

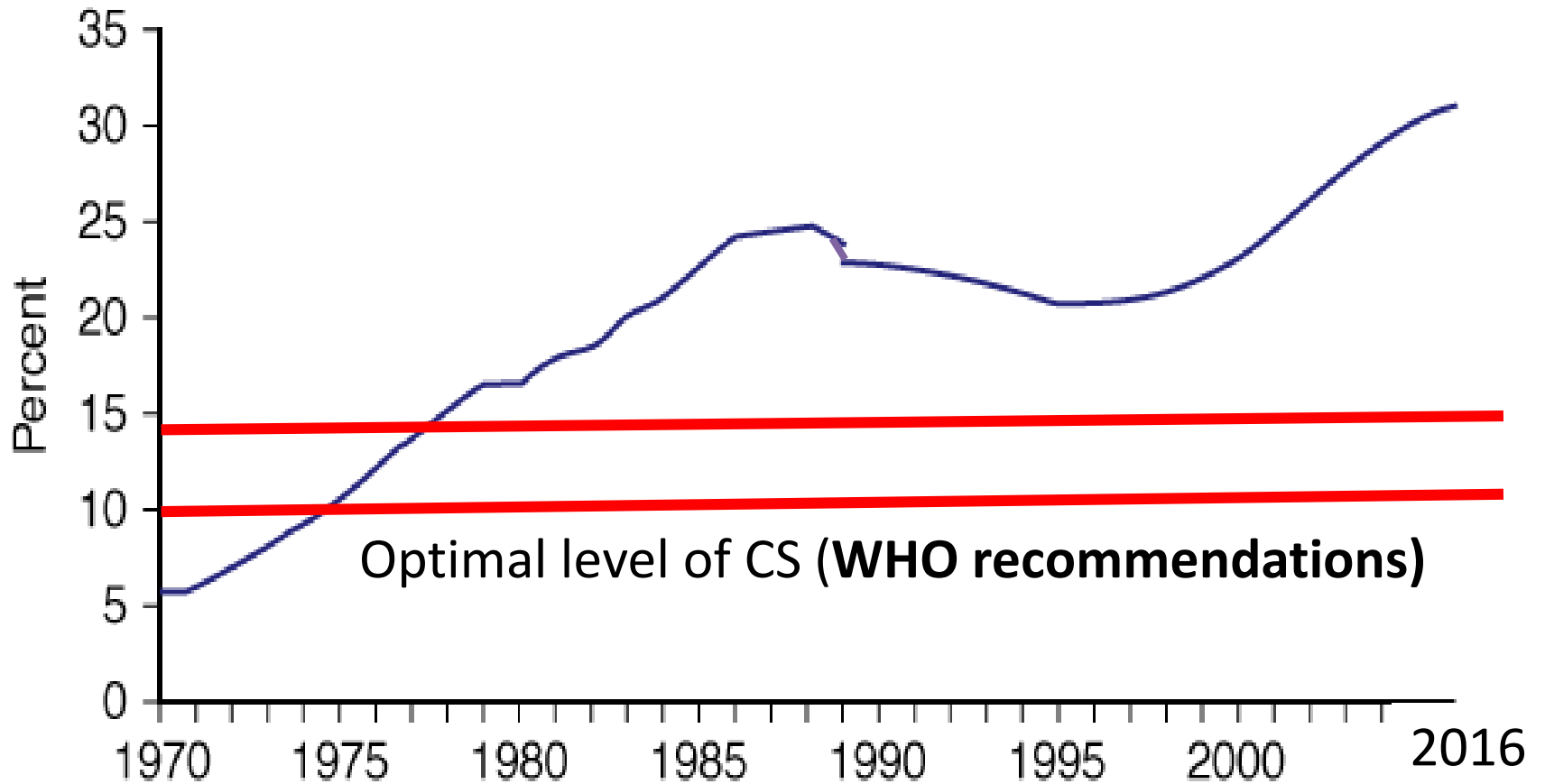


# Cesarean section

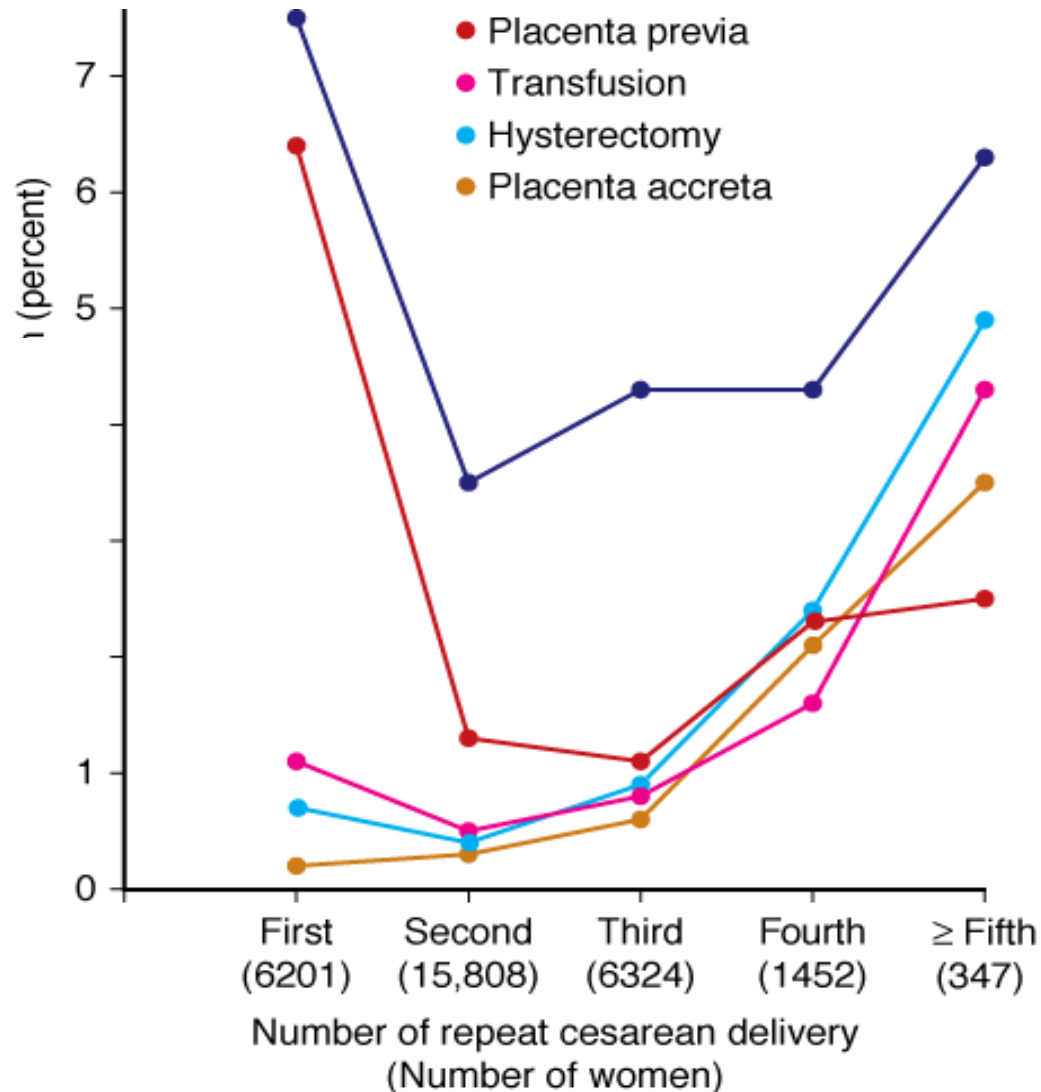
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- **Cesarean section (CS)** - a surgical operation when the fetus and placenta are removed through an incision on the abdominal and uterine walls

