Diagnosis and mangement of abnormal labour

Dr.Entesar Al-Madani

Obstetrician, Gynecologist & perinatologist

- **Labo**r refers to uterine contractions resulting in progressive dilation and effacement of the cervix, and accompanied by descent and expulsion of the fetus

- **Abnormal labor, dystocia, and failure to progress** are imprecise terms that have been used to describe a difficult labor pattern that deviates from that observed in the majority of women who have spontaneous vaginal deliveries

- A better classification is to characterize labor abnormalities as **protraction disorders** (ie, slower than normal progress) or **arrest disorders** (ie, complete cessation of progress)

- Approximately 20 percent of labors involve either protraction or arrest disorders
- A labor abnormality is the most common indication for primary cesarean birth

NORMAL LABOR

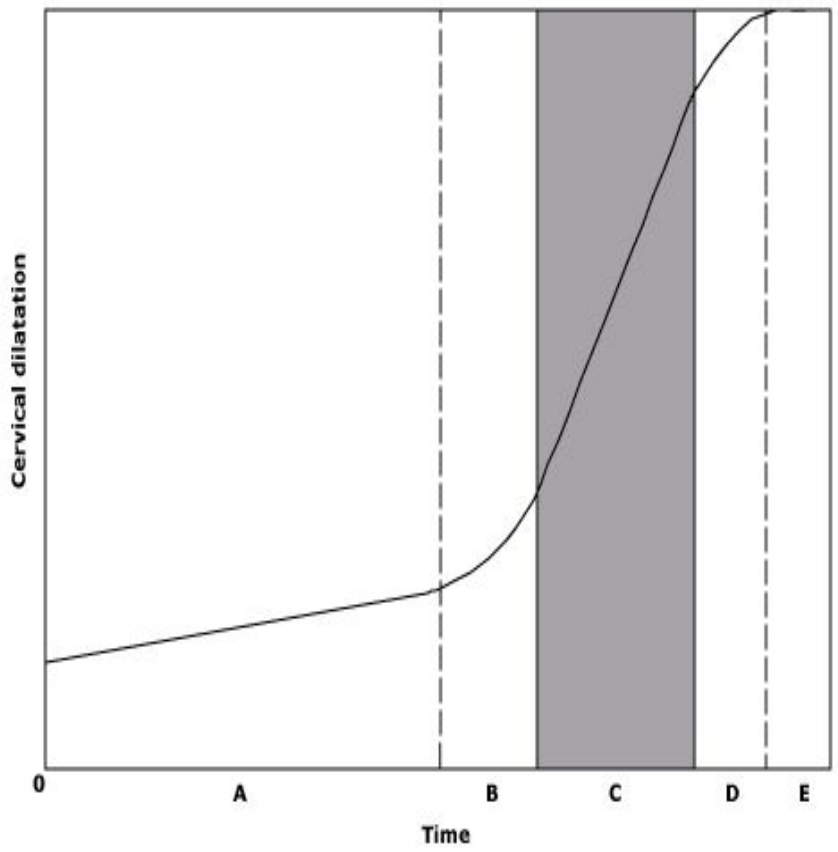
- **Friedman, in his classic studies, divided labor into three stages**
- **First stage:** time from the onset of labor until complete cervical dilatation
- **Second stage**: time from complete cervical dilatation to expulsion of the fetus

NORMAL LABOR

- **Third stage:** time from expulsion of the fetus to expulsion of the placenta

- The first stage is further subdivided into the **latent** and **active** phases, the active phase subdivided into three additional phases: acceleration phase, phase of maximum slope, and deceleration phase

NORMAL LABOR



- First stage = A + B + C + D where
- A=latent phase; B=acceleration phase; C=phase of maximum slope; D=deceleration phase
  Second stage = E

Latent phase

- The onset of the latent phase of labor begins when the mother perceives regular contractions.

