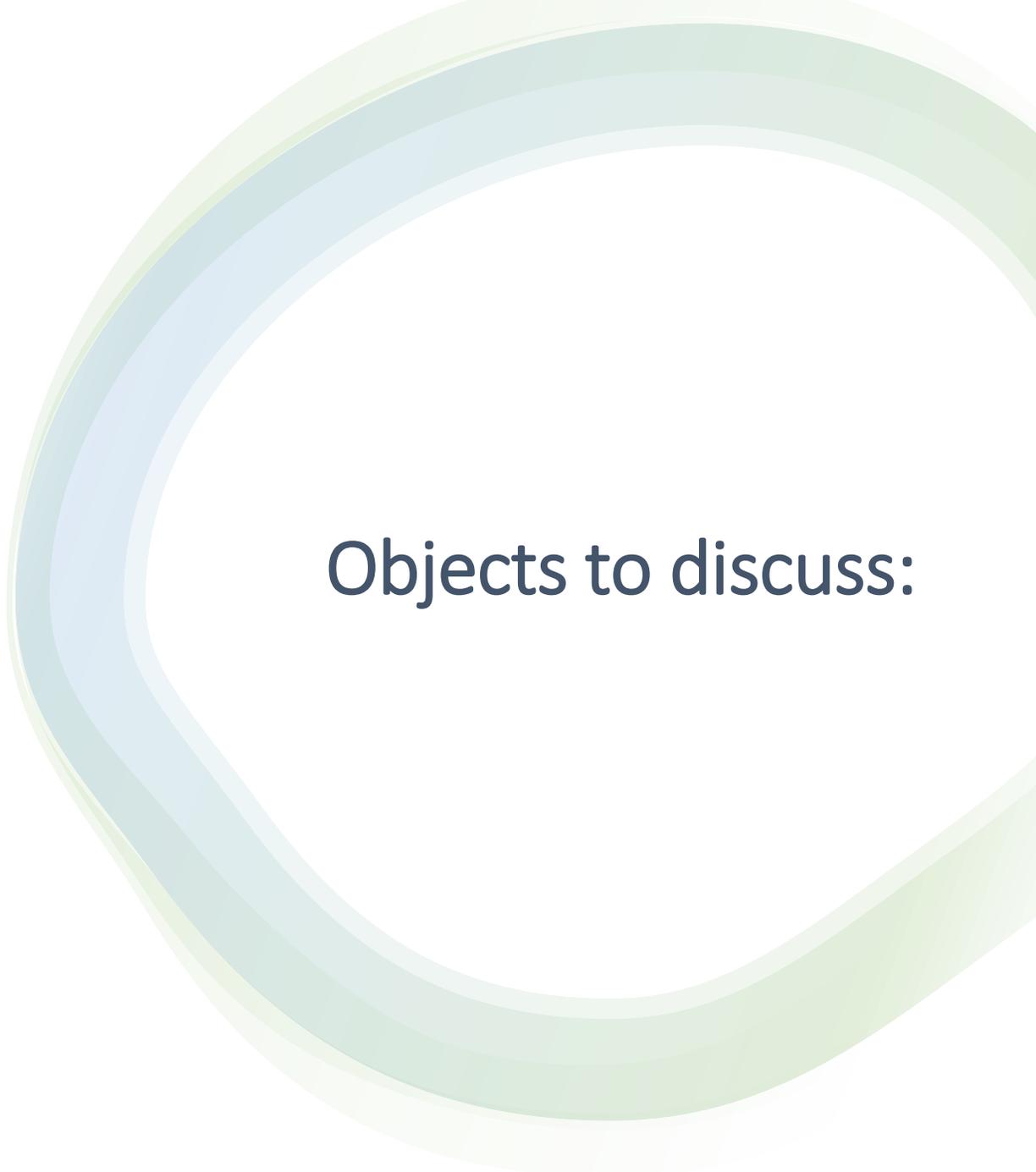


- Pre and post operative preparation
- Dilation & curettage (D&C)
- Extraction of Retained Product of Conception (ERPC), Suction Evacuation
- Laparoscopy & Hysteroscopy

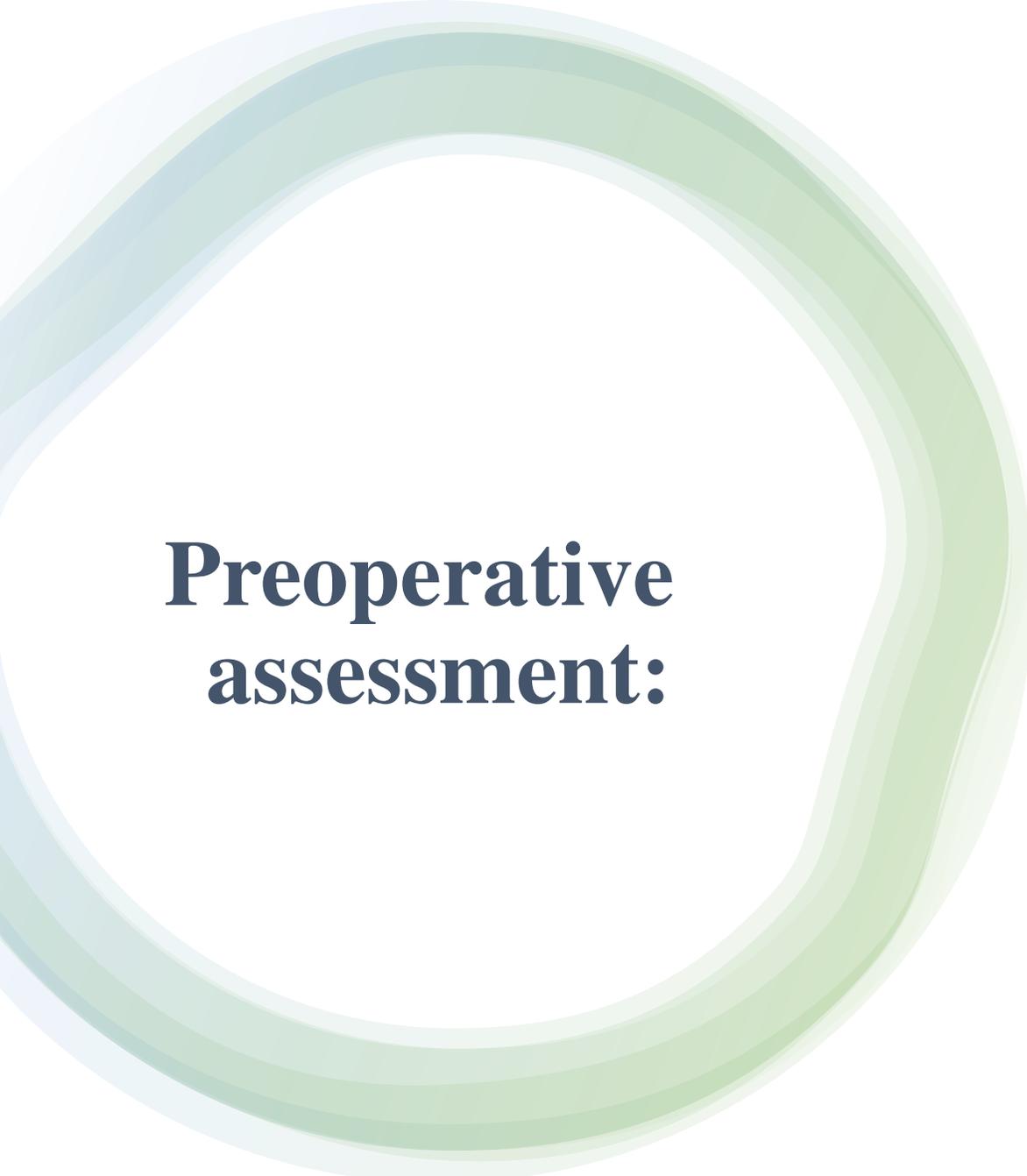
Done by :

- ❖ Leen Abd-Alaziz
- ❖ Nour Odeh
- ❖ Nawar Nizar

- ❖ Supervised by: Dr. Fida Asali



Objects to discuss:



Preoperative assessment:

- ❖ Goals of preoperative preparation:
 1. To reduce the morbidity of surgery.
 2. To increase the quality while decreasing the cost of perioperative care.
 3. To return the patient to normality as quickly as possible.
- ❖ A thorough clinical preoperative assessment of the patient is more important than routine preoperative tests.

- The routine admission of patients on the day before surgery has been superseded by preadmission clinics held approximately one week before admission. This allows specific time dedicated to preoperative assessment, well ahead of surgery, so that there is adequate time for appropriate tests and investigations.
 - **History taking :**
 - history should include the basic elements of the history (medical conditions, surgical history, medications, allergies)
 - risk factors that increase the risk of perioperative complications
 - Personal or family history or risk factors for thromboembolism
 - Personal or family history of anesthesia-related complications
 - **Physical examination :** Prior to gynecologic surgery, a complete pelvic examination should be performed by the surgeon+ the physical examination should be used to evaluate the patient's ability to tolerate surgery or anesthesia
- 



- **Investigations :**

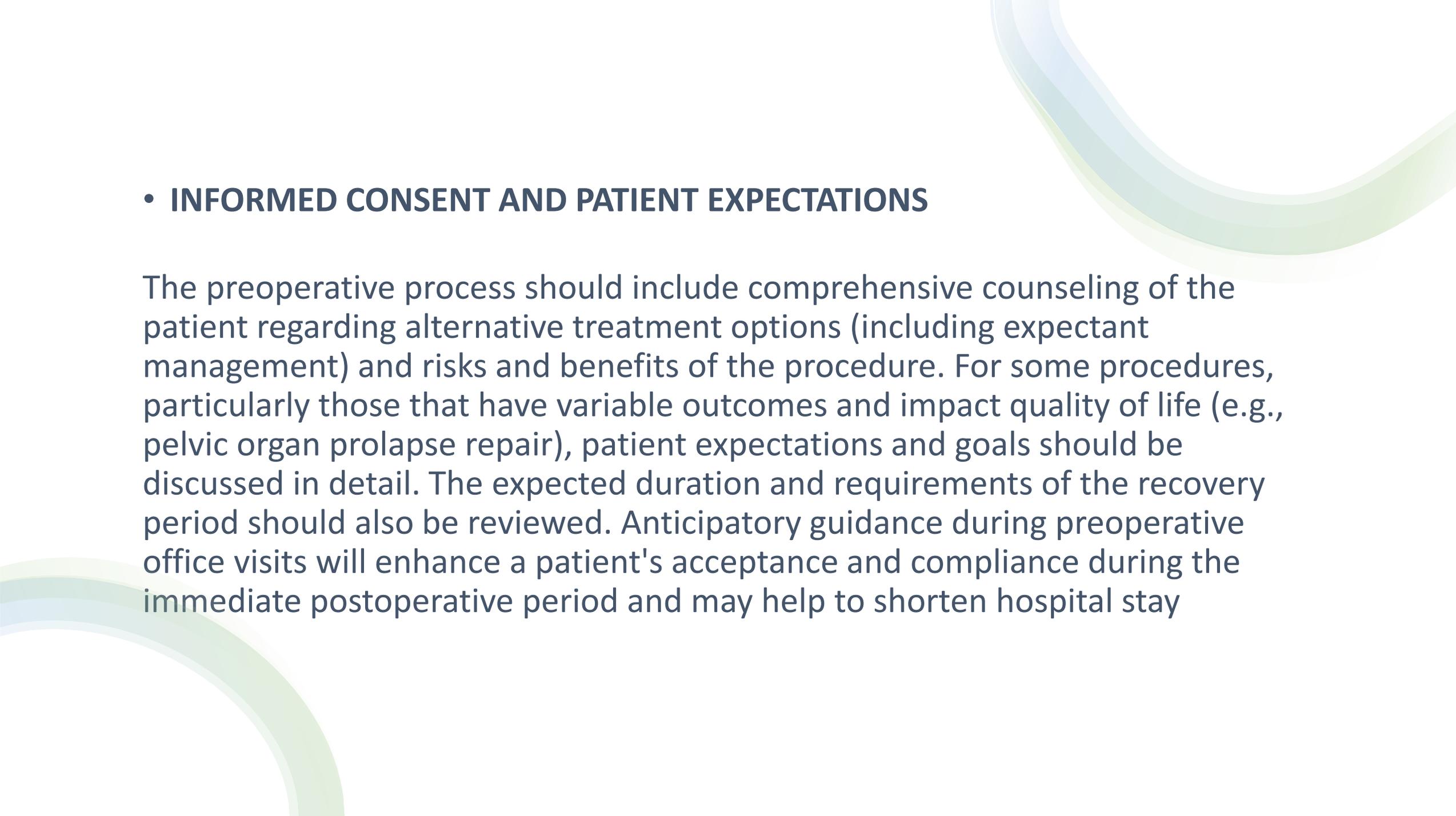
- CBC , KFT , electrolytes , urine analysis and blood glucose .

- Pregnancy test

- Testing for genital tract infection : bacterial vaginosis associated with hysterectomy and cervical infection all should treat .

