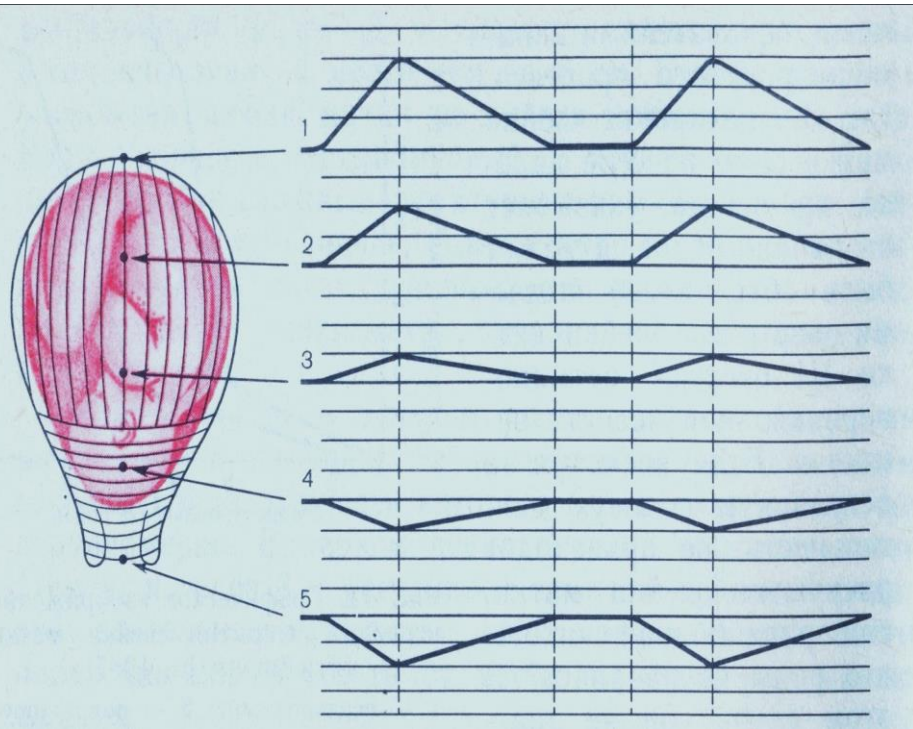


Abnormal uterine action

Associate Professor Ph.D. Einysh E.A.

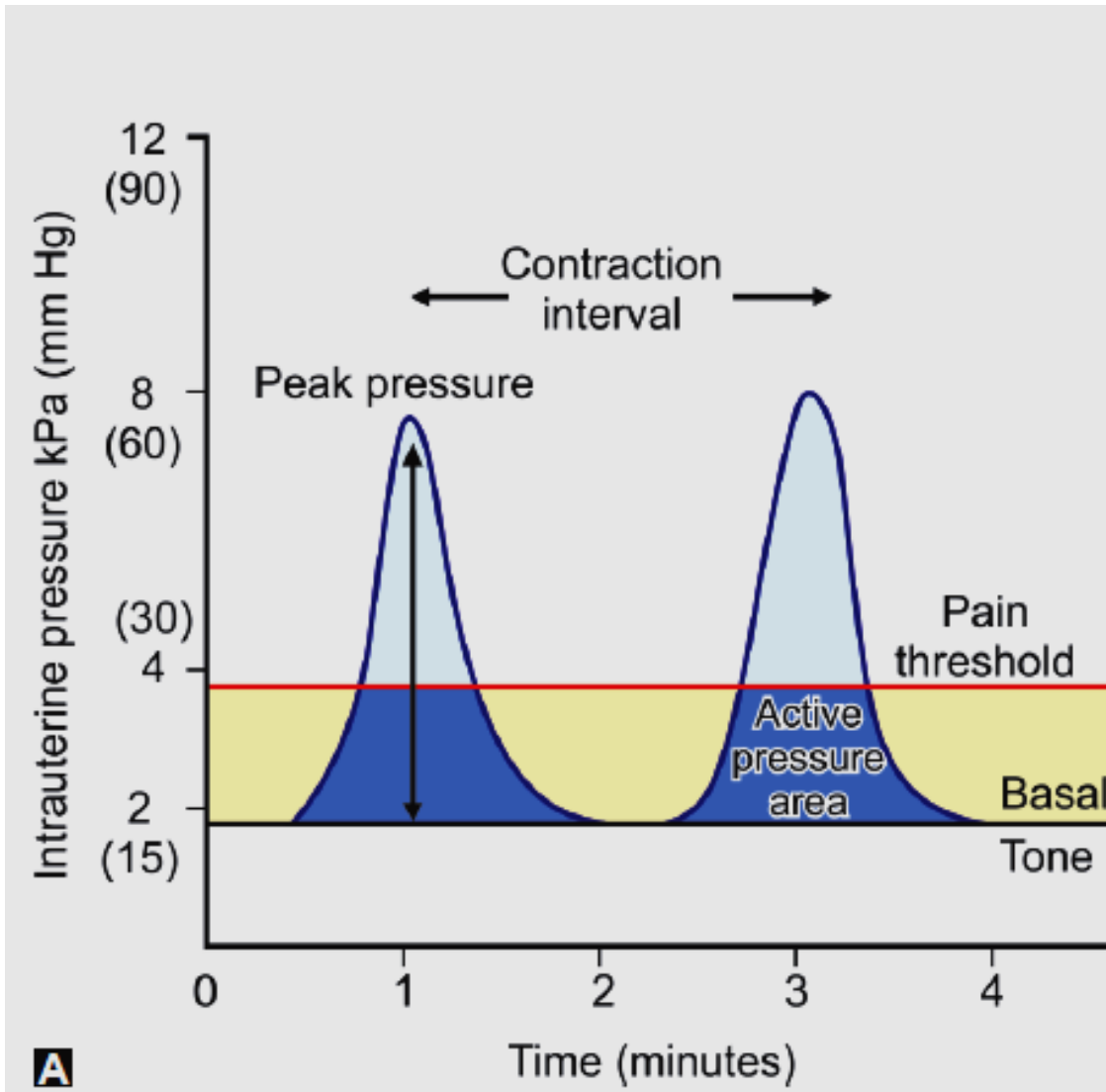
- **Normal labor** is characterized by uterine contractions associated with progressive dilatation of the cervix and descent of the fetal head
- **Any deviations of the normal uterine contractions during labor are abnormal uterine action**
- Frequent complication of labor (10-25%)
- Can lead to other complications dangerous for the mother and fetus
- No methods of prevention, no absolutely harmless methods of treatment
- Often an indication for caesarean section