Latent phase

- This phase is typically characterized by mild infrequent contractions and a gradual change in cervical dilation (usually <1 cm per hour) and effacement

Latent phase

- The average duration of latent phase in nulliparous and multiparous women is **6.4** and **4.8 hours**, respectively, and is not influenced by maternal age, birth weight, or obstetric abnormalities

Latent phase

- An abnormally long latent phase is defined as **20 hours** for the nullipara and **14 hours** for the multiparous woman
- It reflect four standard deviations from the mean duration of latent phase in the women

Active phase

- The beginning of the active phase typically occurs when the cervix has reached 3 to 4 centimeters dilation

Active phase

- The active phase is characterized by painful contractions of increasing frequency, intensity, and duration accompanied by a rapid rate of cervical change (usually >1 cm hour)

Active phase

- The average duration of the active phase in nulliparous and parous women is 4.6 and 2.4 hours, respectively

Active phase

- An abnormally long active phase is defined as 12 hours for the nullipara and 5 hours for the multiparous woman

Second stage

- The mean duration of the second stage of labor in nulliparous and multiparous women is **66** and **20 minutes**, respectively

Second stage

- abnormally long second stage as three hours for the nulliparous and one hour for the multiparous woman

Second stage

- Neuraxial anesthesia, duration of the first stage, parity, maternal size, birth weight, and station at complete dilation all play a role in predicting duration of the second stage

Second stage

- (ACOG) recommends that the normal duration of second stage of labor be based upon parity and presence of regional anesthesia, with no intervention as long as the fetal heart rate pattern is normal and some degree of progress is observed

Normal uterine activity

- Uterine activity can be monitored by palpation, external tocodynamometry, or internal uterine pressure catheters

Normal uterine activity

- External and intrauterine monitoring devices appear to perform equally well, although the latter may work better in obese women

Normal uterine activity

- Ninety-five percent of women in active labor will have three to five contractions per 10 minutes

Normal uterine activity

- Montevideo units (ie, the peak strength of contractions in mmHg measured by an internal monitor multiplied by their frequency per 10 minutes) are most often employed

Normal uterine activity

- 91 percent of women in spontaneous active labor achieved contractile activity greater than 200 Montevideo units and 40 percent reached 300 Montevideo units

CLASSIFICATION AND DIAGNOSIS OF LABOR ABNORMALITIES

Diagnostic criteria for abnormal patterns in active labor

Labor pattern	Nullipara	Multipara
		First stage
Duration	24.7 hours	18.8 hours
Protracted dilation	<1.2 cm/h	<1.5 cm/h
Arrested dilation	>2 h	>2 h
		Second stage
Arrest of descent (epidural(	>3 h	>2 h
Arrest of descent (no epidural(	>2 h	>1 h

Values represent approximately two standard deviations from the mean

- Protraction and arrest disorders occur in both the first and second stages of labor
- The incidence is about 15 percent in either stage

- **In the first stage of labor**
- progressive dilatation slower than the rate shown in the table is suggestive of a protraction disorder

- **An arrest disorder** can be diagnosed when the cervix ceases to dilate after reaching four or more centimeters dilatation despite adequate uterine contractions (greater than or equal to 200 Montevideo units for two or more hours)

- **second stage of labor**
- **protracted labor** is defined as a second stage longer than two hours in nulliparas (three hours when regional analgesia is used), and longer than one hour in multiparas (two hours when regional analgesia is used)

- **An arrest of descent** can be diagnosed after one hour if there is no descent, despite good maternal pushing efforts

labor can be too fast as well as too slow

- **The term precipitous labor** refers to a labor that lasts no more than 3 hours from onset of contractions to delivery
- **A precipitous second stage** refers to a second stage that is less than 15 to 20 minutes in duration.