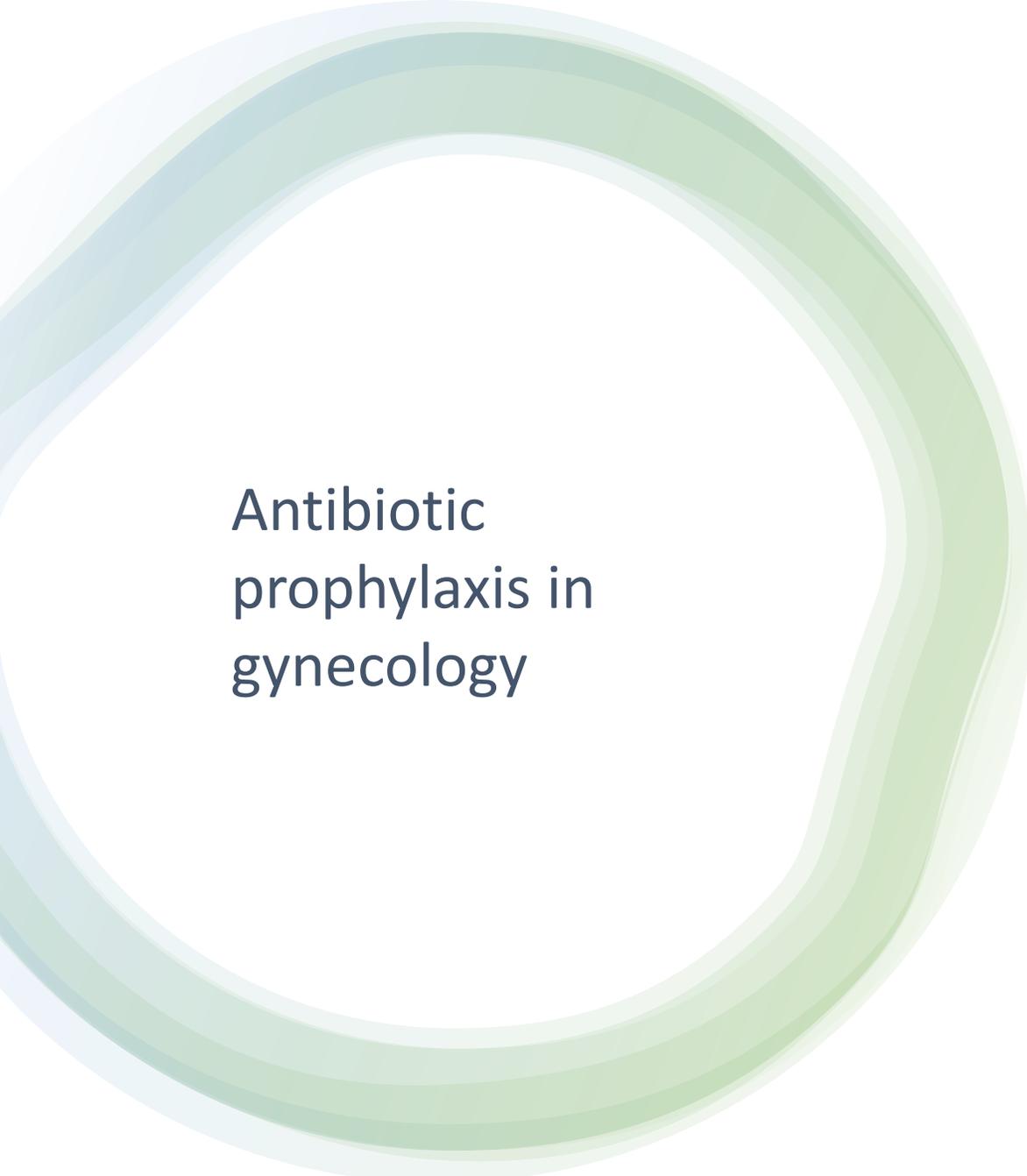
- ECG ,chest x ray .

- **Blood loss preparation**



- **INFORMED CONSENT AND PATIENT EXPECTATIONS**

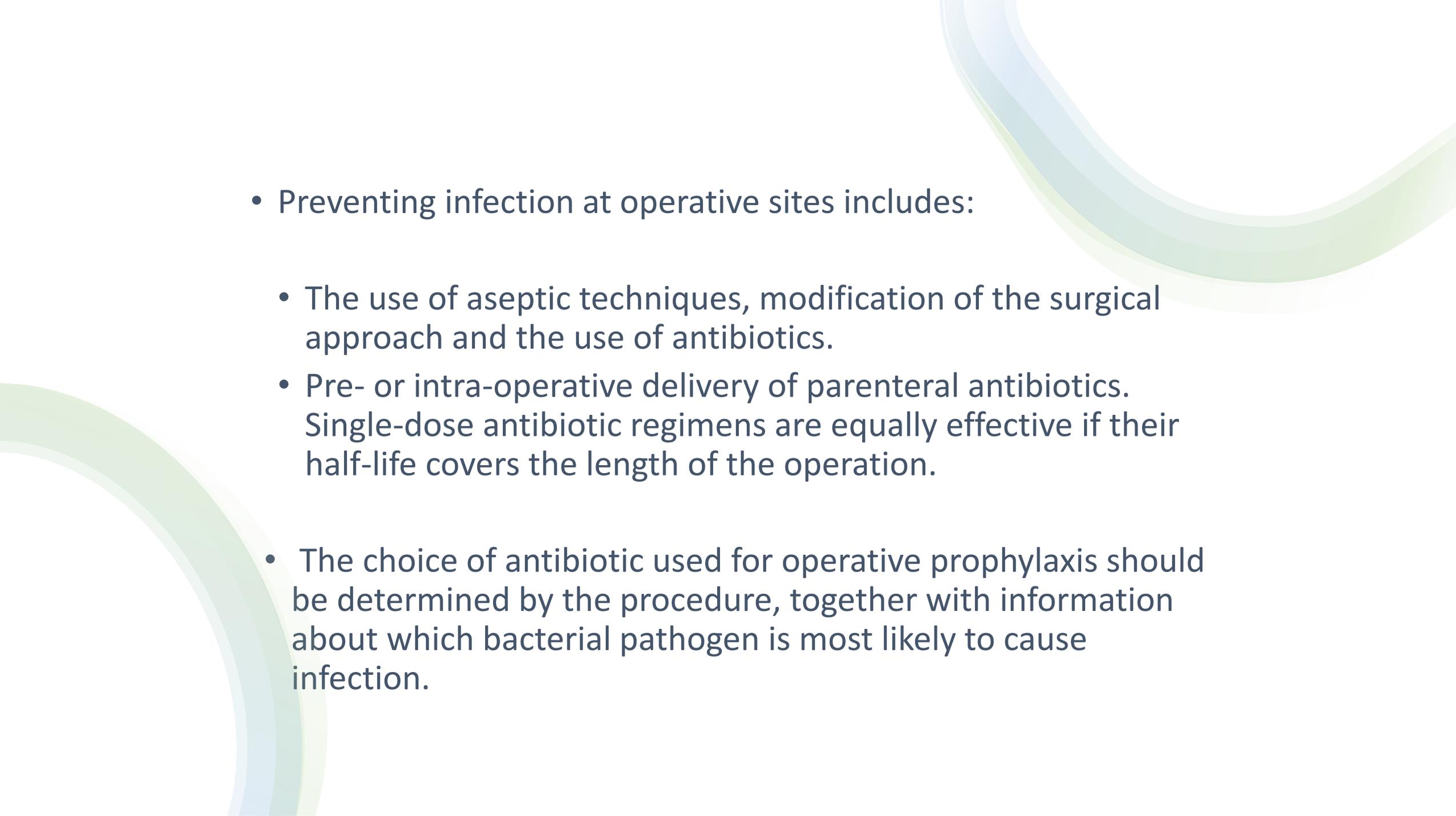
The preoperative process should include comprehensive counseling of the patient regarding alternative treatment options (including expectant management) and risks and benefits of the procedure. For some procedures, particularly those that have variable outcomes and impact quality of life (e.g., pelvic organ prolapse repair), patient expectations and goals should be discussed in detail. The expected duration and requirements of the recovery period should also be reviewed. Anticipatory guidance during preoperative office visits will enhance a patient's acceptance and compliance during the immediate postoperative period and may help to shorten hospital stay



Antibiotic prophylaxis in gynecology

a cohort study shows women who receiving either cefazolin, or a second-generation cephalosporin had more than double the risk of SSI compared with those receiving combined treatment with cefazolin and metronidazole

- Patients with a reported penicillin allergy should receive the standard surgical antibiotic prophylaxis including cefazolin or ertapenem when indicated.

- 
- Preventing infection at operative sites includes:
 - The use of aseptic techniques, modification of the surgical approach and the use of antibiotics.
 - Pre- or intra-operative delivery of parenteral antibiotics. Single-dose antibiotic regimens are equally effective if their half-life covers the length of the operation.
 - The choice of antibiotic used for operative prophylaxis should be determined by the procedure, together with information about which bacterial pathogen is most likely to cause infection.

Thromboprophylaxis:

Low-molecular-weight heparins (LMWH) are as effective as unfractionated heparin for the prevention of DVT in women undergoing surgery.

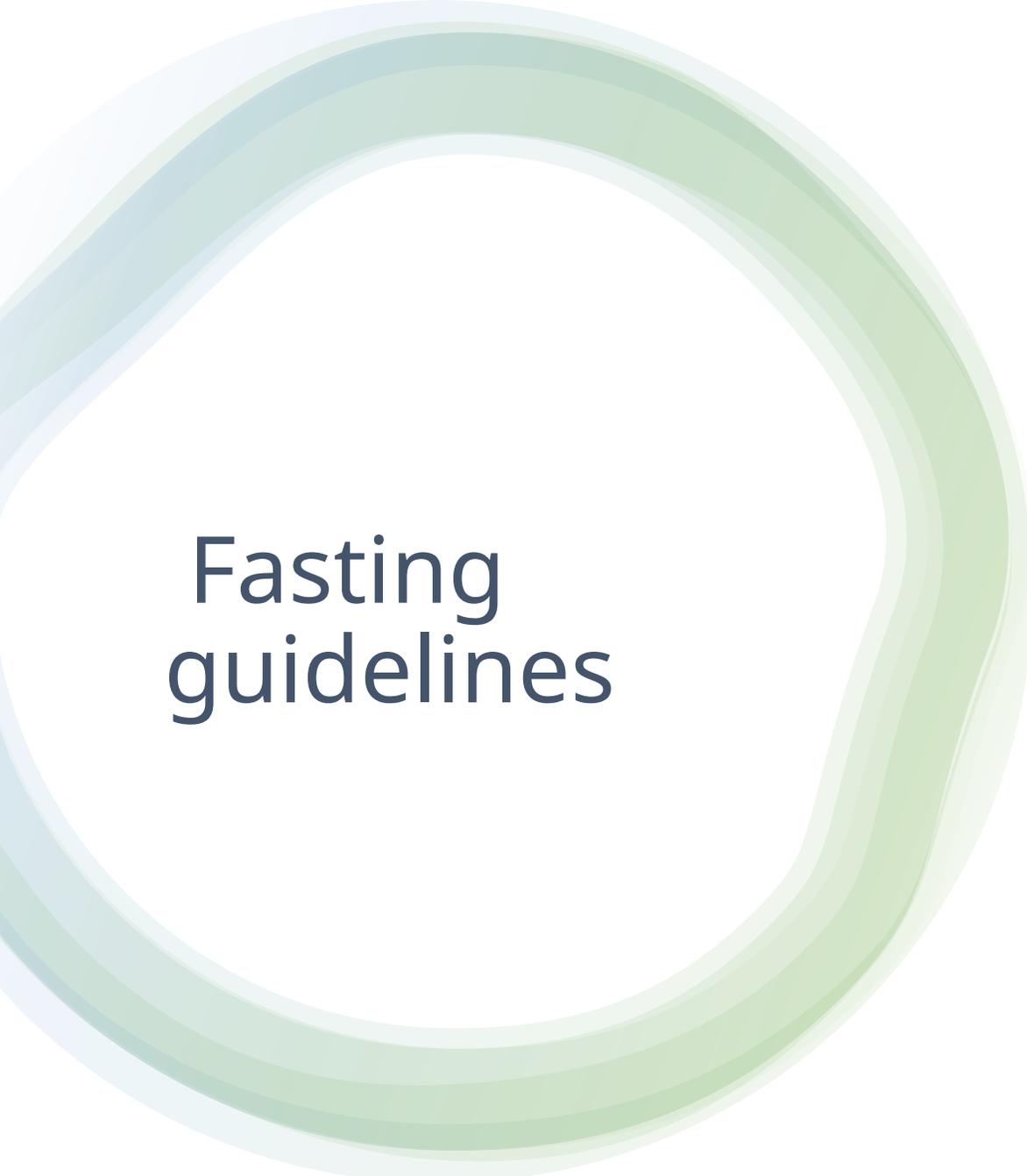
The overall risk for VTE increases with the number of risk factors identified. Most trials of anti-thrombotic prophylaxis in surgical patients have been performed in abdominal and pelvic surgery.

