Review Article

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Cesarean Section: A Brief Overview

Abstract

Cesarean section, C-section, or Cesarean birth is the surgical delivery of a baby through a cut (incision) made in the mother's abdomen and uterus. Health care providers use it when they believe it is safer for the mother, the baby, or both. If you can't deliver vaginally, C-section allows the fetus to be delivered surgically. You may be able to plan and schedule your Cesarean. Or, you may have it done because of problems during labor.

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Introduction

Several conditions make a Cesarean delivery more likely. These include:

- Abnormal fetal heart rate. The fetal heart rate during labor is a good sign of how well the fetus is doing. Your provider will monitor the fetal heart rate during labor. The normal rate varies between 120 to 160 beats per minute. If the fetal heart rate shows there may be a problem, your provider will take immediate action. This may be giving the mother oxygen, increasing fluids, and changing the mother's position. If the heart rate doesn't improve, he or she may do a Cesarean delivery [1].
- Abnormal position of the fetus during birth. The normal position for the fetus during birth is head-down, facing the mother's back. Sometimes a fetus is not in the right position. This makes delivery more difficult through the birth canal.
- Problems with Labor that fails to progress or does not progress the way it should.
- Size of the fetus. The baby is too large for your provider to deliver vaginally [2].
- Placenta problems. This includes placenta previa, in which the placenta blocks the cervix. (Premature detachment from the fetus is known as abruption.)

Some possible complications of a C-section may include:

- Reactions to the medicines used during surgery
- Bleeding
- Abnormal separation of the placenta, especially in women with previous Cesarean delivery
- Injury to the bladder or bowel
- Infection in the uterus
- Wound infection
- Trouble urinating or urinary tract infection
- Delayed return of bowel function
- Blood clots

After a C-section, a woman may not be able to have a vaginal birth in a future pregnancy. It will depend on the type of uterine incision used. Vertical scars are not strong enough to hold together during labor contractions, so a repeat C-section is necessary. You may have other risks that are unique to you. Be sure to discuss any concerns with your healthcare provider before the procedure, if possible [3].

A C-section will be done in an operating room or a special delivery room. Procedures may vary depending on your condition and your healthcare provider's practices. In most cases, you will be awake for a C-section. Only in rare cases will a mother need medicine that puts you into a

deep sleep (general anesthesia). Most C-sections are done with a regional anesthesia such as an epidural or spinal. With these, you will have no feeling from your waist down, but you will be awake and able to hear and see your baby as soon as he or she is born [4,5].

Generally, a C-section follows this process:

- You will be asked to undress and put on a hospital gown.
- You will be positioned on an operating or exam table.
- A urinary catheter may be put in if it was not done before coming to the operating room.
- An intravenous (IV) line will be started in your arm or hand.
- For safety reasons, straps will be placed over your legs to hold you on the table.
- Hair around the surgical site may be shaved. The skin will be cleaned with an antiseptic solution.
- Your abdomen (belly) will be draped with sterile material. A drape will also be placed above your chest to screen the surgical site.
- The anesthesiologist will continuously watch your heart rate, blood pressure, breathing, and blood oxygen level during the procedure [6].
- Once the anesthesia has taken effect, your provider will make an incision above the pubic bone, either transverse or vertical. You may hear the sounds of an electrocautery machine that seals off bleeding.
- Your provider will make deeper incisions through the tissues and separate the muscles until the uterine wall is reached. He or she will make a final incision in the uterus. This incision is also either horizontal or vertical [7].
- Your provider will open the amniotic sac, and deliver the baby through the opening. You may feel some pressure or a pulling sensation.
- He or she will cut the umbilical cord [8].