ETIOLOGY

- Abnormal labor can be the result of one or more abnormalities of the cervix, uterus, maternal pelvis, or fetus (ie, power, passenger, or pelvis)

Risk factors for abnormal labor

Older maternal age

Pregnancy complications

Nonreassuring fetal heart rate

Epidural anesthesia

Macrosomia

Pelvic contraction

Occiput posterior position

Nulliparity

Short stature (less than 150 cm(

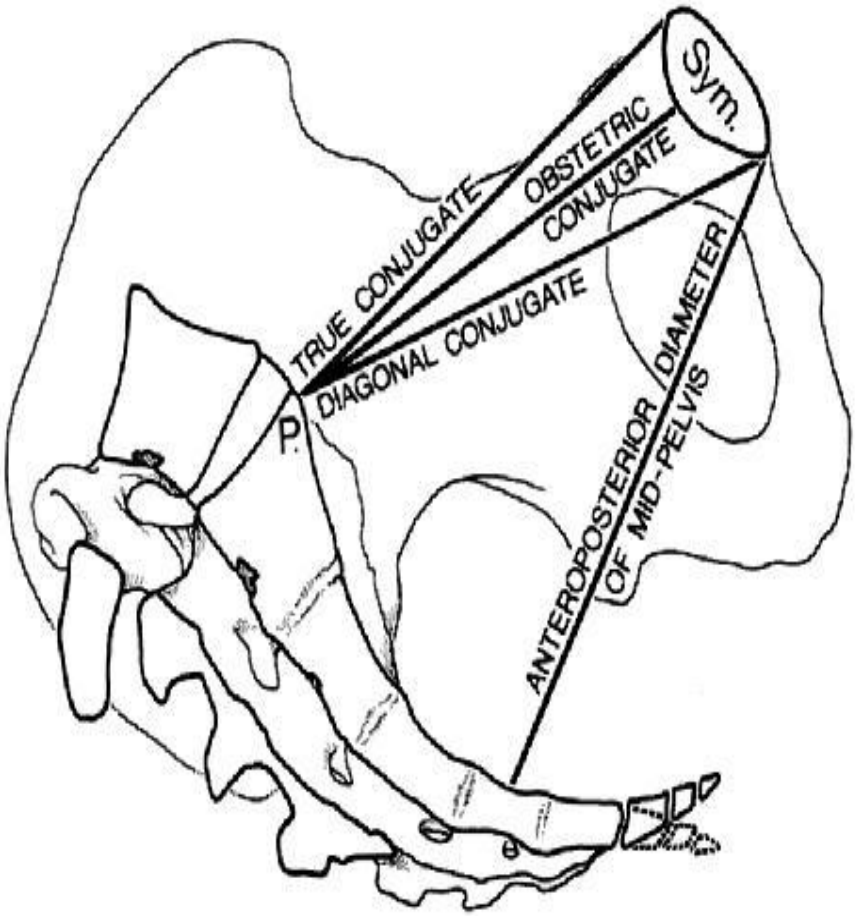
High station at full dilatation

Chorioamnionitis

Postterm pregnancy

Obesity

The passages (the pelvis)



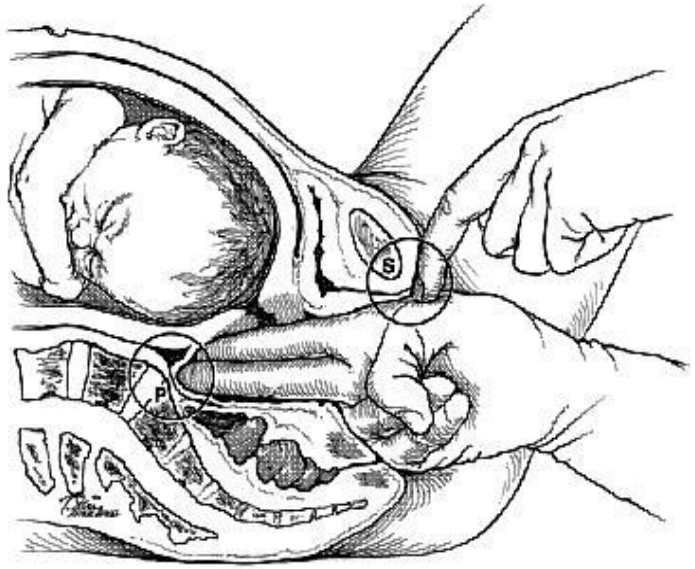
- Pelvic inlet A-P 11.5 cm
  transversely 13.6 cm
- Mid cavity all diameters 12 cm
- Pelvic outlet A-P 12.5 cm
  transverely 10.5 cm

The passages (the pelvis)