# Rate of CS in Belarus



# Complications of repeated CS



# The reasons for increasing the frequency of CS

- Wider use of repeat CS in cases with previous cesarean delivery (increasing the number of patients with a uterine scar - after CS, myomectomy, plastic surgery on the uterus)
- Primigravidas after 30 years with medical and obstetric complications
- Rising rates of induction of labor and failure of induction
- Decline in operative vaginal (mid forceps, vacuum)
- Decline in vaginal breech delivery
- Wider use of electronic fetal monitoring and increased diagnosis of fetal distress

***Elective*** - when the operation is done at a prearranged time during pregnancy to ensure the best quality of obstetrics, anesthesia, neonatal resuscitation and nursing services. The operation is done after 39 weeks of pregnancy.

***Emergency*** - when the operation is performed due to acute obstetric emergencies. Time limit of 30 minutes is thought to be reasonable from the time of decision to the start of the procedure.

# Indications

- **Absolute** –vaginal delivery is not possible
- **Relative** - vaginal delivery may be possible, but risks to the mother and baby are high

# Indications for elective CS

- I. Complete placenta previa
- II. Changes in the uterus wall: failure of the uterine scar, two and more repeated CS, prior full-thickness myomectomy
- III. Difficulties for born fetus: cephalopelvic disproportion; congenital dislocation of the hip joint, after surgery on the hip joint, ankylosis of the hip joint; large size of the fetus (4500 g) at first birth; a history of plastic surgery on the cervix, vagina, urinary and intestinal-genital fistula, perineal rupture of III degree
- IV. Fetal malpresentation: breech, brow presentation, stable transverse position of the fetus, with multiple pregnancy - monochorionic monoamniotic twins
- V. Extragenital disease: a high degree of myopia, acute genital herpes, HIV with an elevated viral load
- VI. Status of the fetus: fetal distress or IUGR II -III degree; bad obstetric history
- VII. In Vitro Fertilization



## **The indications for emergency caesarean section during pregnancy**

- Any variant of placenta previa with bleeding
- Abruptio of placenta
- Symptoms of uterine scar rupture
- Fetal distress
- Severe preeclampsia or eclampsia
- The sudden death of a woman in the presence of a live fetus

## Indications for CS in labor

- Indications during pregnancy
- failure to progress in the first stage of labor
- cephalopelvic disproportion
- prolapsed cord
- after failed induction of labor

## **Contraindications for Caesarean section:**

- Infectious-inflammatory diseases
- Intrauterine fetal death
- Congenital malformations of the fetus, incompatible with life
- Lack of surgical conditions (operating room, surgeon, medical, patient's agreement to the operation)

# The purpose of preoperative preparation - prevention of complications during surgery and in the postoperative period

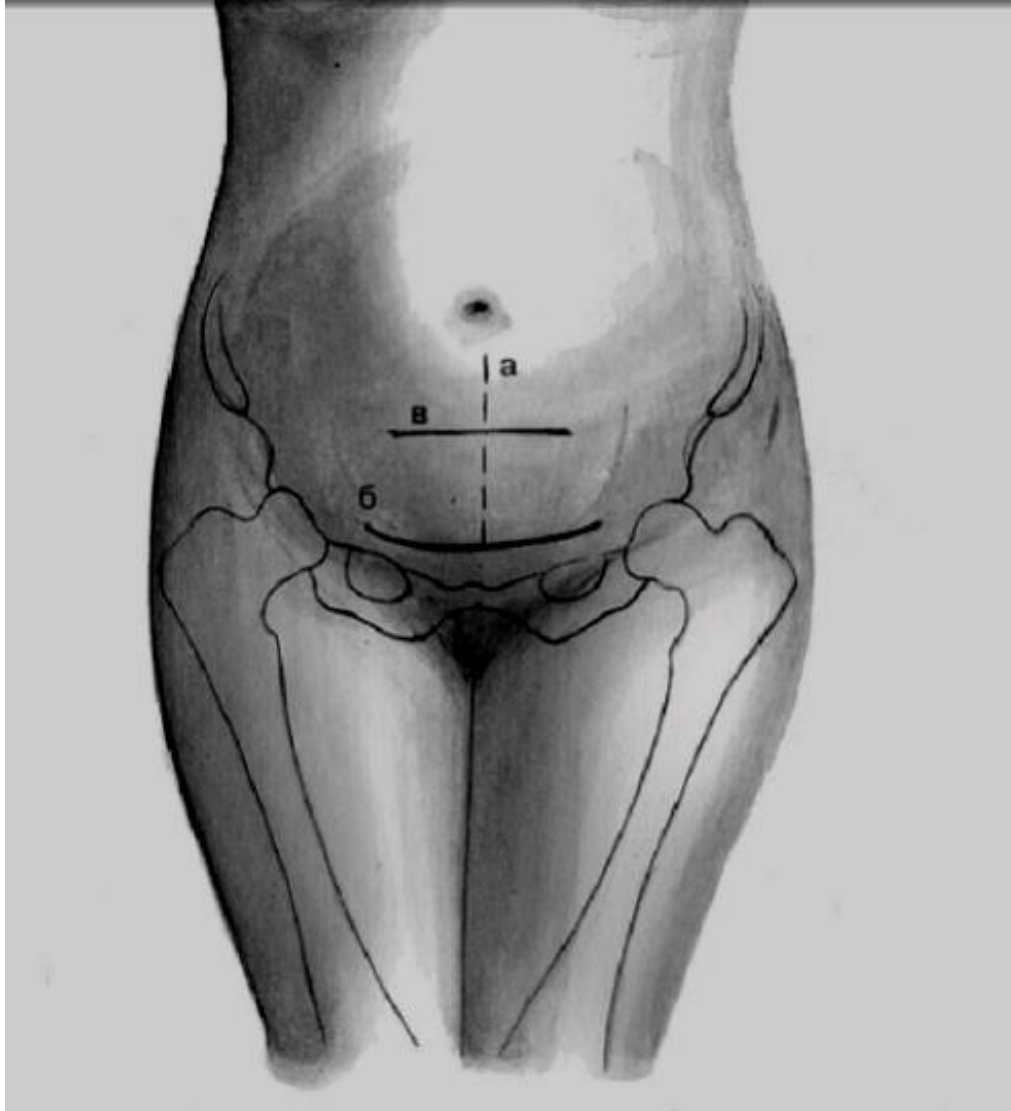
<i>Elective</i>	<i>Emergency</i>
Hospitalization the day before surgery, informed written permission for CS, anesthesia and blood transfusion	
Clinical and laboratory studies (FBC, UA, BBA, coagulation, blood group and Rh-factor, HIV, syphilis, vaginal swab and culture, ECG, CTG, Doppler ultrasound of the uterus, therapist and anesthetist)	Blood type and Rh factor
Diet , Sedatives, premedication	Gastric emptying
Neutralize gastric contents with 20 mL of 0.3 sodium citrate. Gastric emptying can be promoted with metoclopramide 10 mg IV (ranitidine 150 mg, an H <sub>2</sub> agonist, can be given for elective cesarean deliveries 2 hours before surgery)	
Complete sanitation	Minimum sanitation
Bladder catheterization	
Compression boots on the lower extremities to reduce the incidence of deep vein thrombosis	
Transfer to the operating room. Set up an IV infusion with a 14 cannula	
Tilt the mother to left lateral position by 15° on operating table (reduces aortocaval compression)	