Risk score			
1 point	2 points	3 points	5 points
Age 41 to 60 years	Age 61 to 74 years	Age ≥75 years	Stroke (<1 month)
Minor surgery	Arthroscopic surgery	History of VTE	Elective arthroplasty
BMI >25 kg/m ²	Major open surgery (>45 minutes)	Family history of VTE	Hip, pelvis, or leg fracture
Swollen legs	Laparoscopic surgery (>45 minutes)	Factor V Leiden	Acute spinal cord injury (<1 month)
Varicose veins	Malignancy	Prothrombin 20210A	
Pregnancy or postpartum	Confined to bed (>72 hours)	Lupus anticoagulant	
History of unexplained or recurrent spontaneous abortion	Immobilizing plaster cast	Anticardiolipin antibodies	
Oral contraceptives or hormone replacement	Central venous access	Elevated serum homocysteine	
Sepsis (<1 month)		Heparin-induced thrombocytopenia	
Serious lung disease, including pneumonia (<1 month)		Other congenital or acquired thrombophilia	
Abnormal pulmonary function			
Acute myocardial infarction			
Congestive heart failure (<1 month)			
History of inflammatory bowel disease			
Medical patient at bed rest			

Interpretation		
Surgical risk category*	Score	Estimated VTE risk in the absence of pharmacologic or mechanical prophylaxis (percent)
Very low (see text for definition)	0	<0.5
Low	1 to 2	1.5
Moderate	3 to 4	3.0
High	≥5	6.0

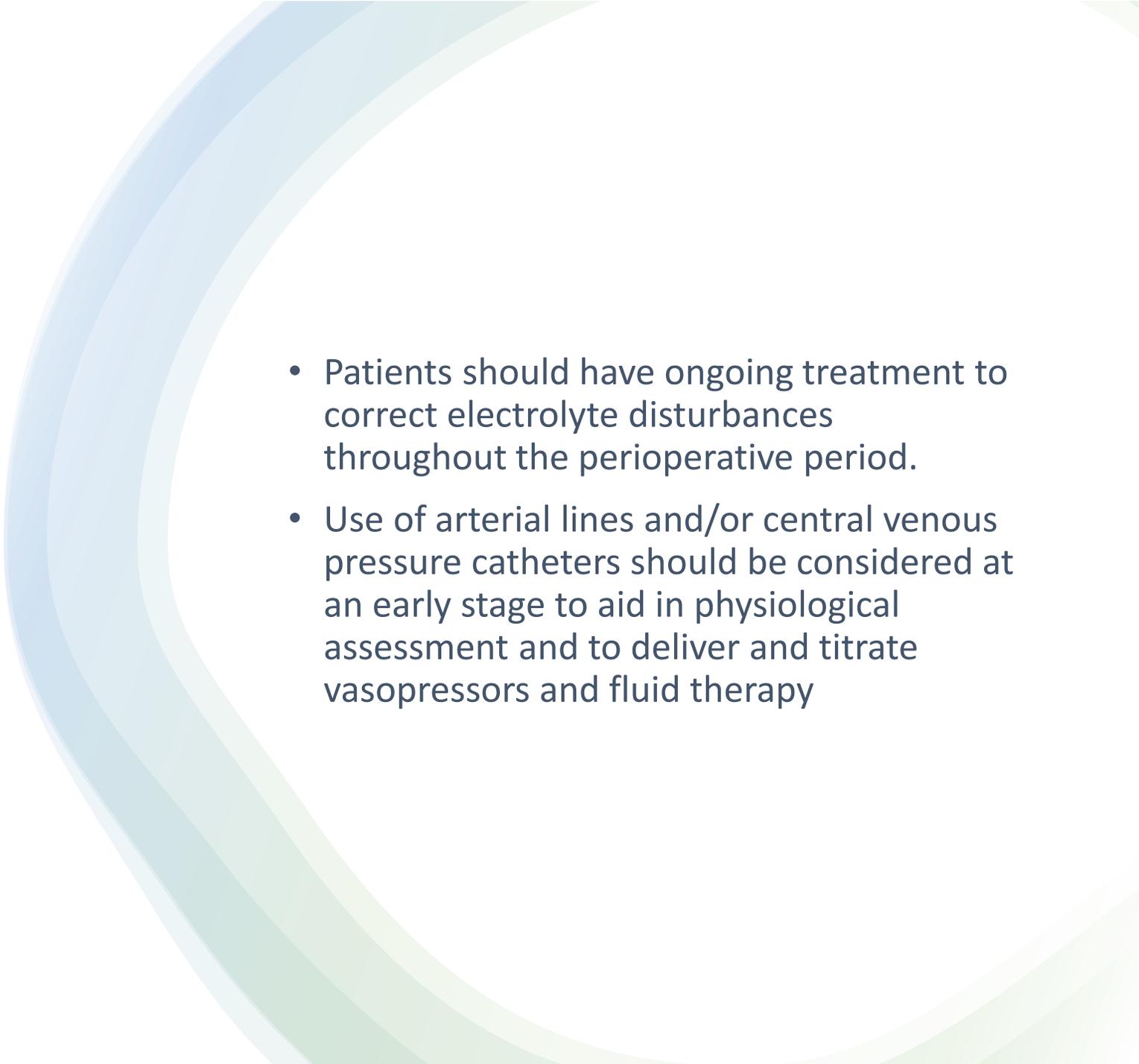
VTE: venous thromboembolism; BMI: body mass index.

* This table is applicable only to general, abdominal-pelvic, bariatric, vascular, and plastic and reconstructive surgery. See text for other types of surgery (eg, cancer surgery).



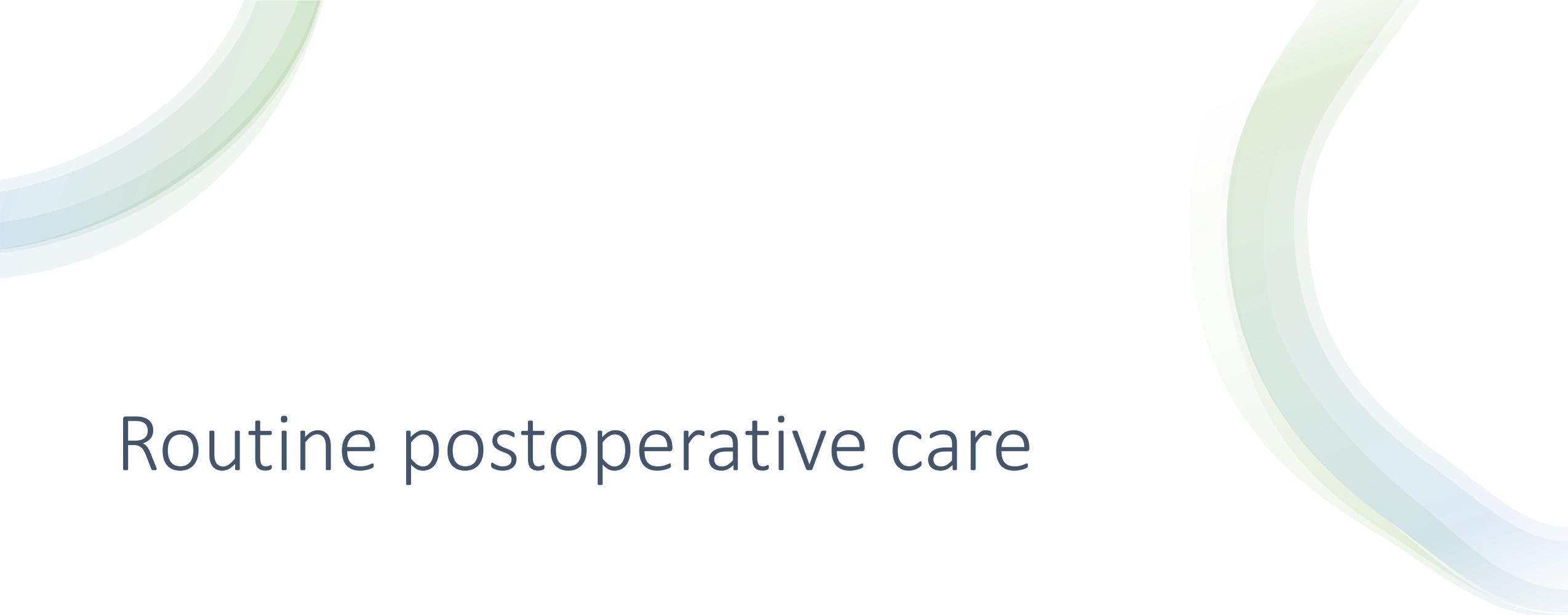
Fasting guidelines

- Patients are routinely asked to fast before anesthesia to minimize the risk of aspiration of stomach contents and to reduce the severity of pulmonary effects should aspiration occur
- Fatty food or meat – fasting for eight hours.
- Light meal – fasting for six hours.
- non-clear liquids – fasting for six hours.
- Clear liquids – fasting for two hours.

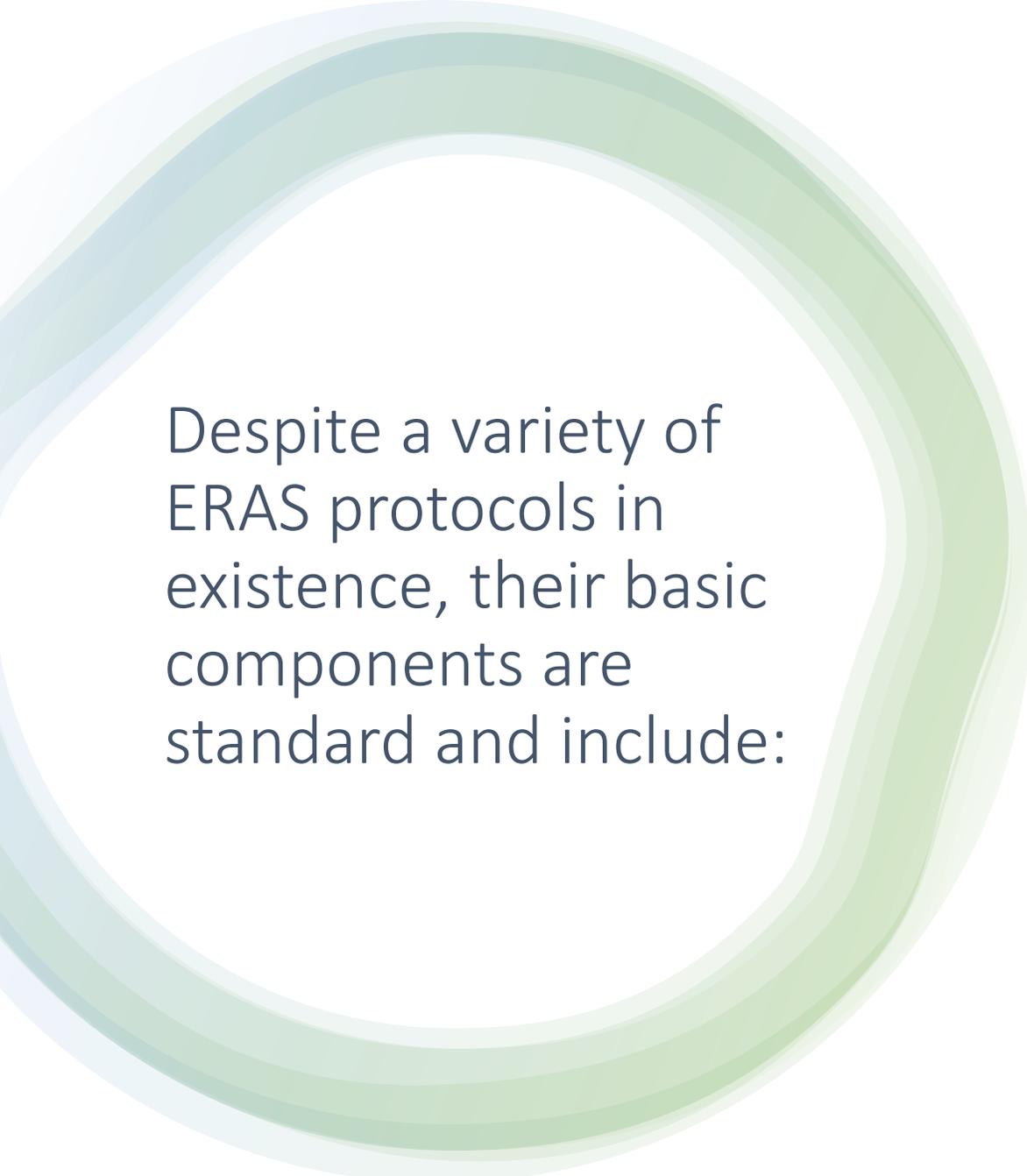


Intravenous fluid and electrolyte management and goal directed hemodynamic therapy

