Stages of Labor

Vaginal delivery childbirth has three distinct phases: dilation of the cervix, delivery of the infant, and delivery of the placenta.

LEARNING OBJECTIVE

- Differentiate among the stages of labor

KEY POINTS

- The first stage of labor begins when the effaced (thinned) cervix is 3 cm dilated. During effacement, the cervix is pulled upward during contractions. Full dilation occurs when the cervix is wide enough to allow passage of the baby's head, about 10 cm for a full-term infant.

- The duration of labor varies widely, but the active phase averages some 20 hours for women giving birth to their first child (primiparae) and 8 hours for women who have previously given birth (multiparae).

- The second stage begins when the cervix is fully dilated, ending when the baby is born. Fetal movement through the birth canal is assisted by the additional maternal efforts of "bearing down" or pushing. The fetal head is seen to 'crown' as the labia part, and the baby is born.

- The period from just after the fetus is expelled until just after the placenta is expelled is called the third stage of labor, which lasts, on average, 10–12 minutes.

- A "fourth stage of labor" may refer to the hour immediately after delivery of the placenta, or may refer to the weeks following delivery.

TERMS

- Ferguson reflex
  an example of positive feedback and the female body's response to pressure application in the cervix or vaginal walls. Upon application of pressure, oxytocin is released and uterine contractions are stimulated (which will in turn increase oxytocin production, and hence, increase contractions even more), until the baby is delivered.

- multiparae
  women who have given birth to more than one viable fetus.

- primiparae
  women who have given birth to only one child, or who are giving birth for the first time.
EXAMPLE

- Extended labor may be due to cephalopelvic disproportion. When labor goes on too long, fetal distress occurs which may endanger the life of the fetus and the mother. Mechanical or surgical intervention may be necessary to achieve a healthy birth outcome.

The Bishop Score defines several factors that midwives and physicians use to assess the laboring mother's progress. The Score is also used to predict whether the mother is likely to spontaneously progress into second stage (delivery).

Stages of Labor

The first stage of labor classically starts when the effaced (thinned) cervix is 3 cm dilated, although there is variation as some women may or may not have active contractions prior to reaching this point. The onset of actual labor is defined when the cervix begins to progressively dilate. Rupture of the membranes or a bloody show may or may not occur at or around this stage.

Uterine muscles form opposing spirals from the top of the upper segment of the uterus to its junction with the lower segment. During effacement, the cervix becomes incorporated into the lower segment of the uterus. During a contraction, these muscles shorten the upper segment, drawing upwards the lower segment in a gradual expulsive motion. The presenting fetal part is then permitted to descend. Full dilation is reached when the cervix has widened enough to allow passage of the baby's head, around 10 cm dilation for a term baby.

The duration of labor varies widely, but the active phase averages some 20 hours for women giving birth to their first child ("primiparae"), and 8 hours for women who have already given birth ("multiparae"). Active phase arrest is defined in a primigravid woman as the failure of the cervix to dilate at a rate of 1.2 cm/hr over a period of at least two hours. This definition is based on Friedman's Curve, which plots the typical rate of cervical dilation and fetal descent during active labor. Some practitioners may diagnose "Failure to Progress," and consequently, perform a Cesarean.

The second stage begins when the cervix is fully dilated and ends when the baby is born. As pressure on the cervix increases, the Ferguson reflex increases uterine contractions. At the beginning of the normal second stage, the head is fully engaged in the pelvis: the widest diameter of the head has passed below the level of the pelvic inlet. The fetal head then continues descending into the pelvis, below the pubic arch and out through the vagina. This is assisted by the additional maternal efforts of "bearing down" or pushing. The fetal head is seen to 'crown' as the labia part. At this point, the woman may feel a burning or stinging sensation. Complete expulsion of the baby signals the successful completion of the second stage of labor.

The second stage of birth will vary by factors including parity, fetal size, anesthesia, or the presence of infection. Longer labors are associated with declining rates of spontaneous vaginal delivery and increasing rates of infection, perineal laceration, obstetric hemorrhage, as well as need for intensive care of the neonate.
The third stage of labor is the period from just after the fetus is expelled until just after the placenta is expelled. The average time from delivery of the baby until complete expulsion of the placenta is estimated to be 10–12 minutes. Placental expulsion can be managed actively, by giving a uterotonic, such as oxytocin, along with appropriate cord traction and fundal massage to assist in delivering the placenta by a skilled birth attendant. Alternatively, it can be managed expectantly, allowing the placenta to be expelled without medical assistance.

The second stage of labor ends with the expulsion of the infant while the third stage begins with the cutting of the umbilical cord and the expulsion of the placenta.

The umbilical cord is routinely clamped and cut in this stage, but it would normally close naturally even if not clamped. If the cord is clamped after 1–3 minutes, the infant receives increased amounts of hemoglobin in their first months of life, but may have an increased risk of needing phototherapy to treat jaundice. Sometimes a newborn's liver is slow to break down all of the red cells they had in the womb, particularly if they are left with more fetal blood from delayed cord clamping and phototherapy helps to speed the breakdown.

When the amniotic sac has not ruptured during labor or pushing, the infant can be born with the membranes intact. This is referred to as "being born in the caul." The caul is harmless and its membranes are easily broken and wiped away. With the advent of modern interventive obstetrics, artificial rupture of the membranes has become common, so babies are rarely born in the caul.

The "fourth stage of labor" is a term used in two different senses: (1) It can refer to the immediate puerperium, or the hours immediately after delivery of the placenta; and (2) It can be used in a more metaphorical sense to describe the weeks following delivery.