# Obstetric anesthesia

- May be spinal, epidural or combined spinal epidural (CSE) and general
- Epidural block has become the preferred method of anaesthesia for CS
- **Advantages**
- Avoids the dangers of general anaesthesia (failed intubation, inhalation of gastric contents)
- Improved retraction of the uterus
- Permits the mother (and her partner) to see and hear the baby at birth
- Rapid post-operative recovery

# Stages of the CS

## 1. Abdominal wall incision



a – vertical

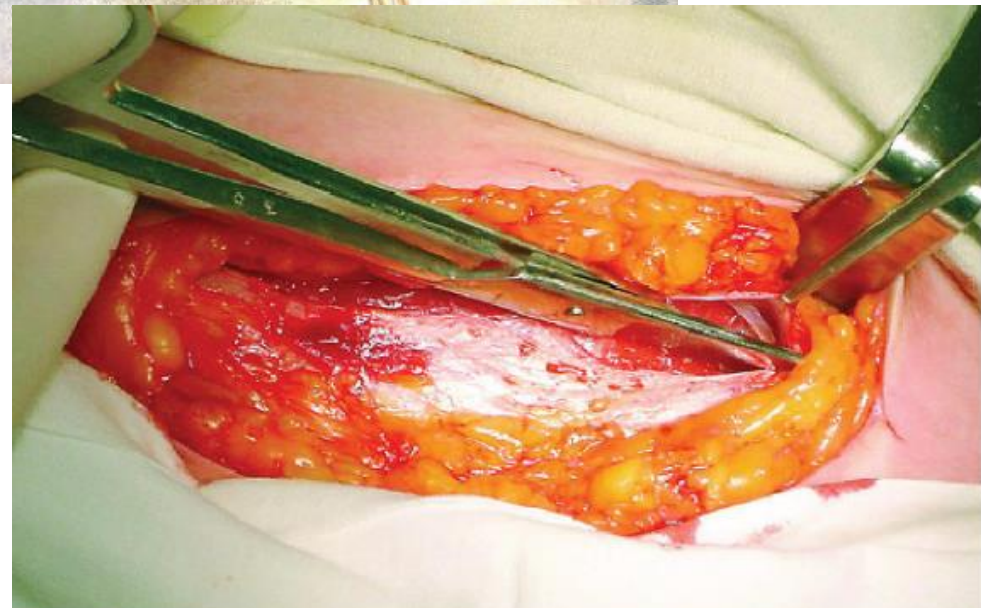
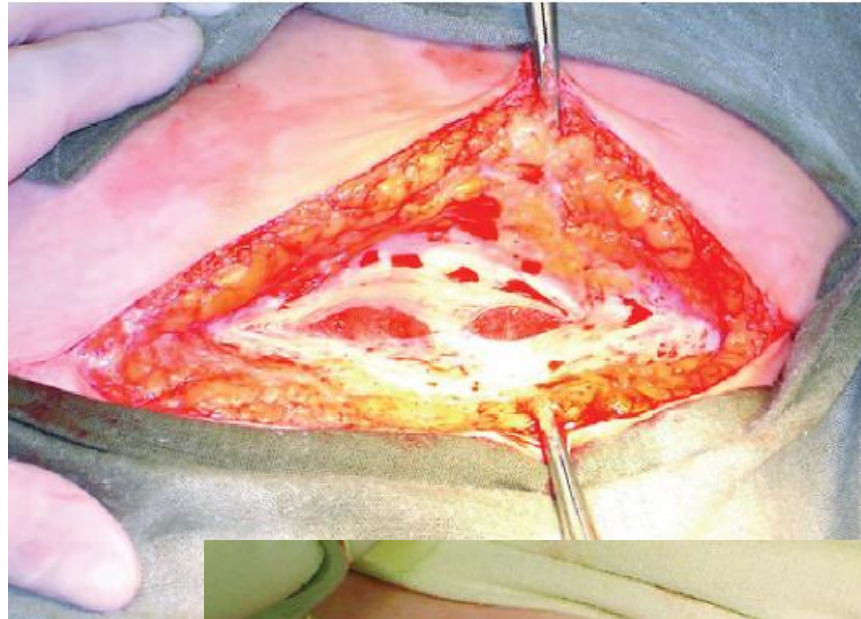
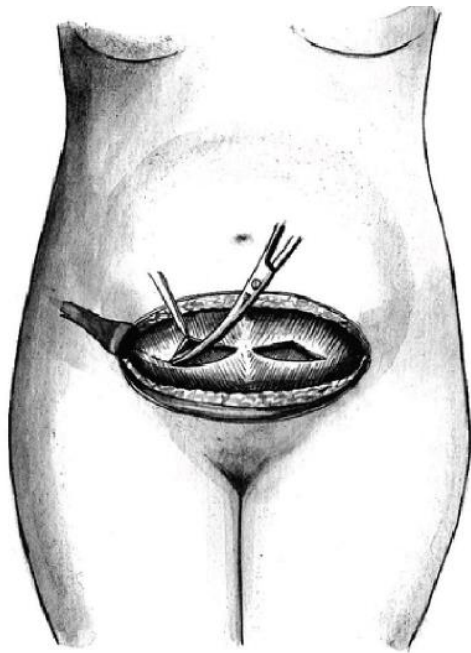
b – transverse (Pfannenstiel)