- Patients should have ongoing treatment to correct electrolyte disturbances throughout the perioperative period.
- Use of arterial lines and/or central venous pressure catheters should be considered at an early stage to aid in physiological assessment and to deliver and titrate vasopressors and fluid therapy

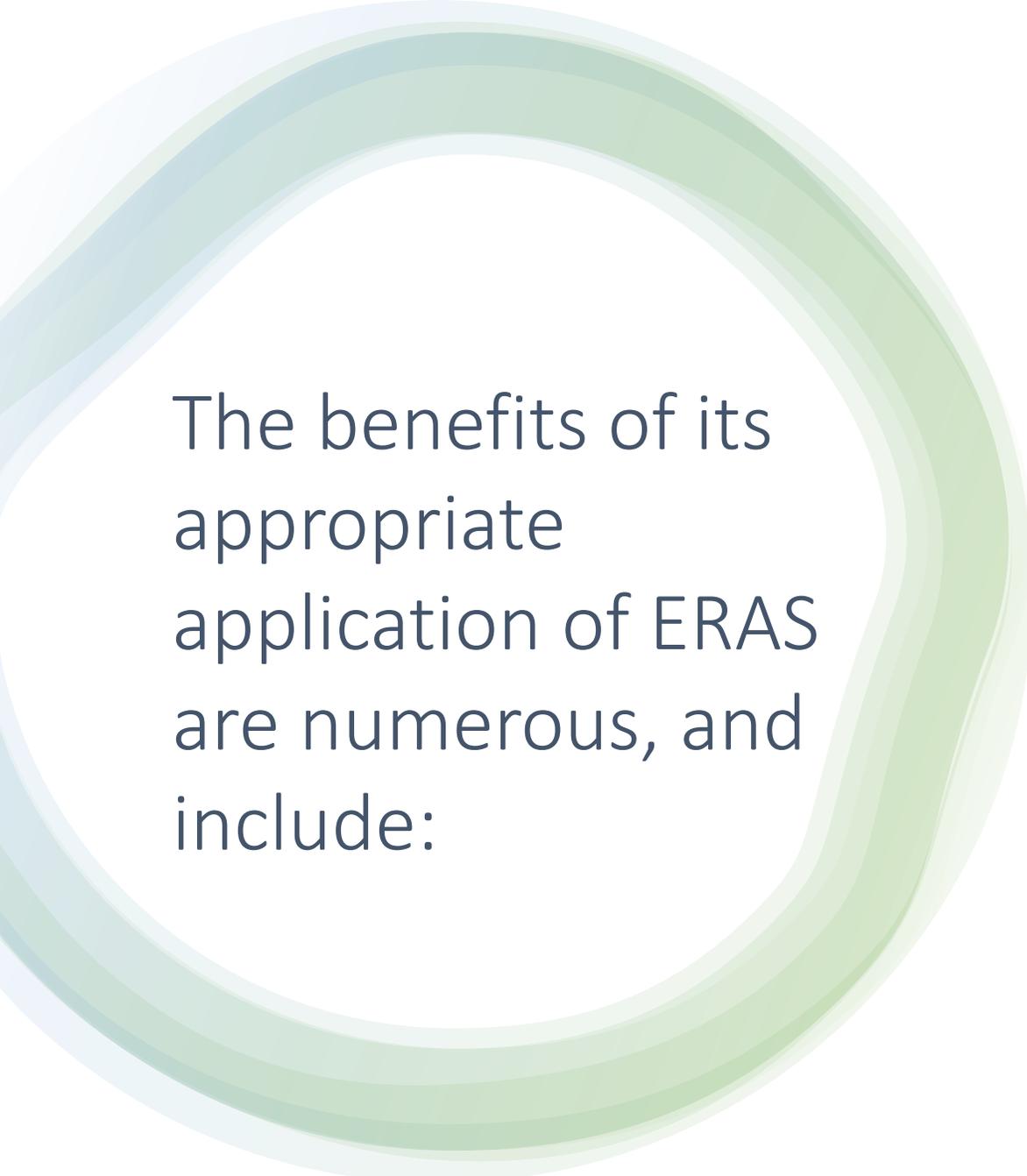


Routine postoperative care



Despite a variety of ERAS protocols in existence, their basic components are standard and include:

- patient education
- modifying standard oral feeding, drinking policies and carbohydrate loading
- eliminating bowel preparation requirements
- using minimally-invasive surgical techniques, where possible
- minimizing use of surgical drains
- minimizing IV fluid infusion intraoperatively
- modified analgesia both intraoperatively and in the postoperative period
- aggressive prophylaxis of perioperative nausea and vomiting
- early postoperative oral nutrition.

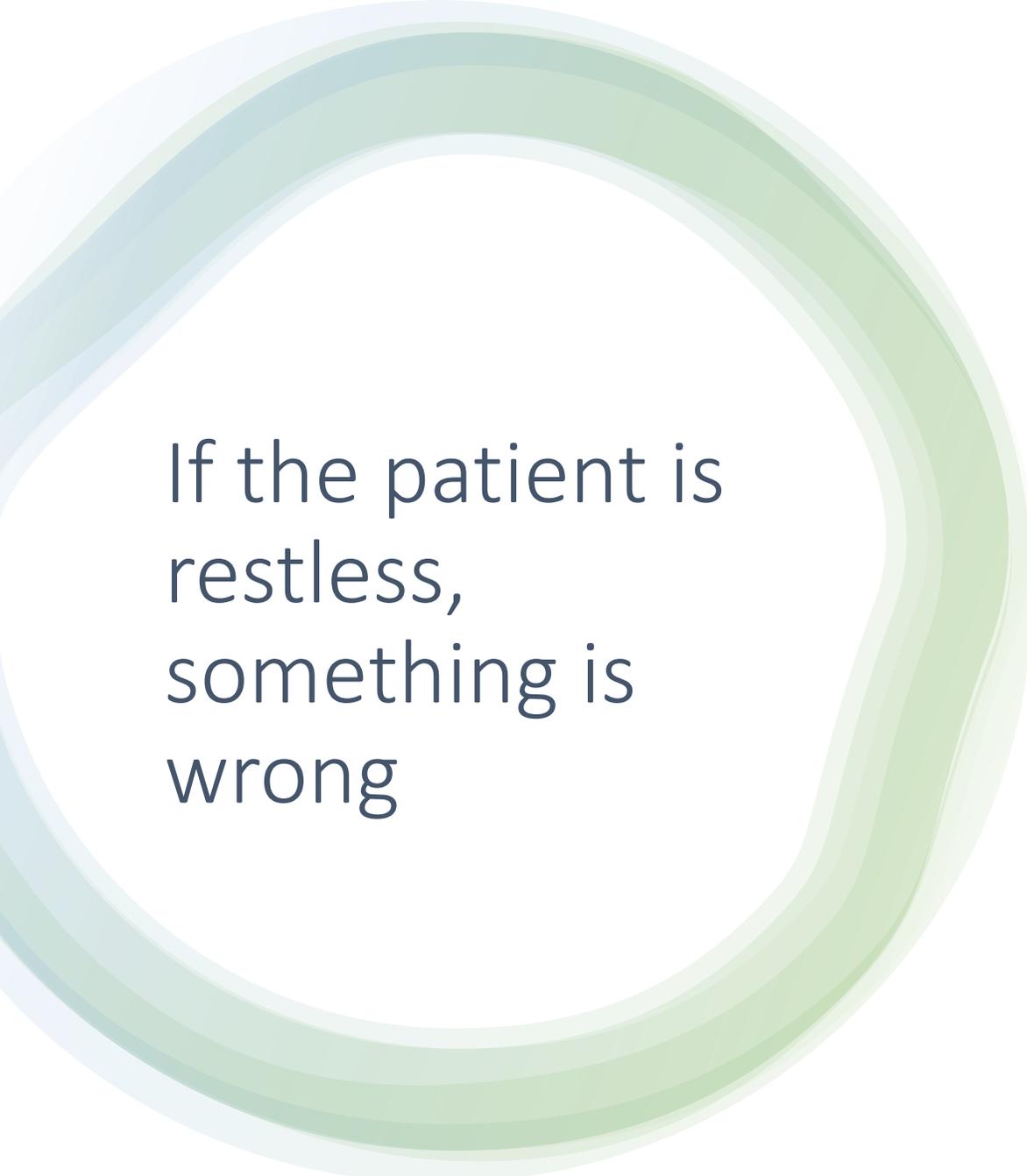


The benefits of its appropriate application of ERAS are numerous, and include:

- faster recovery

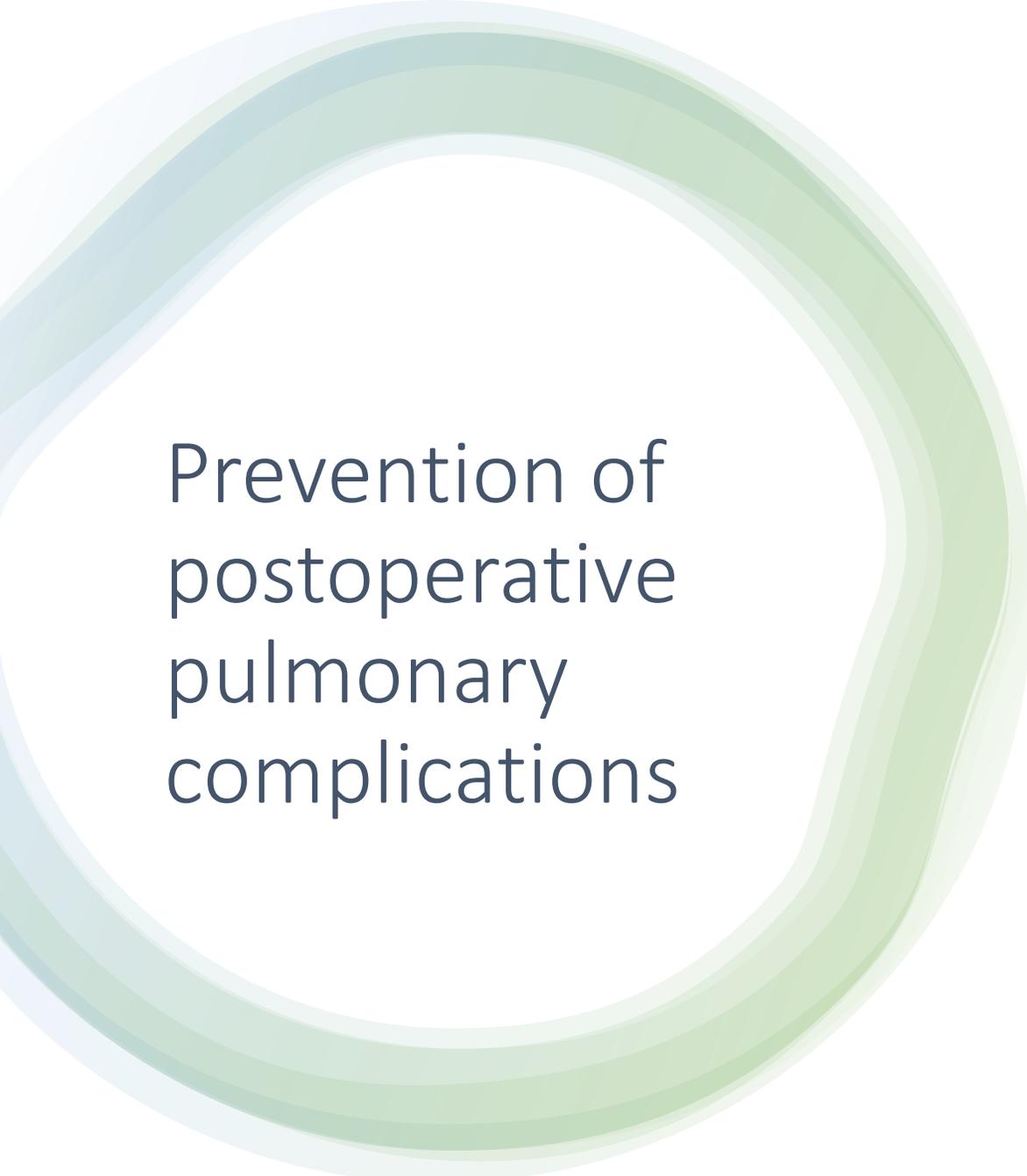
increased patient satisfaction

- decreased healthcare costs without additional risks to women.



If the patient is
restless,
something is
wrong

- Airway obstruction
- Hypoxia
- Hemorrhage: internal or external
- Hypotension and/or hypertension
- Postoperative pain
- Hypothermia, shivering
- Vomiting, aspiration



Prevention of postoperative pulmonary complications

- Patient show evidence of hypoxemia, should receive continuous positive airway pressure or noninvasive positive pressure ventilation (technique based on local expertise), rather than standard oxygen therapy, if the risk of aspiration is low. This should occur in an environment where staff are skilled in these techniques, continuous physiological monitoring is available, and arterial blood gases can be sampled

Bladder care

Bladder catheterization is common practice prior to major gynecological surgery to minimize the risk of:

- bladder damage
 - the inconvenience of a full bladder obscuring the surgical field
 - patient discomfort in the acute postoperative phase.
- The catheter should be removed as soon as practicable postoperatively and is usually dependent on the ability of the patient to mobilize to void comfortably.
- retention of a urethral catheter for > 72 hours is associated with an infection rate of 70–90%.

