Cesarean Section - Indications

Cesarean section, commonly called a C-section, is an obstetric surgical procedure performed to deliver a baby when vaginal delivery is no longer feasible, or to provide better maternal and fetal outcomes. Maternal indications for C-section include: eclampsia, prior uterine surgery, prior C-section, and active genital herpes infection. Fetal indications for C-section include: malpresentation, fetal distress, and cord compression/prolapse. Other indications include cephalopelvic disproportion, failed vaginal delivery, placenta previa and placental abruption.



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Maternal Indications

Active Genital Herpes Infection

Herpes-harp with Active Infection

The most common cause of maternal-fetal transmission of herpes simplex virus is contact with maternal genital lesions during an active HSV infection. Transplacental infections do occur, but vaginal delivery resulting in contact with active lesions is more common. Neonatal HSV infection acquired during delivery has a 50% mortality rate, so a C-section is used to reduce the risk of maternal-fetal transmission.

Cervical Cancer

Cervix-certificate Tumor-guy

Treatment of preinvasive cervical carcinoma can be deferred until after delivery. After diagnosis of cervical cancer the mother can choose to terminate the pregnancy, or choose to continue the pregnancy and delay treatment. If termination is chosen, a radical hysterectomy with the fetus in situ is performed with ovary preservation.

Eclampsia (Preeclampsia)

E-clamp

Preeclampsia is new onset maternal hypertension and proteinuria or end-organ dysfunction, or both, after 20 weeks gestation. Eclampsia is preeclampsia plus new-onset, generalized tonic-clonic seizures or coma (during pregnancy). When severe preeclampsia progresses to eclampsia, the definitive treatment is immediate delivery, which is accomplished with a C-section.

History of Uterine Surgery

Hx of Uterus and Surgeon with Scalpel

If a woman has had a C-section or other uterine surgery in the past, then it is suggested she have another C-section to prevent undue stress on the uterine muscle during labor. Strong contractions can cause uterine rupture wherever there is scar tissue from previous surgeries.

History of C-section (Vertical)

Hx of C-section cutting Vertically

If a woman has had a C-section or other uterine surgery in the past, then it is suggested she have another C-section to prevent undue stress on the uterine muscle during labor. Strong contractions can cause uterine rupture wherever there is scar tissue from previous surgeries. If the prior C-section was done with a vertical uterine incision, there is a high risk of uterine rupture. If it was done with a low transverse uterine incision, the risk of rupture is lower, but still should be strongly considered.

Fetal Indications

Malpresentation

Mallet Fetus with Bad-presentation

Ideal fetal presentation is in the cephalic and vertex presentation, with the fetal head down, chin tucked and occiput directed towards the birth canal. Malpresentation is any position other than cephalic (vertex), and these can result in maternal and fetal complications. Breech presentation (caudal end down) is the most common type of malpresentation. External cephalic version to realign the fetus properly may be attempted by an obstetrician prior to considering C-section.

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Fetal Distress

Fetus with Flare-gun

Fetal distress refers to non-reassuring fetal status. Signs of fetal distress include fetal hypoxia, fetal tachycardia, bradycardia, repetitive variable decelerations, and late decelerations. These non-reassuring signs can be due to maternal hypoxemia, umbilical cord compression or prolapse, fetal anemia, hydrops fetalis, oligohydramnios, prolonged labor, gestational hypertension, post-term pregnancies (>42 weeks), intrauterine growth retardation and meconium in the amniotic fluid. Depending on the severity of fetal distress, induction of labor or a C-section may be indicated.

Cord Compression/Prolapse

Compress and Prolapsed Umbilical Cord

Umbilical cord compression or prolapse can result in inadequate oxygen delivery to the fetus. Fetal hypoxia can cause signs of fetal distress, such as fetal tachycardia or variable and late decelerations. The cord can become compressed if it is covering the cervical opening and the fetal head is pushing downward on the cord. Often the cord will move away on its own before signs of fetal distress are apparent. If the cord remains compressed and attempts to manipulate it fail, then an emergent C-section is indicated.

Other Indications

Failed Vaginal Delivery

Failed-stamp Vagina-violet and Stork Delivering-baby

A vaginal delivery can be considered to have failed if a fetus fails to progress through the different stages of labor in a timely manner. This can occur if the cervix is not dilating, the baby is not descending, malpresentation does not correct, contractions are not efficient, or there is cephalopelvic disproportion. C-section may be indicated to prevent maternal and fetal stress caused by prolonged labor.

Cephalopelvic Disproportion

Head-to-pelvis Disproportion

Cephalopelvic Disproportion occurs when the fetal head or body is too large to fit through the mother’s pelvis and causes failure to progress. True CPD is rare, but many cases of “failure to progress” during attempted vaginal delivery are given the diagnosis of CPD. True CPD may be due to macrosomia caused by gestational diabetes or post-term pregnancies, and in cases where the maternal pelvic bone is naturally small or deformed by trauma.

Abruptio Placentae or Placenta Previa

Erupting Placenta-present Provolone

Placenta previa is a partial or complete covering the cervical os by the placenta. This is usually diagnosed via ultrasound, and can result in painless vaginal bleeding in the third trimester. Vaginal delivery can be attempted in patients with low-lying placenta, but C-section is indicated for partial or complete placenta previa. Placental abruption, also called abruptio placentae, is premature separation of the placenta from the uterine wall, leading to significant maternal hemorrhage. Placental abruption is an indication for emergent cesarean delivery.

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