c – laparotomy modified by  
Joel-Cohen

# Transverse abdominal incision

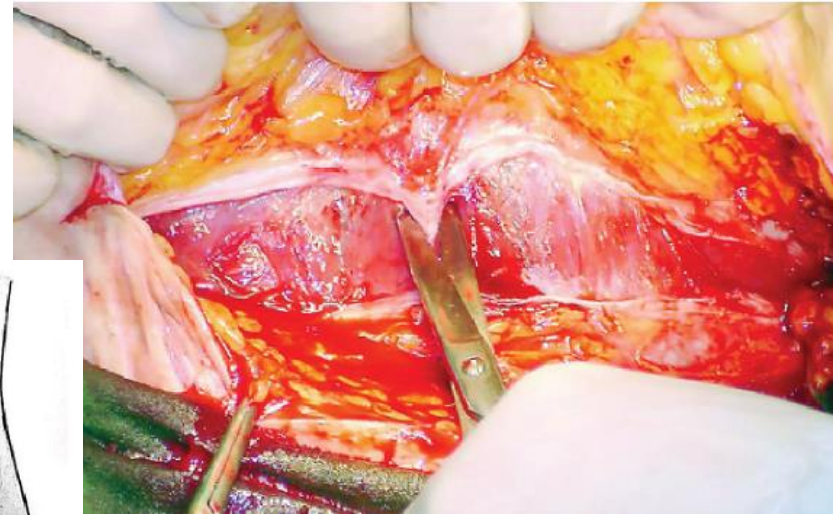
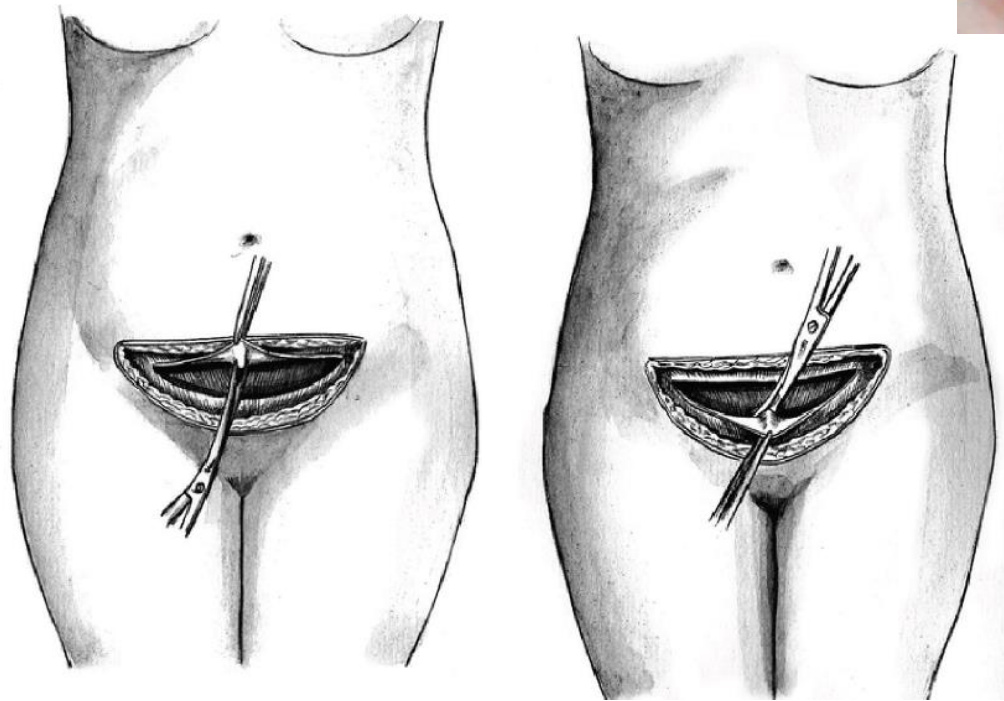
<i>Advantages</i>	<i>Disadvantages</i>
Postoperative comfort is more	Takes a little longer time and as such unsuitable in acute emergency situation
Fundus of the uterus can be better palpated during immediate postoperative period	Blood loss is slightly more
Less chance of wound dehiscence	Requires competency during repeat section
Less chance of incisional hernia	Unsuitable for classical operation
Cosmetic value	

# Laparotomy for Pfannenstiel – cutting of aponeurosis





# Laparotomy for Pfannenstiel – detachment of aponeurosis



## TYPES OF OPERATIONS:

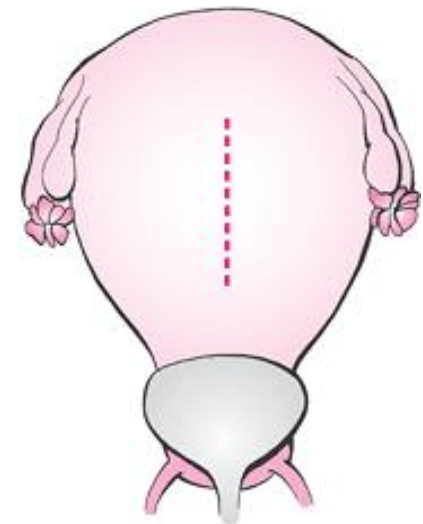
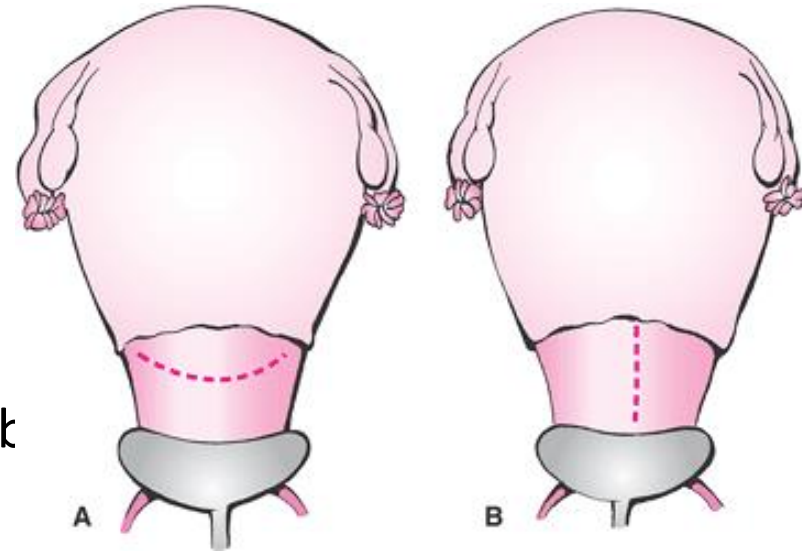
- Lower segment
- Classical or upper segment