• Drains

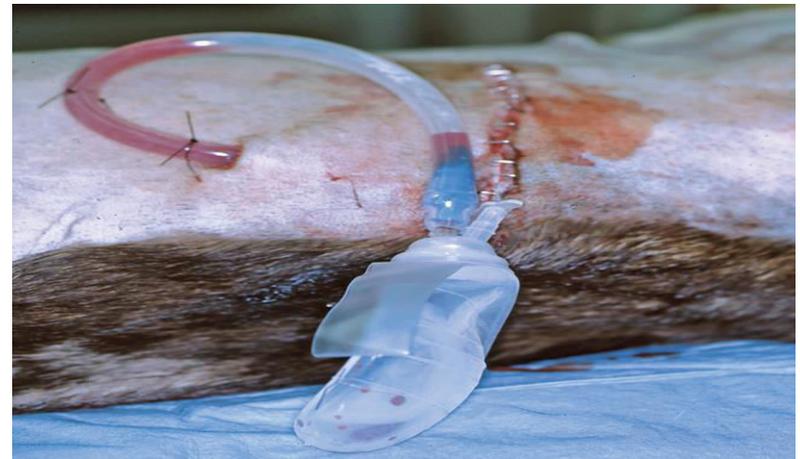
The use of drains is inconsistent in gynecological practice. The question of whether to use a drain and, if so, which one to choose, is complex.

Drains may be:

active - sealed systems where a vacuum removes fluid from a potential space created by the surgery



passive - better suited to the peritoneal cavity, where soft-tissue can block the fenestrations of an active drain.



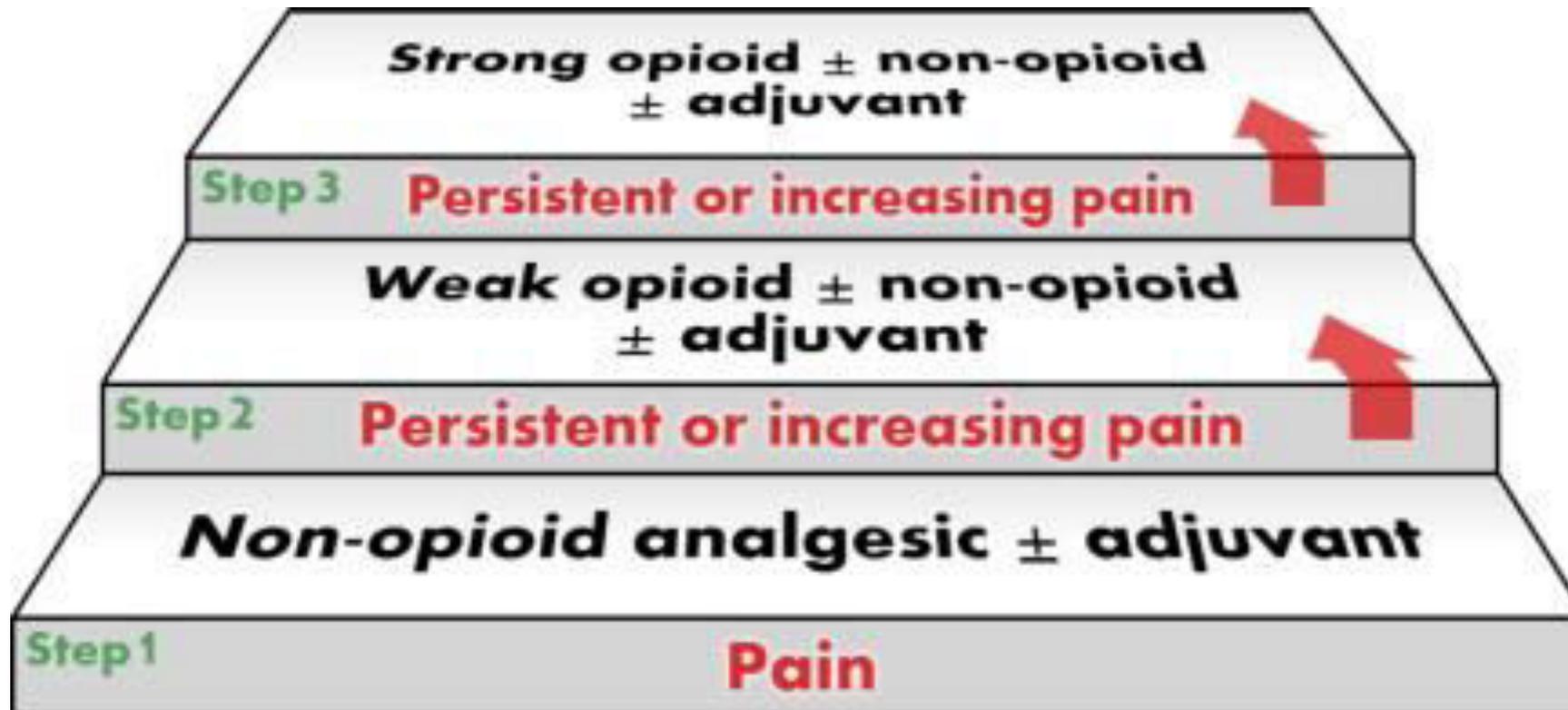
- Postoperative drains are a potential focus for and portal to hygiene issues, and regular inspection of drain sites is important.
- **Early removal of drains should be considered to avoid infection and to aid mobilization.**
- Drains placed **prophylactically** to avoid the accumulation of blood, pus or lymph can usually be removed when draining is <100 ml in 24 hours.
- Drains placed for **therapeutic** reasons such as to remove the pus, debris and infected material from an abscess, and these will be managed according to the resolution or otherwise of the condition.

Early Mobilization

Patients should be assisted to mobilize **as soon as possible after surgery**

Analgesia

Multimodal Therapies Recommended The guidelines strongly recommend the use of multimodal analgesia, using a variety of medication and techniques to have a more synergistic, effective approach to pain relieve



Venous Thromboembolism (VTE)

- Patients should be assessed with a validated tool for VTE risk on admission and throughout their hospital stay. If pharmacological prophylaxis is not possible, mechanical prophylaxis should be administered. For **very high-risk patients** (many emergency laparotomy patients will fall into this category), **pharmacological combined with mechanical prophylaxis should be given**. Reassessment should occur daily postoperatively

Method of prophylaxis:

Mechanical Method:

- Graduated elusticated compression stocking (GECS)
- Intermittent pneumatic compression (IPC)

IPC



GECS





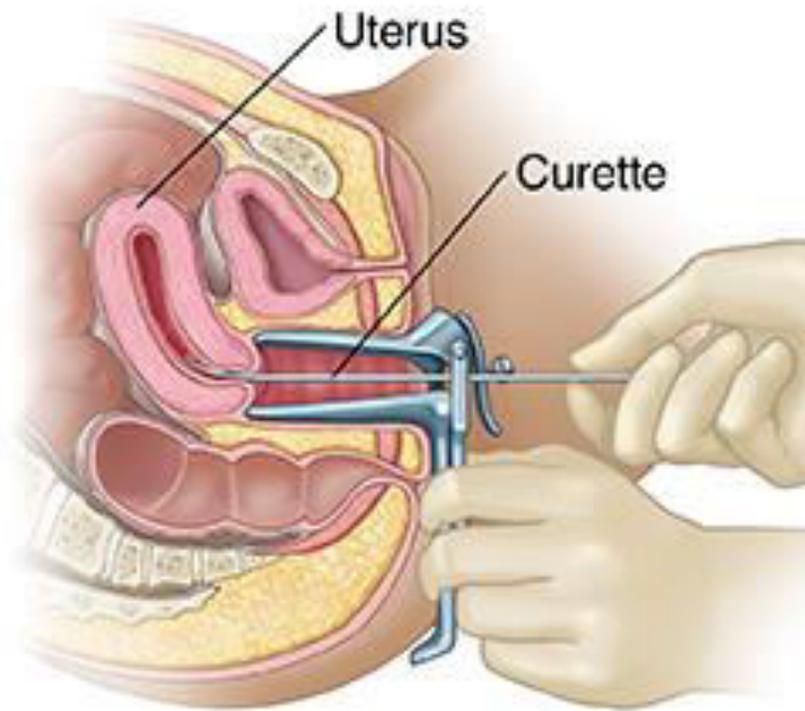
Pharmacological Method:

- Heparin:
 - Unfractionated heparin (500 IU / 8-12 hours)
 - Low molecular weight heparin
- antiplatelet drugs (aspirin / clopidogrel)
- Hydration
- Mobilization and leg exercises



Postoperative ileus minimization

- to minimizing postoperative ileus, including minimally invasive surgery, optimized fluid management, opioid-sparing analgesia, early mobilization, early postoperative food intake, laxative administration, and omission/early removal of nasogastric intubation, should be used.



D and C
dilation and curettage .

- 
- Dilation and curettage (D&C) is a procedure in which material from the inside of the uterus is removed.
 - The "dilation" refers to dilation (opening) of the cervix.
 - "Curettage" refers to the scraping or removal of tissue lining the uterine cavity (endometrium) with a surgical instrument called a curette.

Indication

diagnostic D&C and therapeutic D&C

Diagnostic D&C

1. irregular menstrual bleeding
2. heavy menstrual bleeding
3. postmenopausal bleeding (unless an endometrial biopsy has already revealed a diagnosis of malignancy) .
 - sometimes done in combination with [hysteroscopy](#) to avoid missing any structural findings ,is recommended but not required.
 - There are 2 layers to the non-pregnant endometrial lining the stratum basalis and stratum functionalis. Removal of the stratum functionalis is the goal of the D&C.

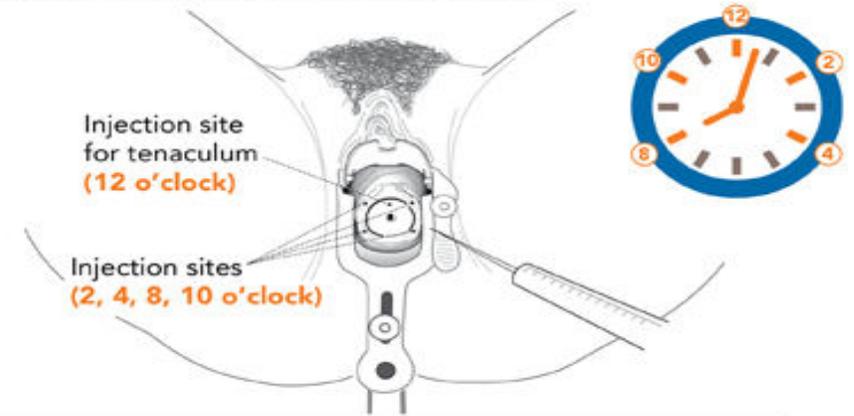
- **Therapeutic D&C**

- In patients with heavy or irregular bleeding due to endometrial hyperplasia; endometrial polyps; or small, pedunculated submucous myomas.
- pregnant patients include
- first-trimester elective termination of pregnancy
- early pregnancy failure
- evacuation of a molar pregnancy
- suspected retention of products of conception.

The pregnant patient will have the pregnancy or products of conception removed from the endometrial cavity trying to avoid removing tissue beyond the decidua basalis layer. to prevent the potential for adhesion formation.

❖ D&C Procedure

PARACERVICAL BLOCK TECHNIQUE



- 1 Prepare lidocaine syringe using 20mL of 1% lidocaine and a 3cm (1in) needle.
- 2 Place the speculum and perform cervical antiseptic prep.
- 3 Inject 2mL of lidocaine superficially into the anterior lip of the cervix where the tenaculum will be placed (12 o'clock).
- 4 Grasp cervix with the tenaculum at 12 o'clock.
- 5 Inject remaining lidocaine in equal amounts at the cervicovaginal junction, at 2, 4, 8 and 10
- 6 Begin procedure without delay.

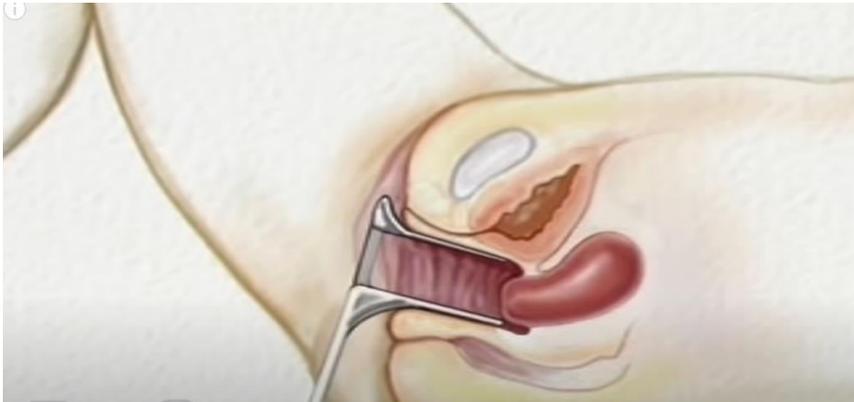
1) Patient in the dorsal lithotomy position ,bimanual exam is done to assess the uterine size and position.

