Cesarean Section (C-Section) — Procedure and Complications

A cesarean section is the operative delivery of one or more infants through surgical incision into the maternal abdomen and surgical opening of the uterus in the operating room in order to deliver the infant or infants. Indications for a cesarean section include previous uterine surgery, anomalies of the placenta (such as placenta previa), malpresentation of the fetus, arrest of cervical dilatation, failure of the presenting part to descend in the birth canal, and fetal distress in labor.

Definition of Cesarean Section

A cesarean section is the delivery of an infant by surgical means. Most cesarean sections are done with a transverse cut in the skin just above the pubic bone. The muscles of the abdomen are then separated and a low transverse cut is made in the lower uterine segment. The infant is delivered through that opening.

Historically, a midline incision was used in cesarean sections. While midline incisions are faster and may be indicated when there is imminent fetal demise without urgent
operative delivery, there is a higher rate of dehiscence with a midline cesarean section.

The advantages of the Pfannenstiel or transverse incisions are that there is less risk of wound dehiscence and a better cosmetic outcome for the mother. This is the preferred technique unless there is extreme urgency involved in the cesarean delivery.

In the US, about one in three deliveries are cesarean deliveries. This rate is much higher than in other developed countries, where the cesarean delivery rate is as low as 10% of all deliveries. There is evidence from the World Health Association that the optimal cesarean section rate allowing for maximum fetal survival is about 19% of all deliveries. This means that there are likely many unnecessary cesarean sections being done in the US with no advantage over a vaginal delivery.

Symptoms and Signs

Most women have a planned cesarean delivery at term because of a previous uterine surgery, twin gestation, placenta previa, or abnormal presentation of the fetus. They have no symptoms and are not in labor at the time of their cesarean section.

A small percentage of women have their cesarean section because of fetal distress. In one article, it was estimated that only 3% of attempted vaginal deliveries go on to cesarean section secondary to fetal distress. Slightly more have cesarean sections because of failure to progress in labor.

Most women who undergo a cesarean section are not in labor and have normal vital signs. The fetus is not in distress and is full term. Recommendations are to plan a cesarean section to be at approximately 38 weeks’ gestational age so that the fetus is at term and there is a decreased chance of the woman spontaneously going into labor prior to her planned cesarean section.

A small percentage of cesarean sections are considered emergency cesarean sections and are done for fetal distress or failure to progress in labor.

Special Tests Before Cesarean Section

Prior to a cesarean section, some women have an amniocentesis to evaluate the amniotic fluid for lung maturity so that an inadvertent cesarean section is not performed on an infant who will have respiratory difficulty after birth because of lung immaturity. All women are typed and cross-matched for blood products, although the need for blood products in a cesarean section is rare.

Treatment in Cesarean Section

The standard cesarean section is begun with a Pfannenstiel incision, which is a low transverse incision just above the pubic bone in the gravid woman. The skin and fat are dissected and the bladder is identified and kept out of the surgical field. The rectus abdominus muscles are transected vertically to expose the lower uterine segment. The peritoneum is opened transversely and a transverse cut is made into the lower uterine segment. This cut is widened manually to fit the head and body of the infant. The infant is delivered through the incision.

After the infant is delivered, the uterine contents are evacuated and a two-layer repair is done in the lower uterine segment. The rectus abdominus muscles may or may not be
approximated. The fatty tissue is approximated and staples or subcutaneous sutures are used to close the skin. **Blood loss is usually minimal** and there is rarely a need for blood products.

Most patients have an **epidural anesthetic** at the time of their cesarean section, although a **spinal anesthetic** is often done for elective cesarean sections because it provides for better analgesia of the lower half of the body.

In rare situations where the infant is in acute distress, **general anesthesia** is used to quickly anesthetize the mother so the infant can be swiftly delivered. The infant may also be affected by the general anesthetic; however, the surgery is done so rapidly that the infant is generally born without anesthetic aftereffects.

### Complications of Cesarean Section

The complication rate for cesarean sections is about 10 %. Serious complications include **blood loss of greater than 1,500 cc**, need for **transfusion of blood**, **emergency hysterectomy**, necessity for **another surgery**, **blood clotting problems**, **pulmonary edema**, **septicemia**, and **pneumonia**.

Women having an elective cesarean section have a complication rate of about 7 %, while women having urgent cesarean sections have a complication rate of about 12 %. Women who have extremely emergent cesarean sections have a complication rate of about 25 %.

### Prognosis of Cesarean Section

The rate of **mortality** in an elective cesarean section is about 5.9 out of 100,000 pregnancies, while the mortality rate of an emergency cesarean section is about 18.2 out of 100,000 pregnancies. This is compared to 2.1 maternal deaths out of 100,000 pregnancies for a vaginal birth. Cesarean section patients need a **longer time for recovery** and have an increased risk of **post-birth complications**, such as bleeding and lacerations.

Cesarean sections increase the chance of having **hemorrhaging in subsequent pregnancies** because there is an increased risk of **placental abruption** and **placenta previa** in subsequent pregnancies after a cesarean section has been performed. Because the infant does not squeeze through the birth canal in a cesarean section, there is more fluid in the infant’s lungs after a cesarean section, so there is an increased chance of **transient respiratory distress**, even in term infants.

### Review Questions on Cesarean Section

The correct answers can be found below the references.

1. **You are counseling a pregnant mother about an elective cesarean section. For what reason might you suggest an elective cesarean section?**
   
   A. Small maternal stature  
   B. Post-term pregnancy  
   C. Frank breech presentation  
   D. Gestational diabetes

2. **How do you counsel a woman anticipating an elective cesarean section who asks about complications?**
A. Tell her the rate of complications is the same with an elective cesarean section compared to a vaginal birth.
B. Tell her she has the same chance as any other woman to go on to have a vaginal birth in the future.
C. Tell her the complication rate for cesarean section is higher than for a vaginal birth but, if there is an indication for cesarean section, the risk is better for the fetus.
D. Tell her she should go through a trial of labor despite indications for an elective cesarean section because an emergency cesarean section can always be safely done if the labor trial fails.

3. The woman you are caring for is in labor and has no anesthesia. The fetus develops severe distress in utero and has a pulse of 80 beats per minute. What do you tell the patient?

A. She needs an urgent cesarean section using spinal anesthesia.
B. She needs an emergency cesarean section using general anesthesia.
C. She needs an emergency cesarean section using local anesthesia.
D. She needs an urgent cesarean section using an epidural anesthesia.

References


What is the rate of serious complication after C-section?, via drjengunter.wordpress.com


Correct answers: 1C, 2C, 3B

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