery and immediate postpartum sterilization according to Practice Guidelines for Obstetric Anaesthesia. The same publication notes that small amounts of clear liquids may be consumed up to 2 hours before surgery. Given the decreased gastric emptying associated with pregnancy and the subsequent slowing of the intestinal tract during labour, patients are at very high risk of aspiration if general anaesthesia is required during tubal ligation. Aspiration prophylaxis should be given as per existing protocols.

 To conclude the choice of anaesthetic for puerperal sterilisation depends on the patient, the service provider, the place of procedure ,availability of appropriate infrastructure and governing policies.

References:

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