2) Paracervical blocks and local anesthesia

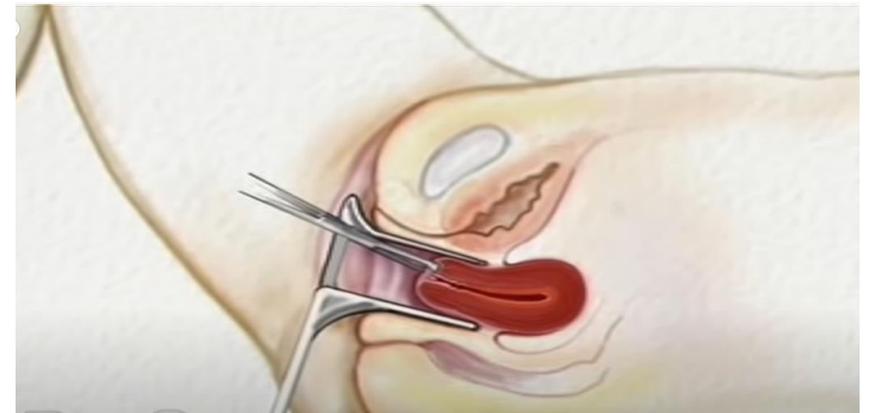
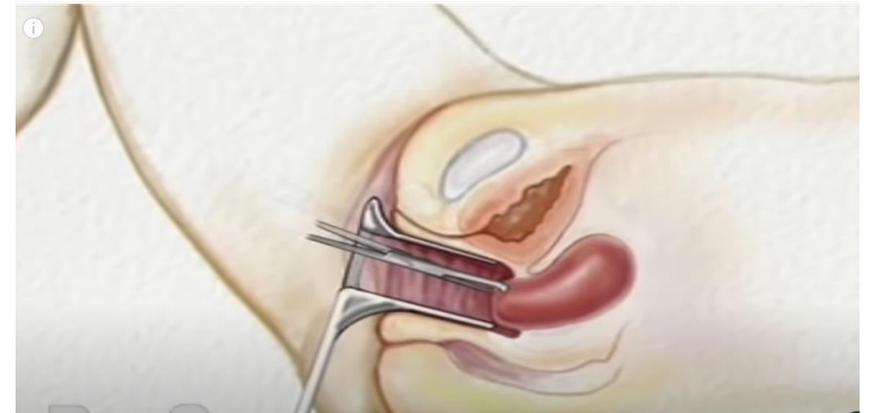
*** Prophylactic antibiotics are not necessary as infection is rare following D&C

A **paracervical block** is an anesthetic procedure used in obstetrics and gynecology, in which a local anesthetic is injected into between two and six sites at a depth of 3–7 mm alongside the vaginal portion of the cervix in the vaginal fornices.

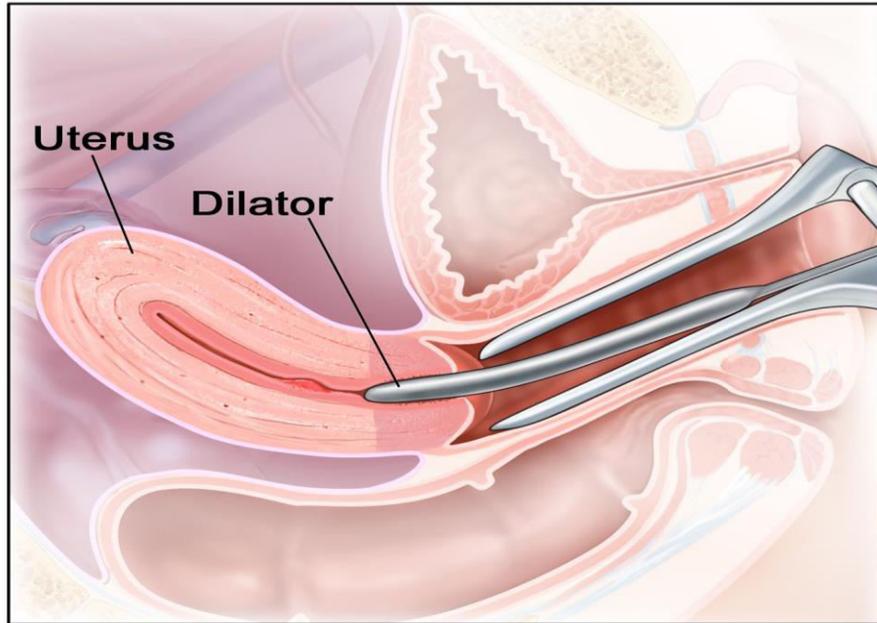
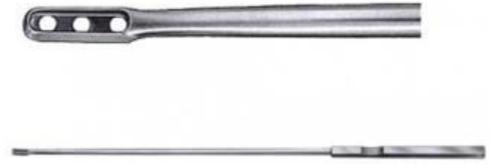
- 3) A pelvic examination is done under anesthesia, and after sterile preparation, a weighted speculum is placed in the posterior vagina.



4) The cervix is grasped with a single-toothed or double-toothed tenaculum



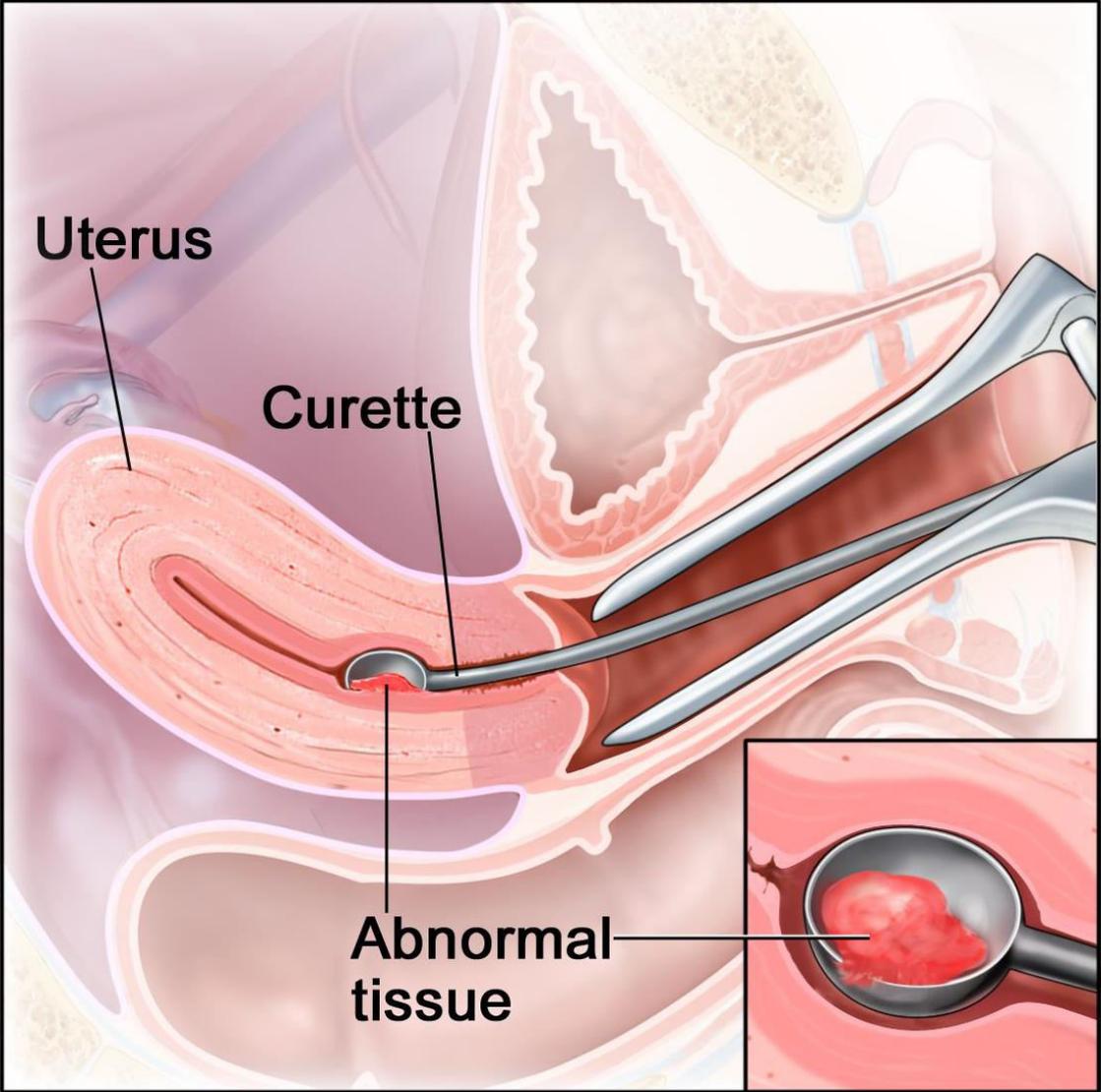
- 5) A Kevorkian curette is used for curettage of the endocervical canal
- 6) The cervix is then dilated with a set of graduated dilators



- 7) A small polyp or ovum forceps is introduced through the dilated cervix and gently rotated to remove any endometrial polyps.



8) A thorough curettage is done with a sharp curette



- **CARE AFTER D&C (what I should tell the patient)**

- Recovery at home — You should be able to resume most regular activities within a day or two. Mild cramping and spotting may occur for a few hours or days
- cramping can be treated with nonsteroidal anti-inflammatory medications (NSAIDs) such as ibuprofen (Advil, Motrin) or naproxen (Aleve).
- You should not put anything inside the vagina (tampons, douches) during this time and should ask when you can safely have sexual intercourse.
- If you have not yet gone through menopause, your next menstrual period usually occurs within two to six weeks of the procedure.
- When to call for help — You should call your provider if you develop fever (temperature greater than 101°F), cramps lasting longer than 48 hours, increasing rather than decreasing pain, prolonged or heavy bleeding, or foul-smelling vaginal discharge.

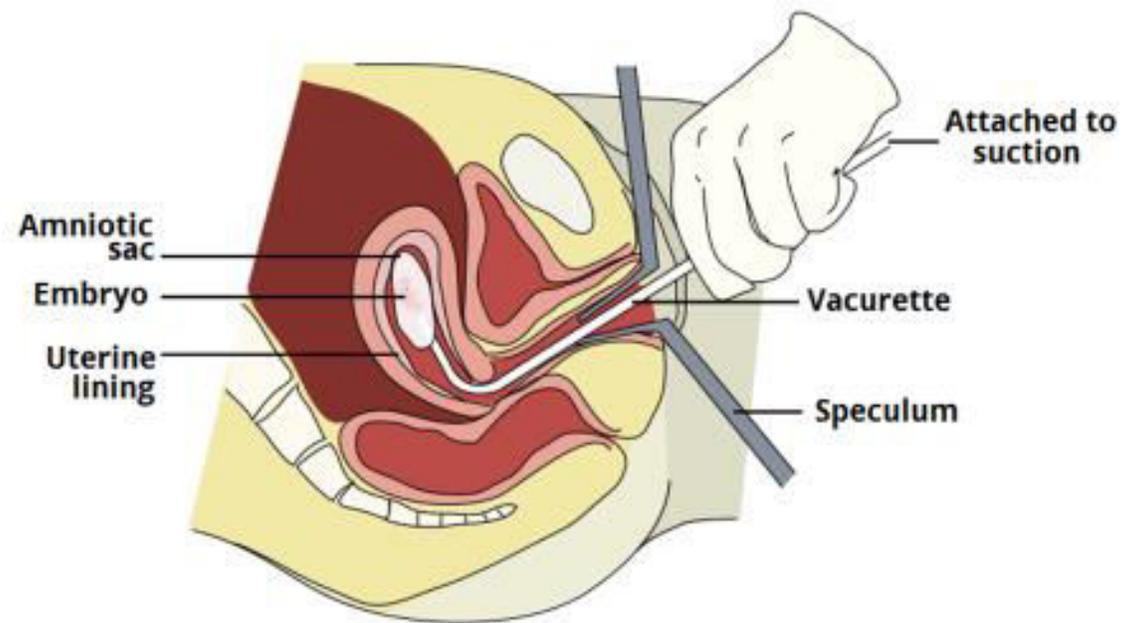
**D&C
COMPLICATIONS**
D&C is a commonly
performed
procedure that is
usually very safe.

