Learn simply

Cesarean Delivery

Passion profession same

Cesarean delivery[1]

- Confirm an indication for cesarean delivery[2]
- Exclude contraindications to cesarean delivery[3]
- Review the risks, benefits, and alternatives to cesarean delivery[4]

Elective cesarean

- Document fetal wellbeing
- Confirm gestational age[5]
- Review complications of cesarean delivery[6]
- **Obtain written consent**

Attempted vaginal delivery

- Confirm fetal wellbeing and gestational age
- Await spontaneous onset labor at term or consider induction of labor at or after 39 weeks, if indicated[5]

Unsuccessful vaginal delivery

Is the patient a candidate for operative vaginal delivery?

- No → Consent for cesarean delivery
- Yes → Offer operative vaginal delivery (Chapter 64)

Successful vaginal delivery

Technical considerations

- Regional is preferred over general analgesia
- **Administer prophylactic antibiotics**[7]
- Select the appropriate skin and uterine incisions[8]

Postpartum care

- Early ambulation
- Prophylactic anticoagulation, if indicated
- Observe for complications[6]
- **Pain management**

Review the options for deliver in a subsequent pregnancy[9]

1. Most indications for cesarean are relative and rely on the judgment of the obstetric care provider.
2. Absolute indications for cesarean include a
   - prior high vertical ("classical") cesarean,
   - complete placenta previa,
   - absolute cephalopelvic disproportion (where the disparity between the size of the bony pelvis and the fetal head precludes vaginal delivery even under optimal conditions (CPD)),
   - prior full-thickness myomectomy,
   - prior uterine rupture,
   - malpresentation (transverse lie),
   - cord prolapse
   - active genital HSV infection in labor,
   - and non-reassuring fetal testing (previously referred to as "fetal distress") prior to labor.

3. Relative indications include
   - a prior low transverse hysterotomy,
   - labor dystocia (failure to progress in labor),
   - breech presentation,
   - relative CPD,
   - multiple pregnancy,
   - women with certain cardiac or cerebrovascular disease,
   - select fetal anomalies (such as hydrocephalus),
   - maternal request,
   - excessive hemorrhage at delivery.

1. Puerperal hysterectomy is a highly morbid procedure and should only be performed as a last resort to save the life of the mother.
2. A desire for permanent sterilization (bilateral tubal ligation) is not an adequate indication for cesarean delivery.
3. Contraindications to cesarean delivery include
   - uncontrolled maternal coagulopathy
   - failure to obtain maternal consent.

- The most common indication for a primary cesarean is
- failure to progress in labor, which is defined as abnormal or inadequate progress in labor.
- Causes include the 3 "P"s:
  - inadequate "powers" (uterine contractions),
  - inadequate "passage" (bony pelvis),
  - or abnormalities of the "passenger"(fetal macrosomia, hydrocephalus, malpresentation). I

- if contractions are "adequate," one of two events will occur:
- dilatation and effacement of the cervix with descent of the head,
- or worsening caput succedaneum (scalp edema) and molding (overlapping of the skull bones).
- If contractions are inadequate, consider augmentation with pitocin infusion with or without an intrauterine pressure catheter (IUPC).

1. Elective cesarean delivery should only be performed at or after 39 weeks, with the exception of HIV and twins where it can be performed at or after 38 weeks.
2. Elective delivery prior to these gestational ages is best avoided, even after documentation of fetal lung maturity.
3. Complications of cesarean include excessive bleeding, infection, venous thromboembolic disease, injury to adjacent organs (bladder, bowel, ureters), and (rarely) injury to the fetus.
4. Routine use of broad-spectrum prophylactic antibiotics given within 60 minutes of surgery (and not after clamping of the cord after delivery) will decrease the incidence of postoperative febrile morbidity and surgical site infection.
5. Penicillin for GBS chemoprophylaxis is not sufficient to prevent wound infection.
6. Skin incision may be either
   - Pfannenstiel (low transverse incision, muscle separating, strong, but limited exposure) or
   - midline vertical (offers the best exposure, but is weaker).
7. Pfannenstiel skin incisions may be modified to improve exposure, if needed, by dividing the rectus muscles horizontally (Maylard incision) or lifting the rectus off the pubic bone (Cherney incision).
8. Pfannenstiel should be the incision of choice. Similarly, a low transverse hysterotomy should be performed, if possible. Indications for high vertical ("classical") hysterotomy include extreme prematurity, malpresentation, multiple pregnancy, and failure to gain access to the lower uterine segment due, for example, to excessive adhesions. Elective surgery (such as myomectomy) should not be performed at the time of cesarean, because of the risk of bleeding.

1. A prior high vertical ("classical") cesarean, a prior low vertical cesarean, and two or more low transverse hysterotomies should be regarded as an absolute contraindication to attempted vaginal delivery, because of the risk of uterine dehiscence and rupture.
2. Uterine rupture may be life-threatening.
3. Symptoms and signs include acute onset of fetal bradycardia (70%), abdominal pain (10%), vaginal bleeding (5%), hemodynamic instability (5–10%), and/or loss of the presenting part (<5%).
4. In such women, repeat cesarean is best performed at 36–37 weeks. Vaginal birth after caesarean (VBAC) may be a reasonable alternative for elective repeat cesarean delivery in select patients so long as certain criteria are fulfilled, including: no induction of labor with prostaglandins, continuous fetal heart rate monitoring, adequate analgesia, carefully monitoring of the progress of labor to facilitate the early diagnosis of CPD, and immediate access to emergency cesarean.
5. A successful VBAC can be achieved in 65–80% of women.