- The clinician's ability to predict maternal pelvis-fetal size discordance (cephalopelvic disproportion) leading to arrest of labor requiring cesarean delivery has been disappointing

The passages (the pelvis)

- Clinical or radiologic assessment of the maternal pelvis (ie, pelvimetry) is associated with poor predictive value

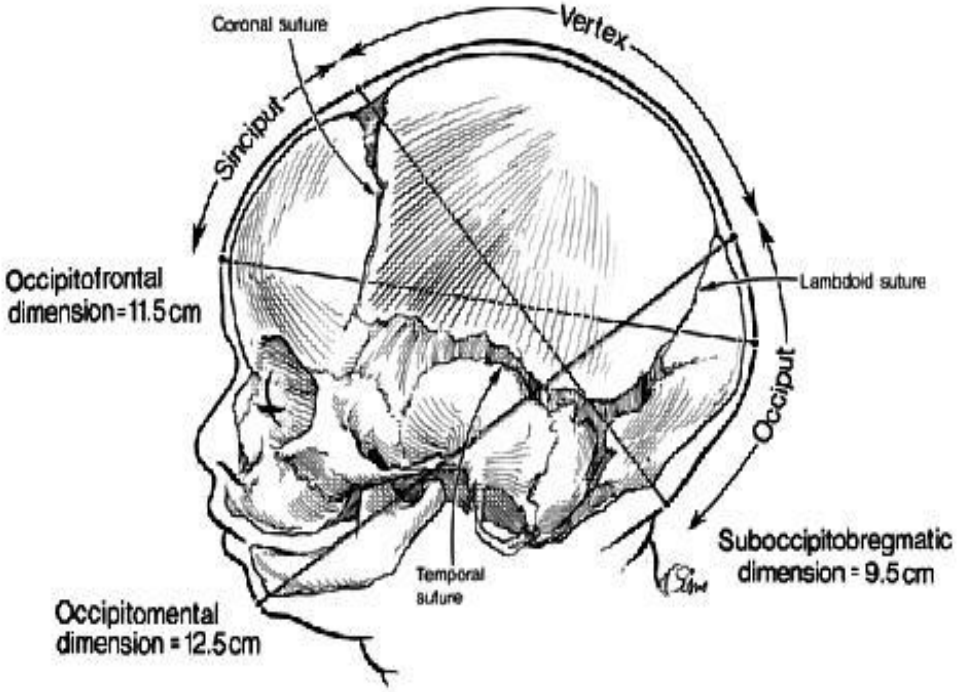


The passenger

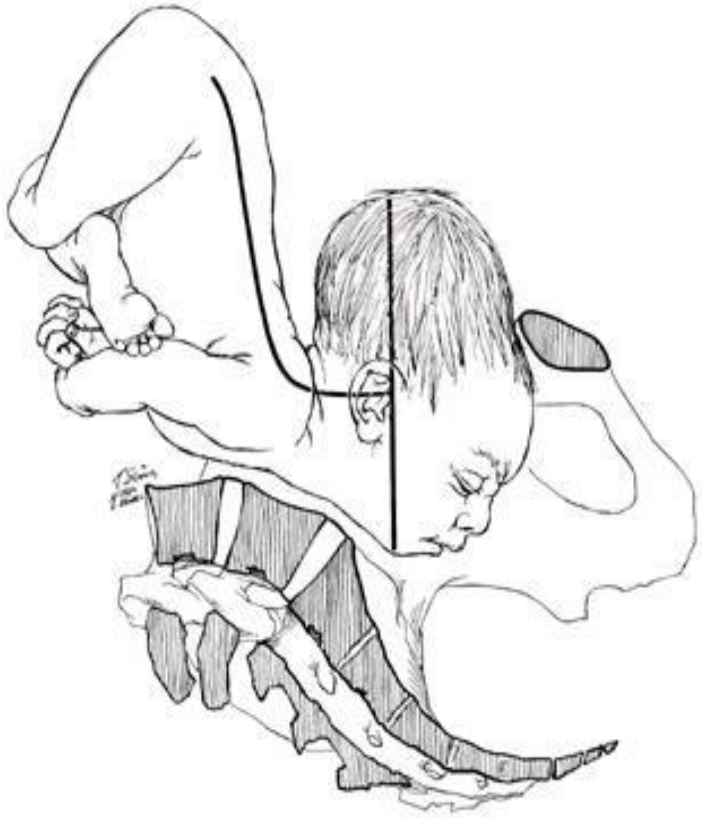
- Fetal weight, larger babies will have greater difficulty in passing through the pelvis
- Unfavorable position of the presenting part
- Fetal abnormalities such as hydrocephalus