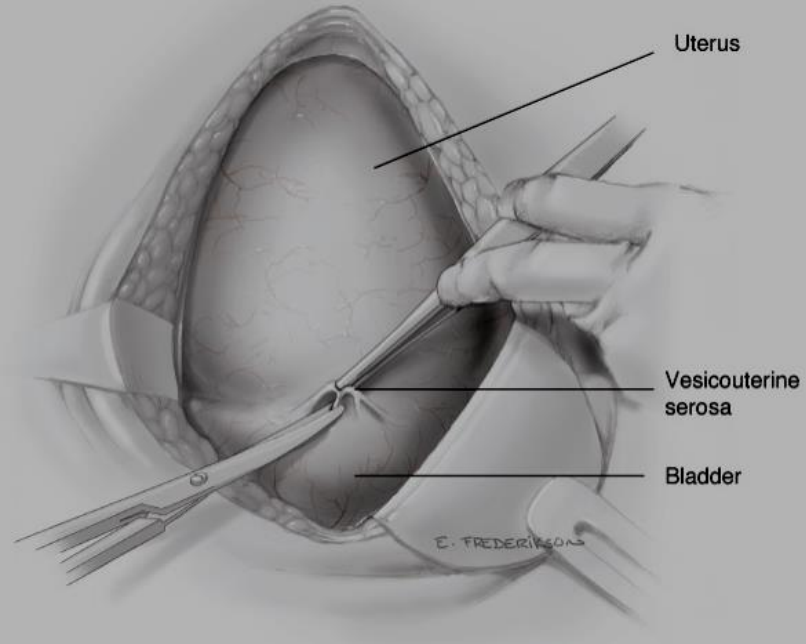
### Lower Segment Cesarean Section:

- It is the operation of choice
- In this operation, the extraction of the baby is done through an incision made in the lower segment through a transperitoneal approach
- repair of the uterus is usually simple
- the scar heals well
- subsequent rupture is uncommon

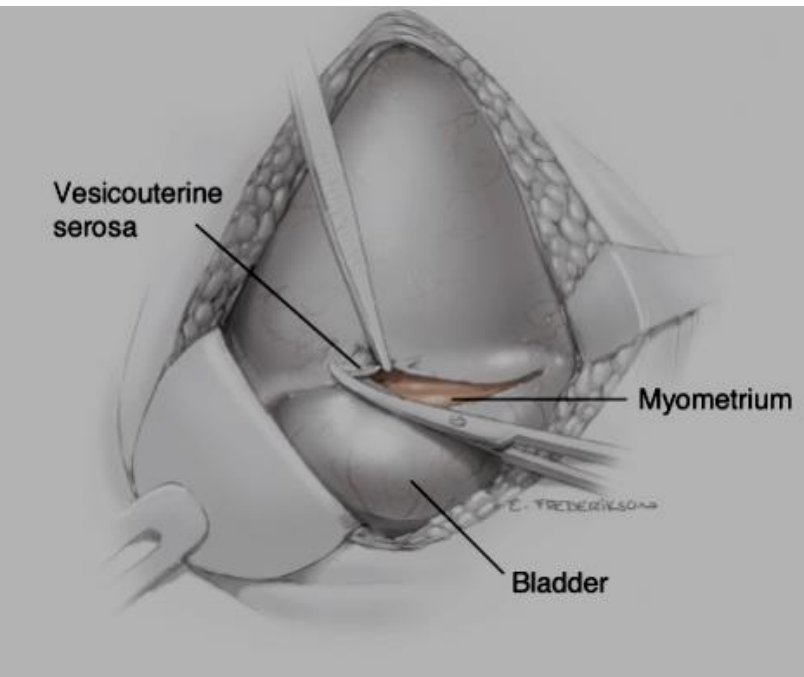
### Classical:

- In this operation the baby is extracted through an incision made in the upper segment of the uterus