In the recovery room, nurses will watch your blood pressure, breathing, pulse, bleeding, and the firmness of your uterus. Usually, you can be with your baby while you are in the recovery area. In some cases, babies born by Cesarean will first need to be monitored in the nursery for a short time. Breastfeeding can start in the recovery area, just as with a vaginal delivery. After an hour or 2 in the recovery area, you will be moved to your room for the rest of your hospital stay [9]. As the anesthesia wears off, you may get pain medicine as needed. This can be either from the nurse or through a device connected to your intravenous (IV) line called a PCA (Patient Controlled Analgesia) pump. In some cases, pain medicine may be given through the epidural catheter until it is removed.

You may have gas pains as the intestinal tract starts working again after surgery. You will be encouraged to get out of bed. Moving around and walking helps ease gas pains. Your healthcare provider may also give you medicine for this. You may feel some uterine contractions called after-pains for a few days. The uterus continues to contract and get smaller over several weeks [10,11].

The urinary catheter is usually removed the day after surgery. You may be given liquids to drink a few hours after surgery. You can gradually add more solid foods as you can handle them. You may be given antibiotics in your IV while in the hospital and a prescription to keep taking the antibiotics at home [12].

You will need to wear a sanitary pad for bleeding. It is normal to have cramps and vaginal bleeding for several days after birth. You may have discharge that changes from dark red or brown to a lighter color over several weeks. Do not douche, use tampons, or have sex until your healthcare provider tells you it's OK. You may also have other limits on your activity, including no strenuous activity, driving, or heavy lifting. Take a pain reliever as recommended by your healthcare provider. Aspirin or certain other pain medicines may increase bleeding. So, be sure to take only recommended medicines. Arrange for a follow-up visit with your healthcare provider. This is usually 2 to 3 weeks after the surgery [13,14].

You may need a C-section if you have certain medical conditions or if complications occur during labor in a vaginal delivery. A planned C-section happens when any of the following conditions exist:

- Cephalopelvic disproportion (CPD): CPD is a term that means that your baby's head or body is too large to pass safely through your pelvis, or your pelvis is too small to deliver an average-sized baby.
- Previous C-section: Although it's possible

to have a vaginal birth after a previous C-section, it's not an option for everyone. Factors that can affect this include type of uterine incision used in the previous C-section and the risk of uterine rupture [15].

- Expecting multiples: Although twins can often be delivered vaginally, two or more babies might require a C-section.
- Placenta previa: In this condition, the placenta is attached too low in your uterus and blocks your baby's exit through your cervix.
- Transverse lie: The baby is in a horizontal, or sideways, position in your uterus.
- Breech presentation: In a breech presentation, your baby's feet- or bottom-first in your uterus. Some providers may attempt to turn your baby, but a C-section will be necessary if that's unsuccessful.
- Health conditions: Conditions like heart disease could worsen with labor during a vaginal birth. A C-section is necessary if you have genital herpes at the time of delivery [16].
- Obstruction: A large uterine fibroid, a pelvic fracture or you're expecting a baby with certain congenital anomalies may also be reasons for a C-section.

An unplanned C-section delivery might be necessary if any of the following conditions arise during your labor:

- Labor isn't progressing: Also called prolonged labor, this means your cervix dilates and stops, doesn't efface (or thin) or your baby stops moving down the birth canal.
- Umbilical cord compression: The umbilical cord is looped around your baby's neck or body or caught between your baby's head and your pelvis.
- Umbilical cord prolapse: The umbilical cord comes out of your cervix before your baby does.
- Placental abruption: The placenta separates from the wall of your uterus before your baby is born.
- Fetal distress: Your baby might develop problems that cause an irregular heart rate during labor. Your obstetrician might decide that the baby can no longer tolerate labor and that a C-section is necessary [17].

Discussion

The first step in a C-section procedure is preparing you for anesthesia. Most planned C-sections use an epidural, so you are awake for the delivery. However, in some cases, you're asleep under general anesthesia. Your abdomen will be cleaned with an antiseptic, and you might have an oxygen mask placed over your mouth and nose to increase oxygen to your baby. Next, your provider places a sterile drape around the incision site and over your legs and chest. Finally, your providers raise a sterile curtain or drape between your head and your lower body [18,19].