The passenger

- The most common presentation is vertex, which occurs in 96 percent of fetuses at term

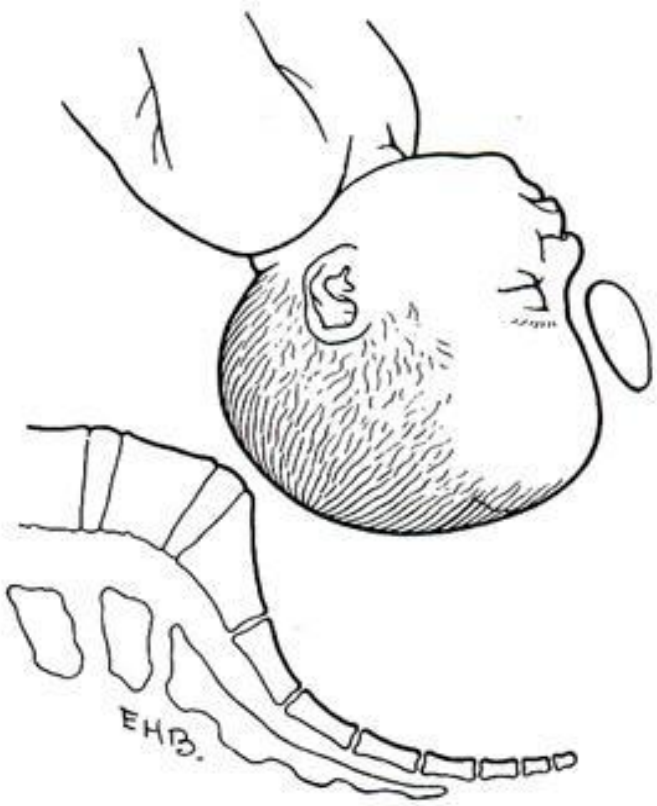


The passenger



- The occiput is on the longer end of the head lever. The chin is directly posterior. Vaginal delivery is impossible unless the chin rotates interiorly
- Occipitomental 12.5cm(face presentation mento posterior)

The passenger



- Occipitofrontl 11.5 cm (Brow presentation)

The powers

- Hypocontractile uterine activity is the most common cause of protraction or arrest disorders in the first stage of labor

The powers

- This entity refers to uterine activity that is either not sufficiently strong or not appropriately coordinated to dilate the cervix and expel the fetus

The powers

- It occurs in 3 to 8 percent of parturients and can be quantified as uterine contraction pressures less than 200 Montevideo units.

The powers

- **Neuraxial anesthesia**
- neuraxial anesthesia is associated with an increased duration of the first and second stages of labor, incidence of fetal malposition, use of oxytocin, and operative vaginal delivery

The powers

- Neuraxial anesthesia has not been proven to increase the rate of cesarean delivery

The powers

- It is possible that changes in neuraxial technique or drugs (eg, use of narcotics or low-dose anesthetics) could decrease the incidence of dystocia