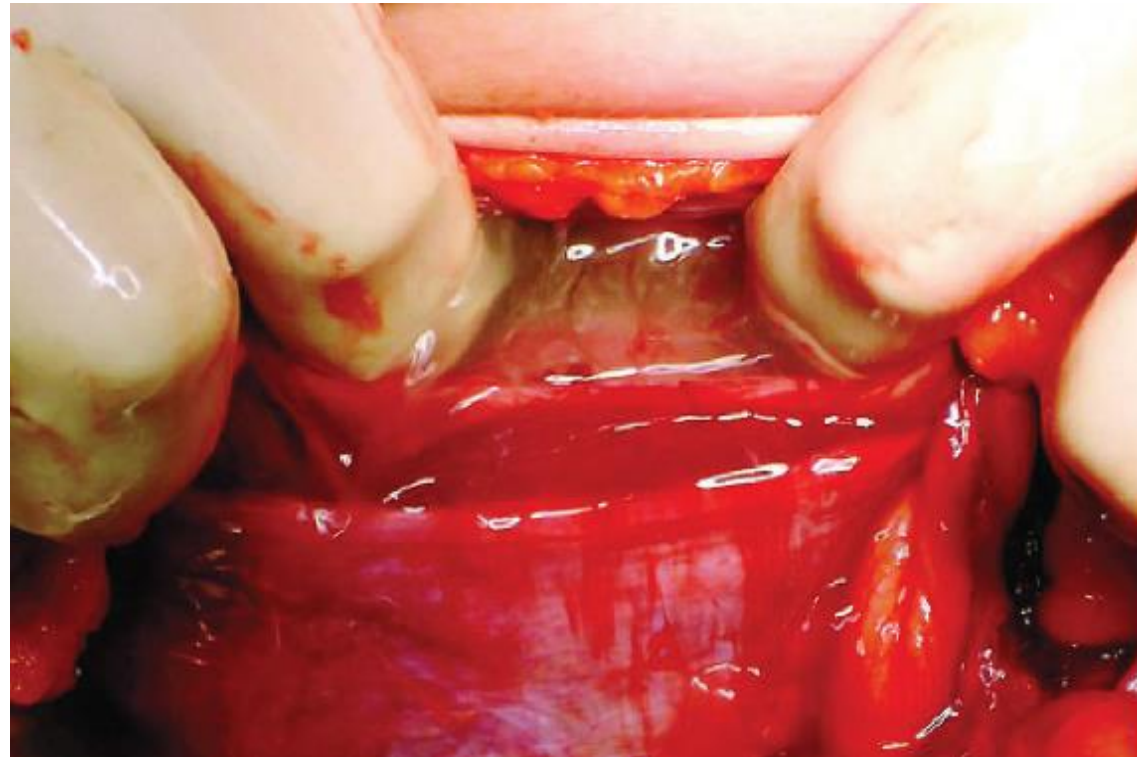
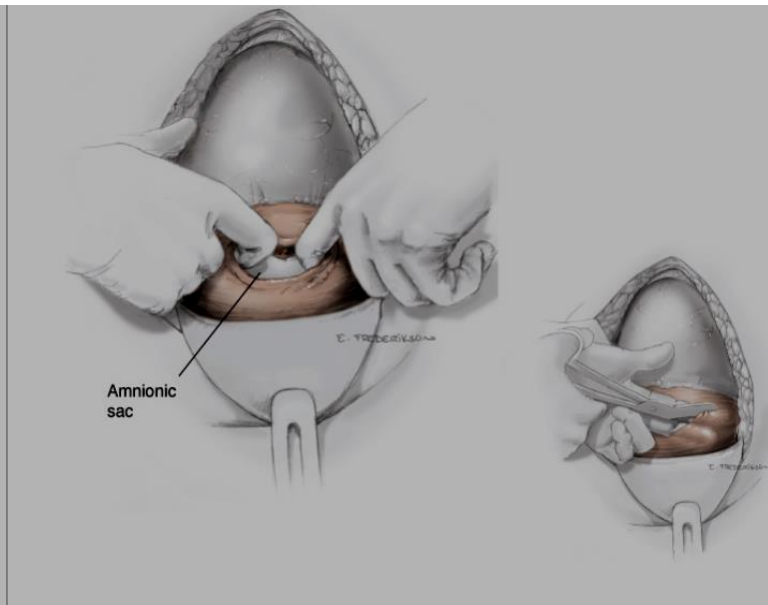
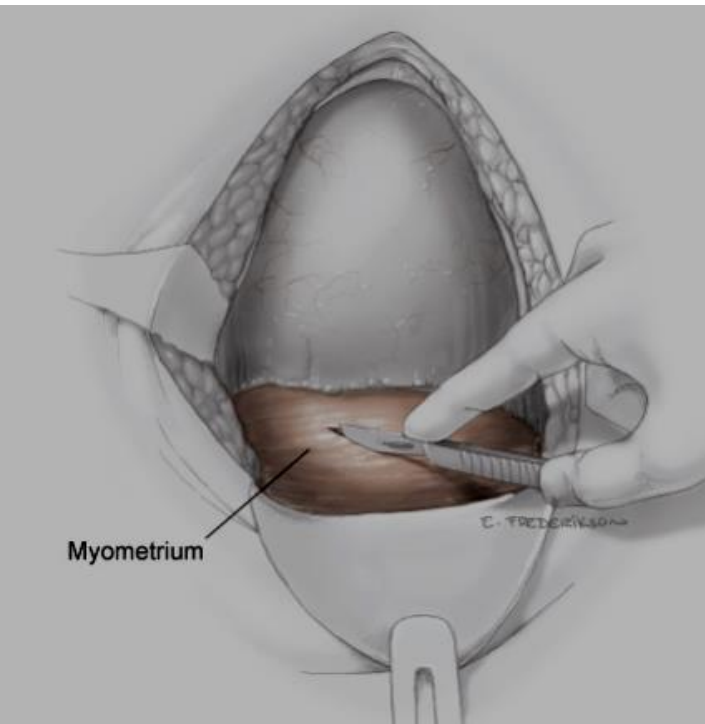




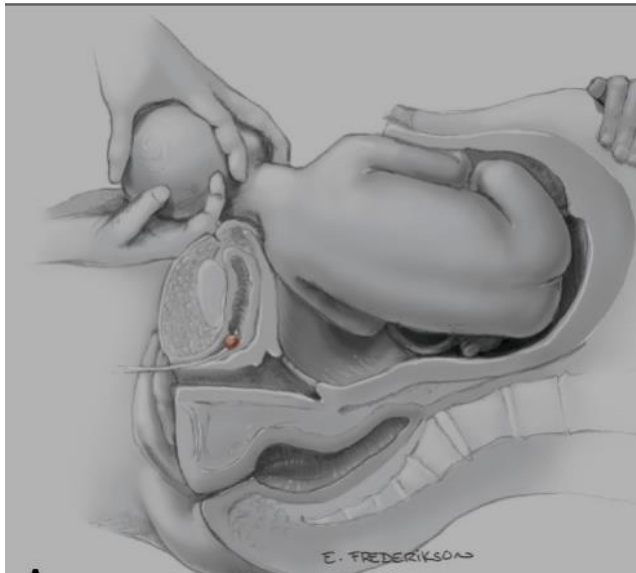
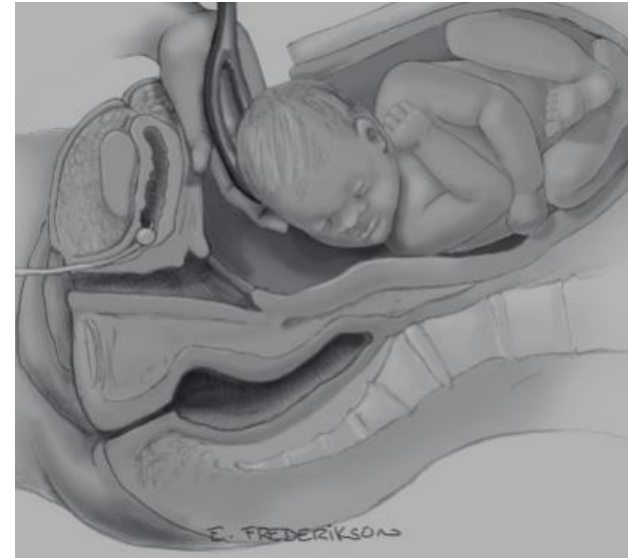
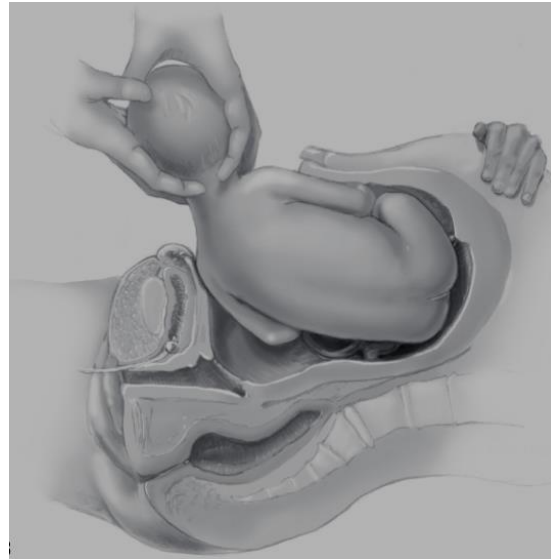
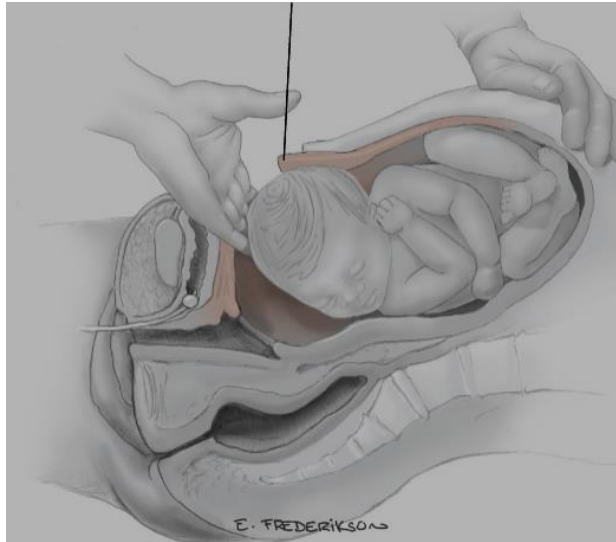
## 2. Uterus wall incision-incision of vesicouterine serosa, the bladder separation