The obstetrician will then make an incision through your skin and into the wall of your abdomen. They might use either a vertical or transverse incision. A horizontal incision is also called a bikini incision [20].

Next, your provider cuts a 3- to 4-inch incision into the wall of your uterus. This incision can also be transverse or vertical. Finally, the obstetrician removes your baby through the incisions. The umbilical cord is cut, the placenta is removed and the incisions are closed with stitches and staples. Emergency C-sections follow the same steps; however, the speed at which your baby is removed is different [21]. During a planned C-section, the delivery takes about 10 to 15 minutes. Your provider removes your baby in only a few minutes in an emergency C-section.

Like vaginal births, your obstetrician will deliver the placenta after your baby is born. Next, your provider will stitch your uterus and stitch or staple your abdominal muscles. Stitches should dissolve, but staples are removed at the hospital about one week later. Your abdomen will be sore for several days or weeks. In some cases, your provider may prescribe stronger pain medication. You can expect to limit your activities, take it easy and rely on family and friends once you go home [22]. A typical C-section surgery requires at least two to three days in the

Once the anaesthesia wears off, you'll begin to feel the pain from the incisions. You might also experience gas pains and have trouble taking deep breaths. Make sure an adult is there to help you get up from bed the first several days following C-section surgery. Most people stay in the hospital between two and three days.

A full recovery can take between four and six weeks. Ask your healthcare provider what you can expect during recovery. Most providers

recommend avoiding steps, lifting, exercise and other strenuous activities for several weeks. Ask your friends or partner for help with errands, cooking and cleaning so you can rest and recover. Your provider may put restrictions on driving until you're able to turn your body and apply pressure to the pedals with ease [23].

You can expect cramping and bleeding for up to six weeks, as well as some discomfort around the incision. Taking over-the-counter pain relievers such as acetaminophen or ibuprofen for pain may help. Avoid sex for at least six weeks or until your healthcare provider gives you the OK. You will also have a vaginal discharge after the surgery due to the shedding of your uterine lining. The discharge, called lochia, will be red at first and then gradually change to yellow. Be sure to call your healthcare provider if you experience heavy bleeding or a foul door from the vaginal discharge. Use sanitary pads, not tampons, until you're completely done bleeding.

For a planned C-section, a health care provider might suggest talking with an anaesthesiologist if there are medical conditions that might increase the risk of anaesthesia complications.

A health care provider might also recommend certain blood tests before a C-section. These tests provide information about blood type and the level of the main component of red blood cells (hemoglobin). The test results can be helpful in case you need a blood transfusion during the C-section. Even for a planned vaginal birth, it's important to prepare for the unexpected. Discuss the possibility of a C-section with your health care provider well before your due date. If you don't plan to have more children, you might talk to your health care provider about long-acting reversible birth control or permanent birth control. A permanent birth control procedure might be performed at the time of the C-section [24].

If you have severe mood swings, loss of appetite, overwhelming fatigue and lack of joy in life shortly after childbirth, you might have postpartum depression. Contact your health care provider if you think you might be depressed, especially if your symptoms don't go away, you have trouble caring for your baby or completing daily tasks, or you have thoughts of harming yourself or your baby.

Conclusion

The American College of Obstetricians and Gynaecologists recommends that postpartum care be ongoing. Have contact with your health care provider within three weeks after delivery. Within 12 weeks after delivery, see your health care provider for a postpartum evaluation. During this appointment your health care provider likely will check your mood and emotional well-being, discuss contraception and birth spacing, review information about infant care and feeding, talk about your sleep habits and issues related to fatigue and do a physical exam, including a pap smear if it's due. This might include a check of your abdomen; vagina, cervix and uterus to make sure you're healing well.

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Conflict of Interest

None

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