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Normal Labor

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KEY POINTS

1. Labor is defined as uterine contractions resulting in progressive cervical change.
2. Assessment of labor begins with confirmation of gestational age.

BACKGROUND

The experience of labor and delivery is the culmination of the prenatal period.
It is the period with the most potential for both the most joy and the most anxiety.

PRELABOR

Prior to labor there is generally a sequence of predictable events that mark
the physiological preparation for delivery of the infant. Beginning 4–8 weeks
prior to delivery, the patient may begin to experience slight, irregular, and non-
sustained contractions. These contractions, referred to as Braxton-Hicks,
are marked by only mild discomfort in most circumstances and do not lead to
cervical change.

Approximately 2 weeks prior to delivery, the fetal head will often settle into
the pelvic brim. This settling is referred to as lightening and the patient may report that the baby has “dropped.” There is potentially a measurable decrease
in fundal height and the patient may report a decrease in pregnancy symptoms
related to intra-abdominal pressure. The woman may also, however, report an
increase in symptoms related to fetal pressure within the pelvis.

From: Current Clinical Practice: Obstetrics in Family Medicine: A Practical Guide
By: P. Lyons © Humana Press Inc., Totowa, NJ
Beginning several days to several weeks prior to delivery, the cervix will begin to undergo preparatory changes that will include softening and may also include some degree of effacement and dilation. Dilation up to 3 cm may occur during this phase and is generally more pronounced in multiparous patients. A standardized measure of cervical condition exists and is often used in the evaluation of patients for possible induction of labor, when necessary. The Bishop Scale is summarized in Table 1.

As the cervix begins to dilate and efface, the cervical mucus plug that has occupied the os during the course of pregnancy comes out. This is occasionally associated with a small amount of blood referred to as “bloody show.” The loss of the mucus plug and bloody show are generally signs that the onset of labor is imminent.

**LABOR**

Labor is divided into three separate stages, which are summarized in Table 2. The first stage of labor is from the onset of contractions through full cervical dilation and effacement. Because the early cervical changes may be protracted and unpredictable in their course, the first stage of labor is divided into early- or latent-phase labor and active-phase labor. Although no absolute distinction can be made between these two phases of the first stage of labor, patients are generally considered in latent-phase labor until cervical dilation reaches approximately 4 cm. The second stage of labor begins with full cervical dilation and continues until delivery of the infant. The third stage of labor begins with the delivery of the infant and is complete with the delivery of the placenta. Although the duration of each stage is highly variable, the duration tends to shorten with each subsequent pregnancy.

**ASSESSMENT**

**History**

Assessment of possible labor begins with an abbreviated history. Accurate pregnancy dating is critical to the appropriate management of labor. If uncertain dating
makes preterm labor a possibility, the patient must be managed as if preterm. A complete discussion of the management can be found in Chapter 7. In addition to gestational dating, the history should include a review of the prenatal course and any complications that arose during pregnancy. Pre-existing medical conditions, including any allergies, should be reviewed. A history of the contractions should include onset, frequency, duration, and intensity. Patients should be asked about bleeding or rupture of membranes. Fetal movement should be confirmed.

Physical Examination

The physical examination should include vital signs, abdominal examination of the abdomen including Leopold’s maneuvers, and a clinical estimate of fetal size. A manual examination of the cervix should be performed to determine dilation, effacement, station, and presentation.

Dilation

Cervical dilation is measured in centimeters and ranges from 0 (closed) to 10 (complete). Standardized instruments exist that allow providers to “feel” various degrees of dilation and providers should occasionally test their own assessment against these instruments. Hand size varies significantly, but 1 cm dilation is approximately equivalent to a fingertip. A measurement of 3 cm is approximately equivalent to two fingers side by side. A 5 cm dilation is approximately equivalent to spreading index and middle fingers in a “victory” sign, and 10 cm is roughly equivalent to fully spread index and middle fingers.

Effacement

Effacement represents thinning of the cervix over the fetal head (or presenting body part in non-vertex presentations. This can be visualized as equivalent
to pulling a tight turtleneck sweater over one’s head. Effacement is described in percentages, with 0% effacement marking no change and 100% effacement representing no appreciable thickness to the cervix. Although dilation and effacement often occur in tandem, either may occur without evidence of the other.

**STATION**

Station refers to the position of the fetal head in the birth canal. Zero station is defined as the level of the ischial spines. Positions above the ischial spines are measured as negative values, whereas positions below the ischial spines are measured as positive values. Traditionally, the distances were divided in thirds. A fetal head one-third of the distance between the ischial spines and the outlet is +1, two-thirds +2, at the outlet +3. The same applies in reverse for negative station measures. Some authorities now recommend measuring in centimeters from the spines, which translates to a –6 to +6 scale. Considerable head molding may occur during descent and providers should be careful to measure distance to the fetal head and not to the fetal caput.

**PRESENTATION**

During the examination, the presenting body part should be examined and confirmed. If a cephalic (head first) presentation cannot be confirmed on manual examination, an ultrasound should be performed.

**LABORATORY STUDIES**

Prenatal labs should be reviewed and any missing laboratory values should be ordered. In particular, hemoglobin, platelets, and evidence of infection (including group B strep) should be noted. Additional labs may be required if the patient is presenting with a complication of pregnancy or labor.

**MANAGEMENT**

In the first stage of labor, management is generally expectant. Patient should be admitted (preferably as late in the first stage as possible under most circumstances). Blood pressure should be checked every 2–4 hours, fetal heart rate should be monitored every 30 minutes, unless abnormalities arise. Patients may be allowed to ambulate, but intake by mouth should be limited. Adequate anesthesia should be provided at the request of the patient. Recent studies support the use of early anesthesia if requested by the patient.

The second stage of labor is marked by descent of the fetal head through the birth canal. The usual sequence of head movements is engagement, flexion, descent, internal rotation, extension, external rotation, and expulsion.

Delivery will usually occur without any necessary assistance on the part of the provider. At the time of delivery of the head, gentle counterpressure may be
applied to control delivery and minimize perineal trauma. Delivery of the anterior shoulder is effected with gentle downward traction followed by delivery of the posterior shoulder in an upward motion.

With delivery of the head, a quick check is made to ensure that no nuchal cord is present and bulb suction of the infant’s nose and mouth should be performed. The mother should breathe rather than push during this activity. With delivery of the body, the umbilical cord is clamped and then cut. The infant should be held above the level of the uterus while at this point to minimize transfusion of blood from the cord to the infant.

Delivery of the placenta also requires little assistance from the provider under normal circumstances. Gentle traction on the umbilical cord may assist with release, but excess traction may lead to uterine inversion and excess postpartum hemorrhage.