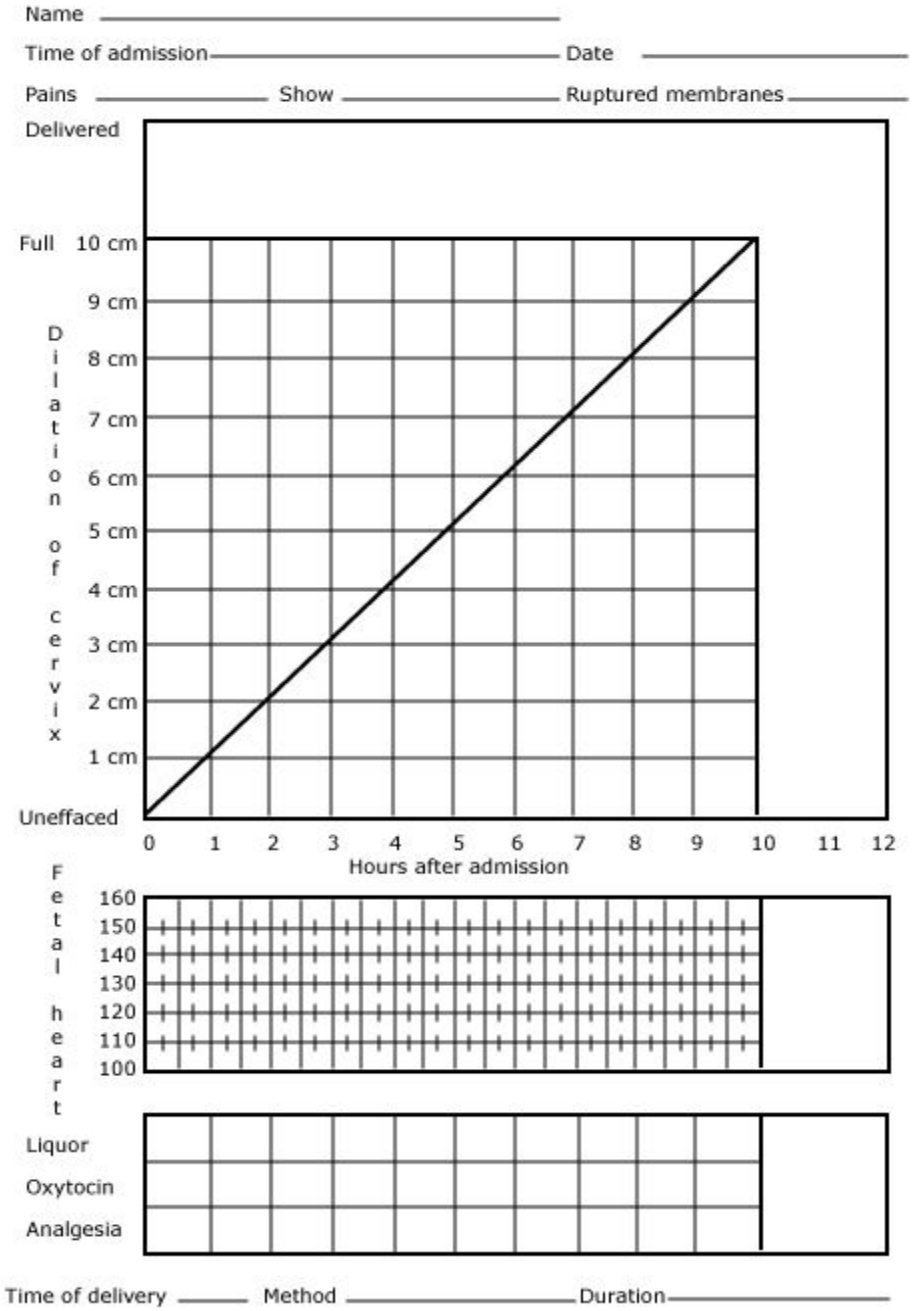
The powers

- The consequences of withdrawing the block before the second stage of labor, appropriate use of oxytocin, delayed pushing in the second stage, and timing of administration also need to be considered

MANAGEMENT

- disciplined approach to the diagnosis of labor, assessment of maternal and fetal well-being, and careful monitoring of labor progress