BOX 31-2

COMPLICATIONS OF DILATION AND CURETTAGE

- **Most common:** Hemorrhage, infection, and cervical laceration
- **Most concerning:** Uterine perforation
 - Happens even in experienced hands
 - Risk increases with retroverted uterus, pregnancy, and postmenopausal patients with endometrial cancer
- Dilation and curettage not recommended with infection (except in an emergency)

Evacuation of
retained product of
conception



The evacuation/removal of placental and/or fetal tissue that remains in the uterus after a spontaneous pregnancy loss (miscarriage), planned pregnancy termination, or preterm/term delivery

Uterine evacuation may be accomplished with sharp or suction curettage

- Hysteroscopic removal has the advantage of providing simultaneous diagnosis and treatment; it is most appropriate for use in patients without hemorrhage or clinical signs of infection and may also be used for patients with prolonged irregular bleeding or persistent signs of RPOC on imaging.

Suction evacuation procedure

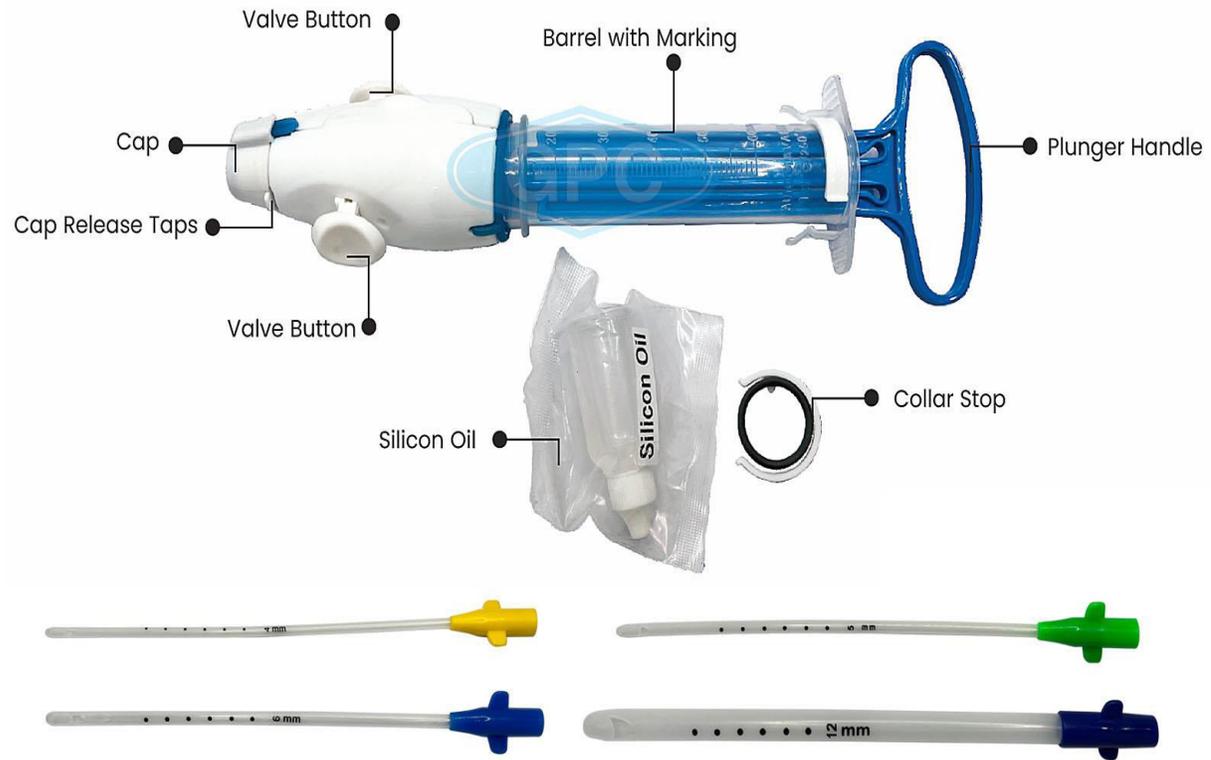
- "Suction and evacuation" is a medical procedure often used in the field of gynecology and obstetrics. It primarily refers to the evacuation of the contents of the uterus, which can include products of conception (such as a pregnancy), blood, or other tissue.
- The procedure typically involves the use of specialized instruments. Two common methods are Manual Vacuum Aspiration (MVA) and Electric Vacuum Aspiration (EVA):
- MVA: This method involves the use of a manual syringe or handheld aspirator to create suction. It's often used for the management of miscarriages.
- EVA: Electric Vacuum Aspiration is a more powerful and efficient method, often used for later gestational ages. It employs an electric pump to create suction.



MVA

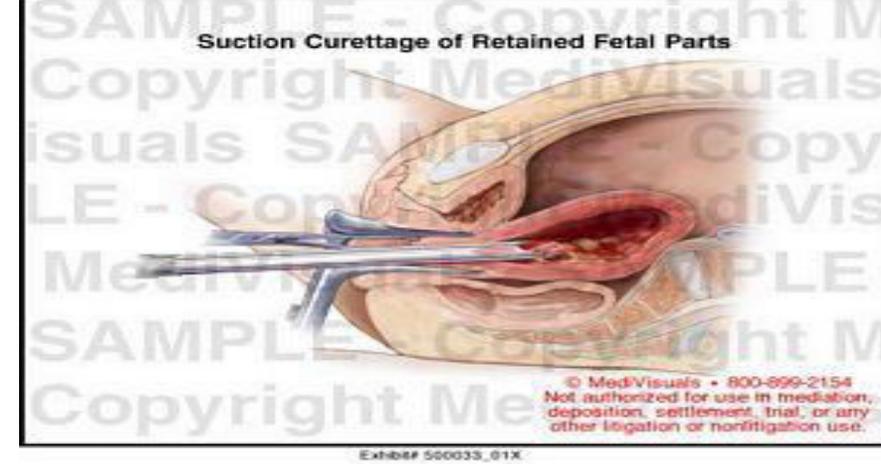
EVA

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Suction evacuation procedure

- performed under a general anesthesia.
- Immediately prior to the procedure, antibiotics are usually administered to prevent infection.
- (We use a single dose of a broad-spectrum antibiotic at the time of the procedure but give a full course of endometritis treatment for patients who are clinically infected).
- A speculum is placed in the vagina to allow visualization of the cervix.
- Cervical dilation, Sufficient cervical dilation decreases the risk of morbidity, including cervical injury and uterine perforation.
- The retained products are removed through the cervix using vacuum aspiration.
- Sharp curettage should be avoided, if possible, as the myometrium may be very thin at the point of adherence, thus increasing the risk of perforation. Curettage of the postpartum uterus also increases the risk of formation of intrauterine adhesions (Asherman syndrome).
- The end point of suction is denoted by: no more material is being sucked out appearance of bubbles



Complications

- Complications of anesthesia
- General complications of any operation: pain , infection , bleeding
- Uterine perforation
- Incomplete evacuation
- Cervical injury
- Development of adhesions (synechiae) within the uterus, this can lead to infertility. (Asherman syndrome)

Laparoscopy in Gynecology



Laparoscopy

The laparoscope is an instrument used for viewing the peritoneal cavity. Both pelvic and upper abdominal structures can be inspected.

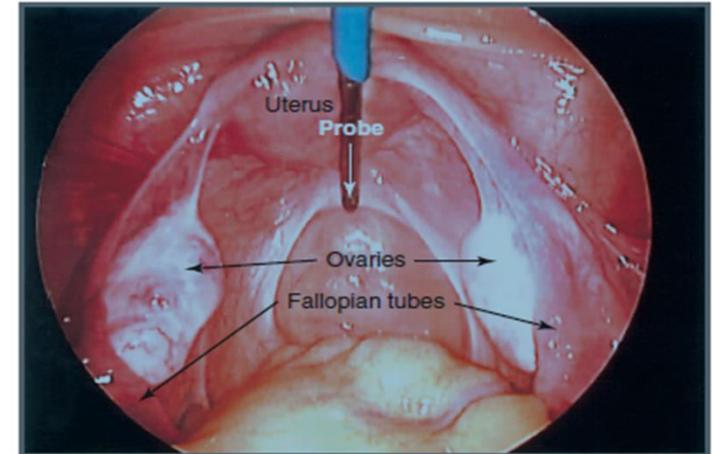


FIGURE 31-4 A typical image of normal reproductive organs seen through the laparoscope or on a video screen during diagnostic or operative laparoscopy. (Courtesy B. Beller, MD, Eugene, OR.)

INDICATIONS

1. **Tubal sterilization:**

The most common indication for the use of the laparoscope in gynecology is sterilization .

2. **Ectopic pregnancy:**

The laparoscope is commonly used for the removal of tubal pregnancies that do not meet the criteria for medical therapy.

3. **Pelvic infection:**

(not routinely) can provide confirmation of a diagnosis when there is a diagnostic dilemma.

draining tubal abscess and adhesiolysis

4. **Infertility:**

Routine laparoscopic evaluation of an infertile woman is widely recommended, but it is controversial because of a lack of controlled evidence of improved outcome.

Adhesiolysis Treat the cause (endometriosis, PCOS)

5. Endometriosis:

for diagnosis, staging, and treatment of ectopic endometrial tissue By removal of the endometrial cyst, cauterization of endometrial spots and adhesiolysis

6. Ovarian neoplasms:

Laparoscopic ovarian cystectomy

Or Correcting ovarian torsion.

7. Myomectomy

used for subserosal and intramural fibroids only

8. Hysterectomy:

The laparoscope is used by some surgeons to replace an abdominal procedure (laparoscopic hysterectomy).

TECHNIQUE

1-The procedure is performed with the patient in a **modified dorsal lithotomy position** usually with general anesthesia.

2- An intrauterine manipulator is inserted to help in the visualization of the pelvic organs. then pneumoperitoneum is created by the insertion of a spring-loaded needle, such as a Veress needle, into the peritoneal cavity via the subumbilical fold, together with insufflation with either CO₂ or nitrous oxide. The trocar and surrounding sheath are then inserted through a small subumbilical incision.

3- The lighted telescope is inserted into the sheath and advanced slowly. With the patient in the Trendelenburg position visualization of pelvic organs confirms that the peritoneal cavity has been entered. Gas may be added intermittently and automatically to maintain a sufficient pneumoperitoneum.

4- To perform a second puncture, which is sometimes necessary, especially in laparoscopic surgical procedures, the abdominal wall is transilluminated to identify the position of the inferior epigastric vessels, and a 4- to 6-mm trocar and sheath are inserted under laparoscopic guidance through a small incision at the pubic hairline. A probe or other surgical instrument (e.g., surgical scissors) is passed through the second sheath.

5-Upon completion of the procedure, hemostasis is checked, the gas is released from the peritoneal cavity, and the instruments are withdrawn. The small skin incisions are closed with a clip or single subcuticular suture.

Contraindications

Absolute contraindications

1-bowel obstruction and

2-large hemoperitoneum with hypovolemic shock

Others :

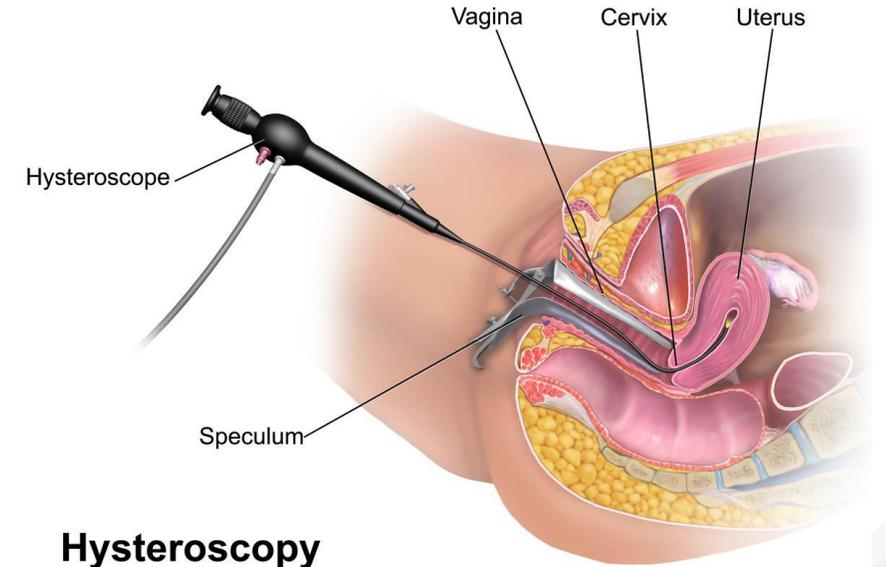
1. Generalized peritonitis
2. Severe cardiac disease
3. Hemoglobin less than 7 g/dL
4. Uterine size > 12 wks
5. Multiple previous abdominal procedures
6. Extreme body weight

COMPLICATIONS OF LAPAROSCOPY

- Anesthetic complications caused by pneumoperitoneum
- Unintended insufflation of the abdominal wall instead of the peritoneal cavity
- Perforation of a viscus, such as bowel or bladder
- Bowel burns during fulguration of adjacent tissues
 - Less common with bipolar current

Hysteroscopy

Hysteroscope is an endoluminal endoscope that can be used as an aid to visualize uterine cavity or to direct the performance of variety of intrauterine procedures.