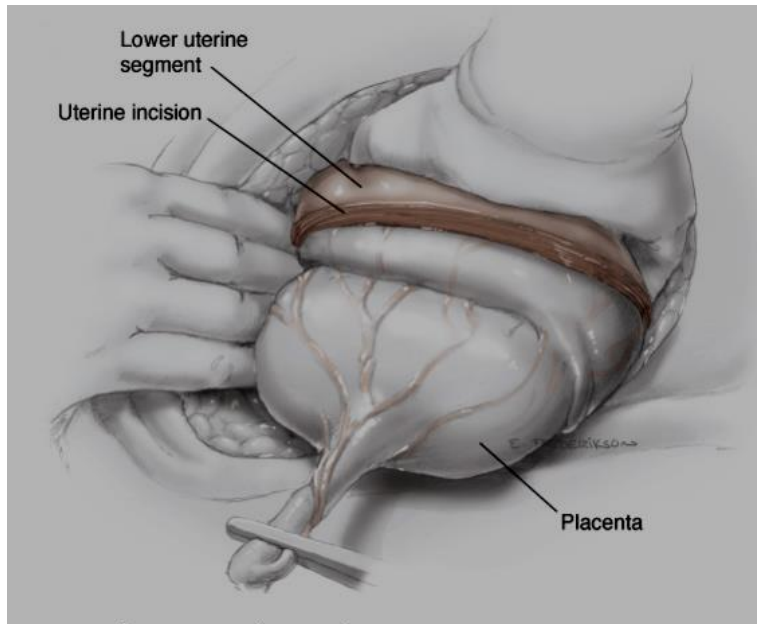
Incision of uterus and extension of it laterally with fingers or with scissors



### 3. Extraction of fetus



## 4. Removal of the placenta and membranes

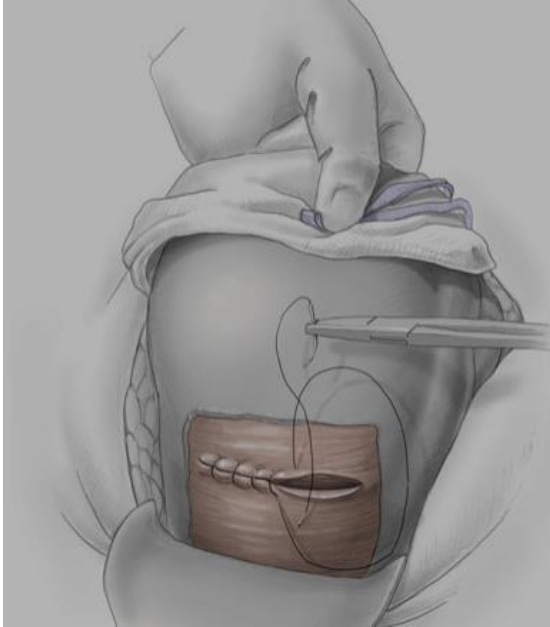


The placenta is separated spontaneously.

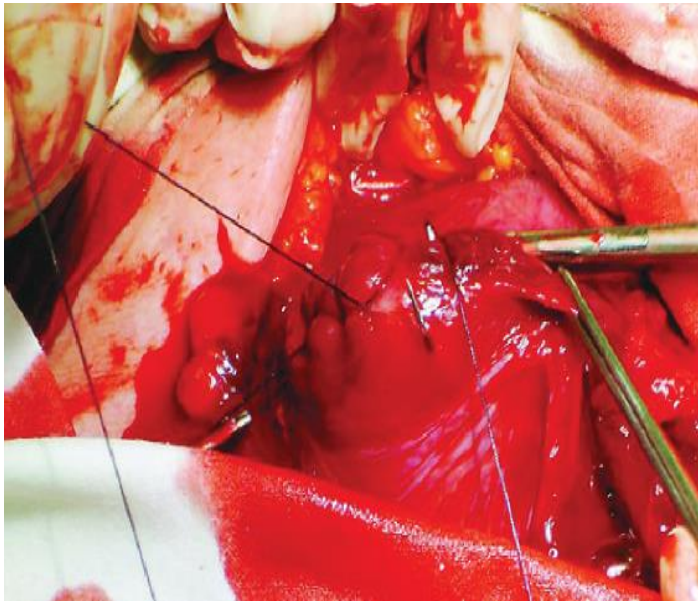
The placenta is extracted by traction on the cord with simultaneous pushing of the uterus towards the umbilicus per abdomen using the left hand (controlled cord traction).

**Routine manual removal should not be done. Dilatation of the internal os is not required. Exploration of the uterine cavity is desirable.**