.Advancement of cervical dilation charted on a partogram



MANAGEMENT

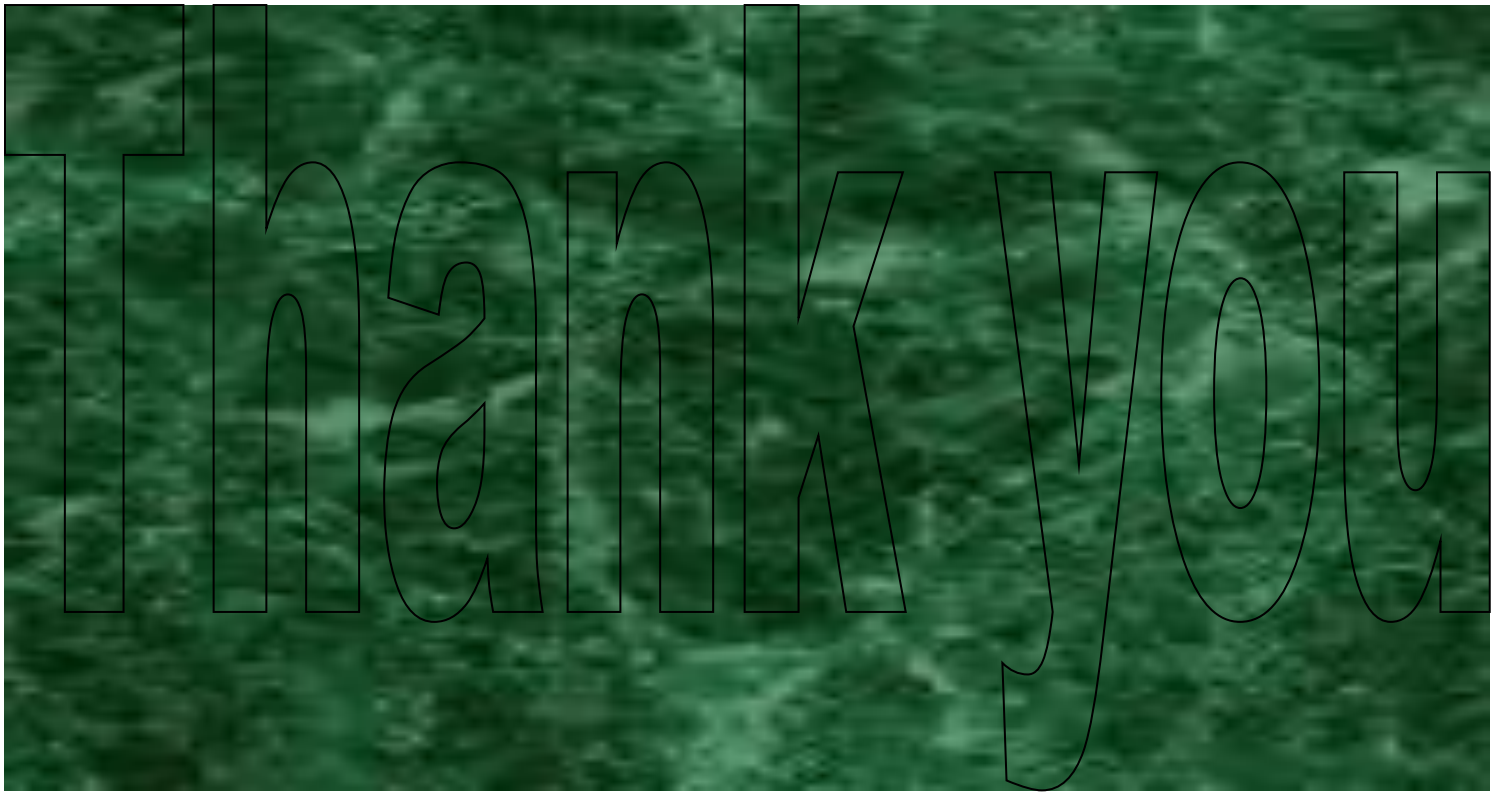
- **Poor progression in the first stage**
- Hypocontractile uterine activity is treated with oxytocin, which is the only medication approved by the US Food and Drug Administration (FDA) for labor stimulation in the active phase

MANAGEMENT

- **Other —** Other interventions, such as ambulation and continuous labor support, may increase the comfort of the parturient, but have not been shown to be clinically effective interventions for treatment of protraction or arrest disorders

MANAGEMENT

- **Poor progression in the second stage**
- Three options:
- Continued observation
- Attempt at operative vaginal delivery
- Cesarean delivery


Thank you