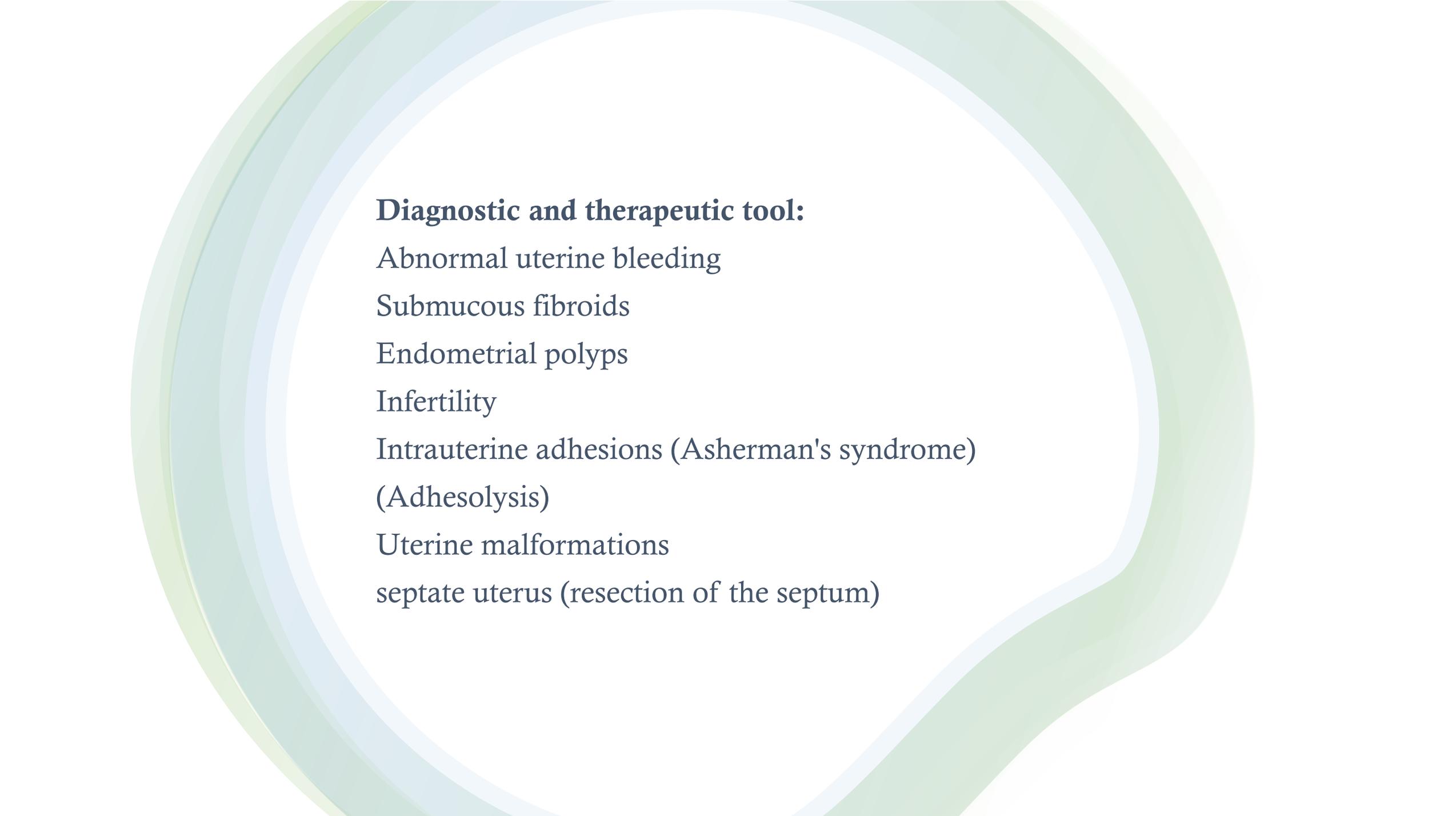


Rigid hysteroscope

in-patient and complex operating room procedures.
more durable and provide superior image.

Flexible hysteroscope

most commonly used for office hysteroscopy



Diagnostic and therapeutic tool:

Abnormal uterine bleeding

Submucous fibroids

Endometrial polyps

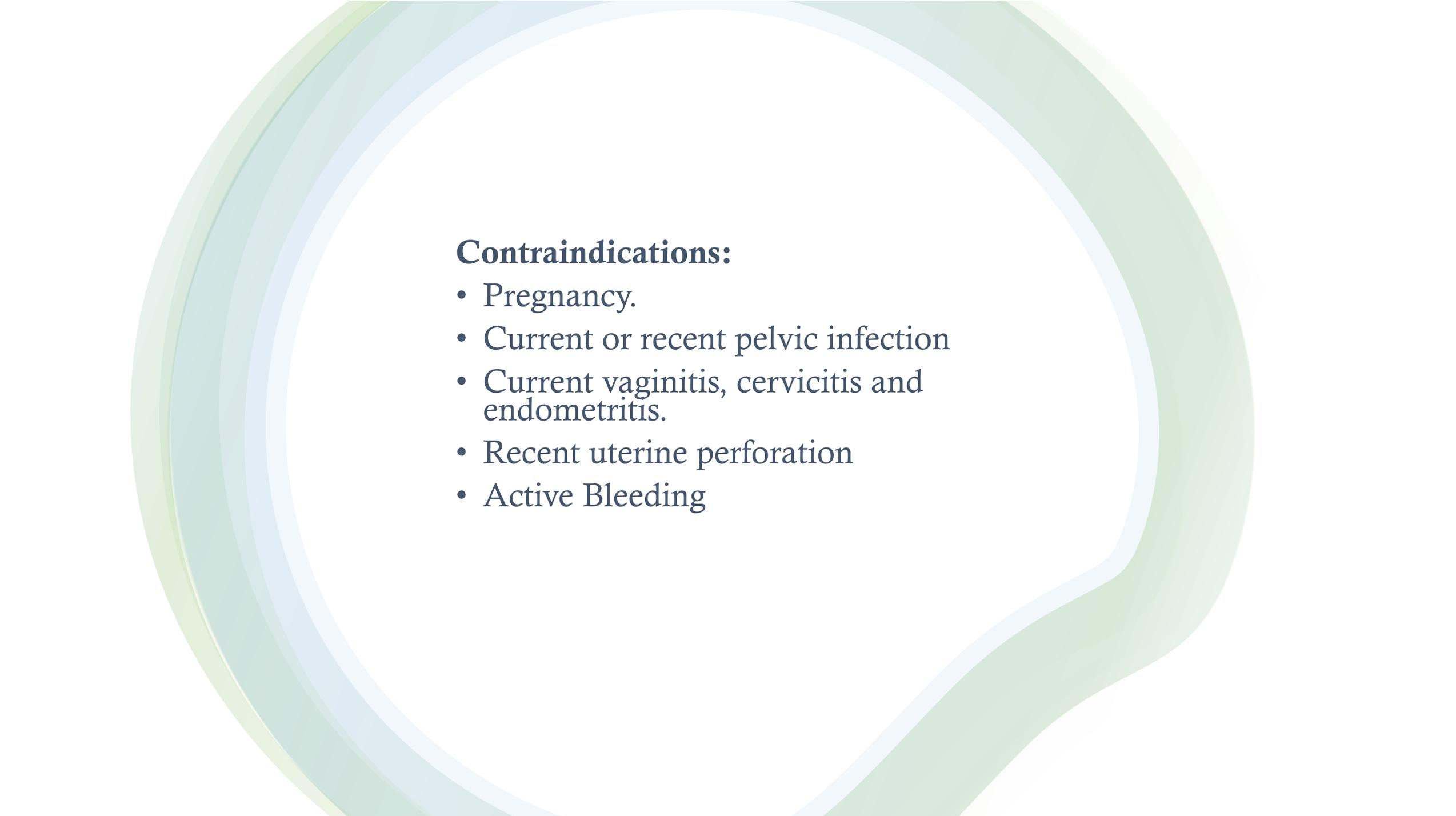
Infertility

Intrauterine adhesions (Asherman's syndrome)

(Adhesolysis)

Uterine malformations

septate uterus (resection of the septum)



Contraindications:

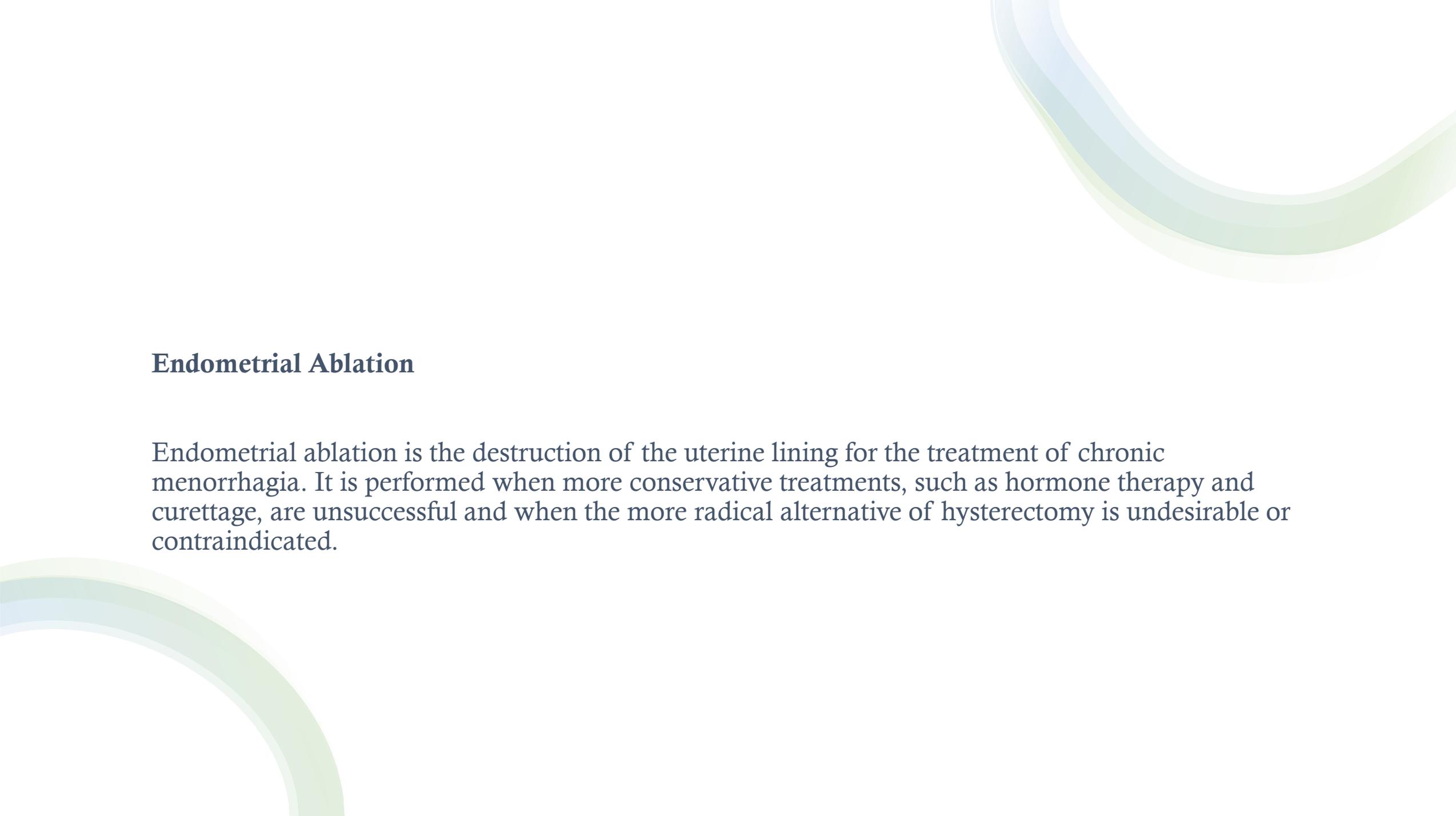
- Pregnancy.
- Current or recent pelvic infection
- Current vaginitis, cervicitis and endometritis.
- Recent uterine perforation
- Active Bleeding

PROCEDURE

- 1-Patient in modified lithotomy position
- 2-Usually procedure is planned immediately for post menstrual phase,ie endometrium is least vascular and thinnest
- 3-After local cleansing speculum is inserted and anterior lip of the cervix is held with a volsellum forceps
- 4-Then the hysteroscope is inserted Next cervical canal and endometrial cavity is visualised
- 5-Uterine distension allows good visualisation
then Scope is advanced to fundus and rotated to inspect ostias. Each wall is systematically inspected for polyps and fibroids

COMPLICATIONS OF HYSTEROSCOPY

- Overall complication rate is about 2%
- Major complications occur <1% of cases
 - Uterine perforation, excessive bleeding, and distention media hazards
- Far less common; infection, cervical laceration, and cervical stenosis



Endometrial Ablation

Endometrial ablation is the destruction of the uterine lining for the treatment of chronic menorrhagia. It is performed when more conservative treatments, such as hormone therapy and curettage, are unsuccessful and when the more radical alternative of hysterectomy is undesirable or contraindicated.