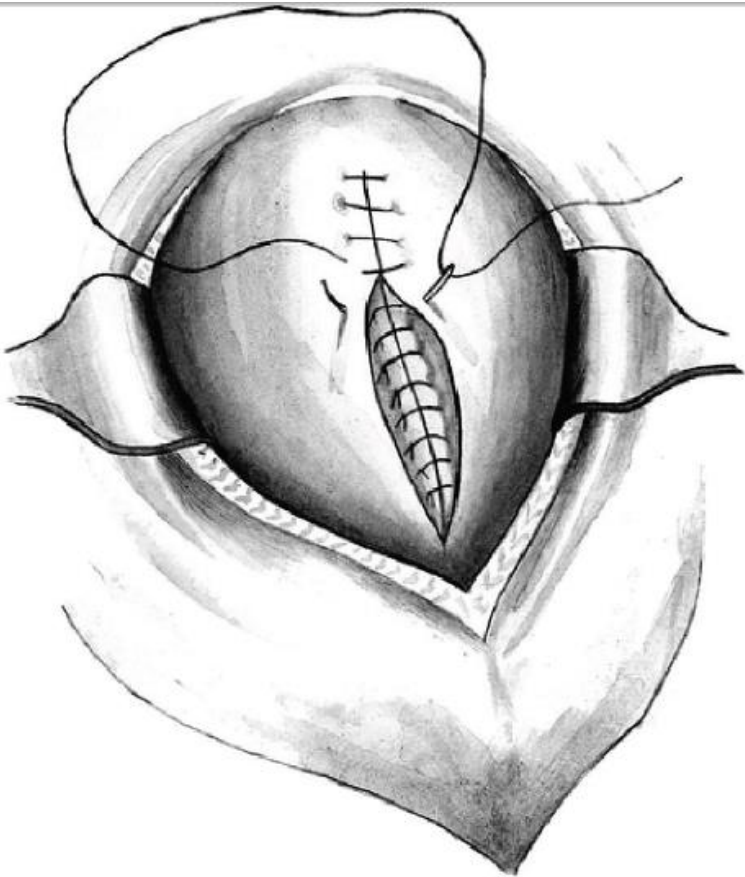
## 5. Suture of the uterine wound



- **Double row suture**
- **first row** - continuous mucous - muscular sutures
- **second row** - continuous muscular-muscular sutures
- **peritonization** - restoring the integrity of the plica vesico-uterina



# The indications for corporal CS



## Lower segment approach is difficult:

- Dense adhesions due to previous abdominal operation
- Severe contracted pelvis (osteomalacic or rachitic)

## Lower segment approach is risky

- Big fibroid on the lower segment when myomectomy may end in bleeding and hysterectomy
- Carcinoma cervix-to prevent dissemination of the growth and postoperative sepsis
- Anterior placenta previa with abnormally vascular lower segment

## Perimortum cesarean section

- Perimortum cesarean delivery requiring rapid delivery. The infant may survive if delivery is done within 10 minutes of maternal death.



## 6.Concluding part

- Peritoneal toileting is done and the blood clots are removed
- The tubes and ovaries are examined
- After being satisfied that the uterus is well contracted, the abdomen is closed in layers
- The vagina is cleansed of blood clots
- The blood loss is commonly between 500 and
- 1000 ml

# Stark modifications of cesarean section

1. Laparotomy by Joel-Cohen
  2. Typical incision in the lower segment of the uterus
  3. After extraction of the fetus and the placenta in the uterus output wound and its wall is reduced to a single-row continuous Reverden suture tie-on. Peritonization of the uterus does not produce
  4. The uterus was returned to the wound. Peritoneum and the muscles of the abdominal wall is not sewn up
  5. Aponeurosis to impose a continuous Reverden seam. Skin stitched interrupted sutures by Danatti (3 - 4 suture the incision). In this modification using synthetic sutures
- **Benefits:**
  - decreases tissue trauma
  - shorter duration of surgery, and time to recovery of the fetus
  - reduced intraoperative blood loss
  - postoperative period was more physiological
  - reduces the incidence of postoperative purulent complications
  - more favorably occurs early neonatal

# Intraoperative and postoperative complications

- **Postpartum hemorrhage, shock:** It is mostly related to uterine atony but blood coagulation disorders may rarely occur
- **Anesthetic hazards:** These are mostly associated in emergency operations. The hazards are related to aspiration of the gastric contents. The result may be aspiration atelectasis or aspiration pneumonia (Mendelson's syndrome) Others are: hypotension and spinal headache
- **Lacerations** of uterine , cervix, bladder, bowel
- **Infections:** The common sites are uterus (endomyometritis), urinary tract, abdominal wound, peritoneal cavity (peritonitis) and lungs. Risk factors for infection are: prolonged duration of labor and that of rupture of membranes, repeated number of vaginal examinations. Prophylactic antibiotics reduces the risk significantly

# Intraoperative and postoperative complications

- **Intestinal obstruction:** The obstruction may be mechanical due to adhesions or bands, or paralytic ileus following peritonitis
- **Deep vein thrombosis and thromboembolic disorders** are more likely to occur following cesarean section than following vaginal delivery
- **Gynecological:** Menstrual excess or irregularities, chronic pelvic pain or backache
- **General surgical:** Incisional hernia, Intestinal obstruction due to adhesions and bands
- **Future pregnancy:** There is risk of scar rupture
- **Iatrogenic prematurity and development of RDS**

# Postoperative care. Day 0 (first 24 hours)

- **Observation** for the first 6–8 hours is important. Periodic check up of pulse, BP, amount of vaginal bleeding and behavior of the uterus is done and recorded
- **Fluid:** Sodium chloride (0.9%) or Ringer's lactate drip is continued until at least 2 – 2.5 liters of the solution are infused. Blood transfusion is required if the blood loss is more than average during the operation (average blood loss in cesarean section is approximately 0.5 to 1 liter)
- **Oxytocics:** Injection oxytocin 5 units IM or IV (slow) or methergin 0.2 mg IM is given and may be repeated
- **Prophylactic antibiotic** (cephalosporins, metronidazole) for all cesarean delivery is given for 2–3 days. Therapeutic antibiotic is given when indicated
- **Analgesics** in the form of pethidine hydrochloride 75-100 mg is administered and may have to be repeated
- **Ambulation:** The patient can sit on the bed or even get out of bed to evacuate the bladder, provided the general condition permits. She is encouraged to move her legs and ankles and to breathe deeply to minimize leg vein thrombosis and pulmonary embolism
- **Baby** is put to the breast for feeding after 3–4 hours when mother is stable and relieved of pain

## Postoperative care

- **Day 1:** • **Oral feeding** in the form of plain or electrolyte water or raw tea may be given. Active bowel sounds are observed by the end of the day.
- **Day 2:** • **Light solid diet** of the patient's choice is given. • **Bowel care:** 3–4 teaspoons of lactulose is given at bed time, if the bowels do not move spontaneously.
- **Day 5 or Day 6:** The abdominal skin stitches are to be removed on the D-5 (in transverse) or D-6 (in longitudinal).
- **Discharge:** The patient is discharged on the day following removal of the stitches, if otherwise fit. Usual advices like those following vaginal delivery are given. Depending on postoperative recovery and availability of care at home, patient may be discharged as early as third to as late as seventh postoperative day.

- **Management of labor after previous caesarean section**

# Management of labor after previous caesarean section:

- "Once a cesarean section - always CS"
- "Trial" labor
- Careful selection of patients for vaginal delivery



# Selection criteria for VBAC

- One previous lower segment transverse scar
- Pelvis adequate for the fetus
- Continued labor monitoring possible
- Availability of resources (anesthesia, blood transfusion and theater) for emergency cesarean
- Section within 30 minutes of decision
- Informed consent of the woman