Contractions of the fundus, corpus, the lower segment of the uterus and cervix are different in strength but synchronic



- **Polarity of the uterus** means when the upper segment contracts, the lower segment relaxes
- **The uterine pacemaker** is situated at the angle of the uterus and this generates uterine contractions
- The contraction wave starts at the pacemaker and spreads towards the lower uterine segment
- The intensity of contraction diminishes from top to bottom of the uterus
- The duration of contraction diminishes progressively as the wave moves away from the pacemaker

Graphic representation of the contractions



Characteristics of uterine contractions during labor

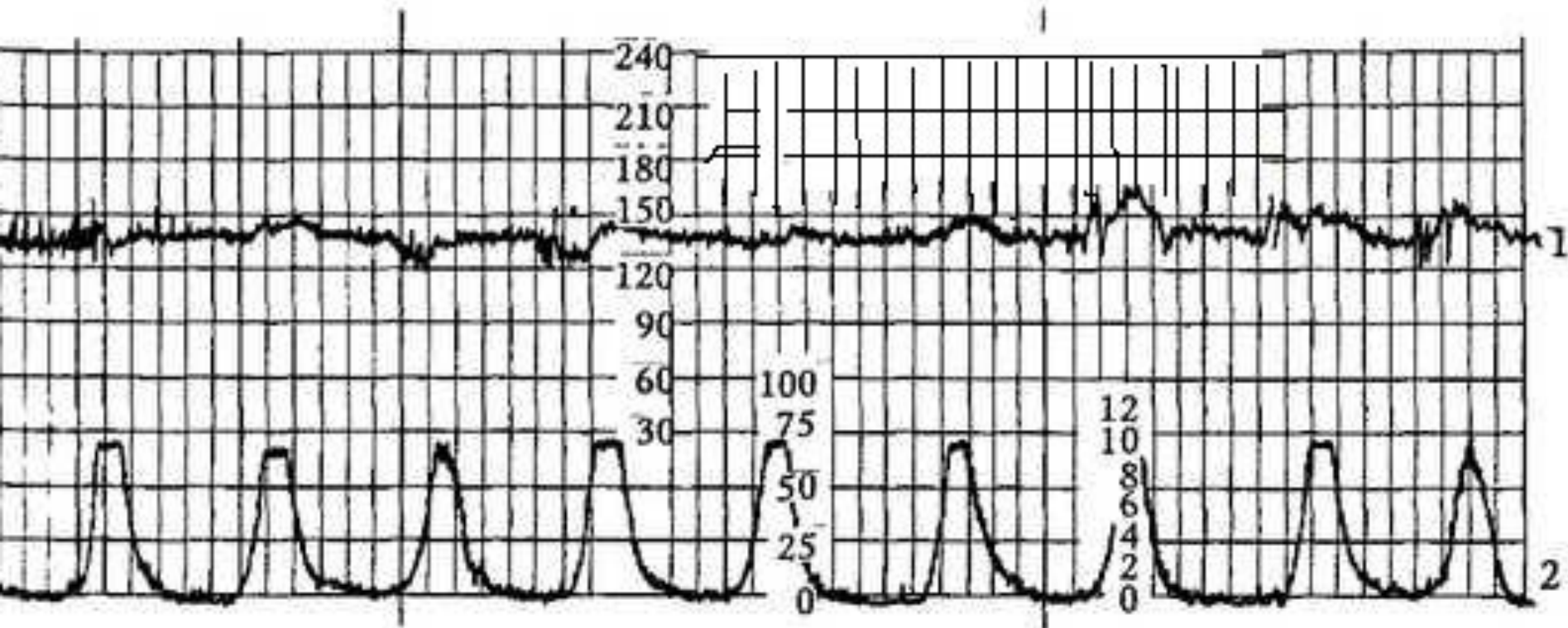
- Basal tone
- Power
- Duration
- Frequency

Parameters of contractions during labor

Parameters of contractions	1-st stage of labor, latent phase	1-st stage of labor, the active phase, 2 stage of labor
Basal tone	8-12 mmHg	8-12 mmHg
Power (intense)	30 mmHg	50 mmHg and more
Duration	40 sec	60-90 sec
Frequency	2-3 contractions in 10 minutes	4-4.5 contractions in 10 minutes

Assessment of uterine contractions

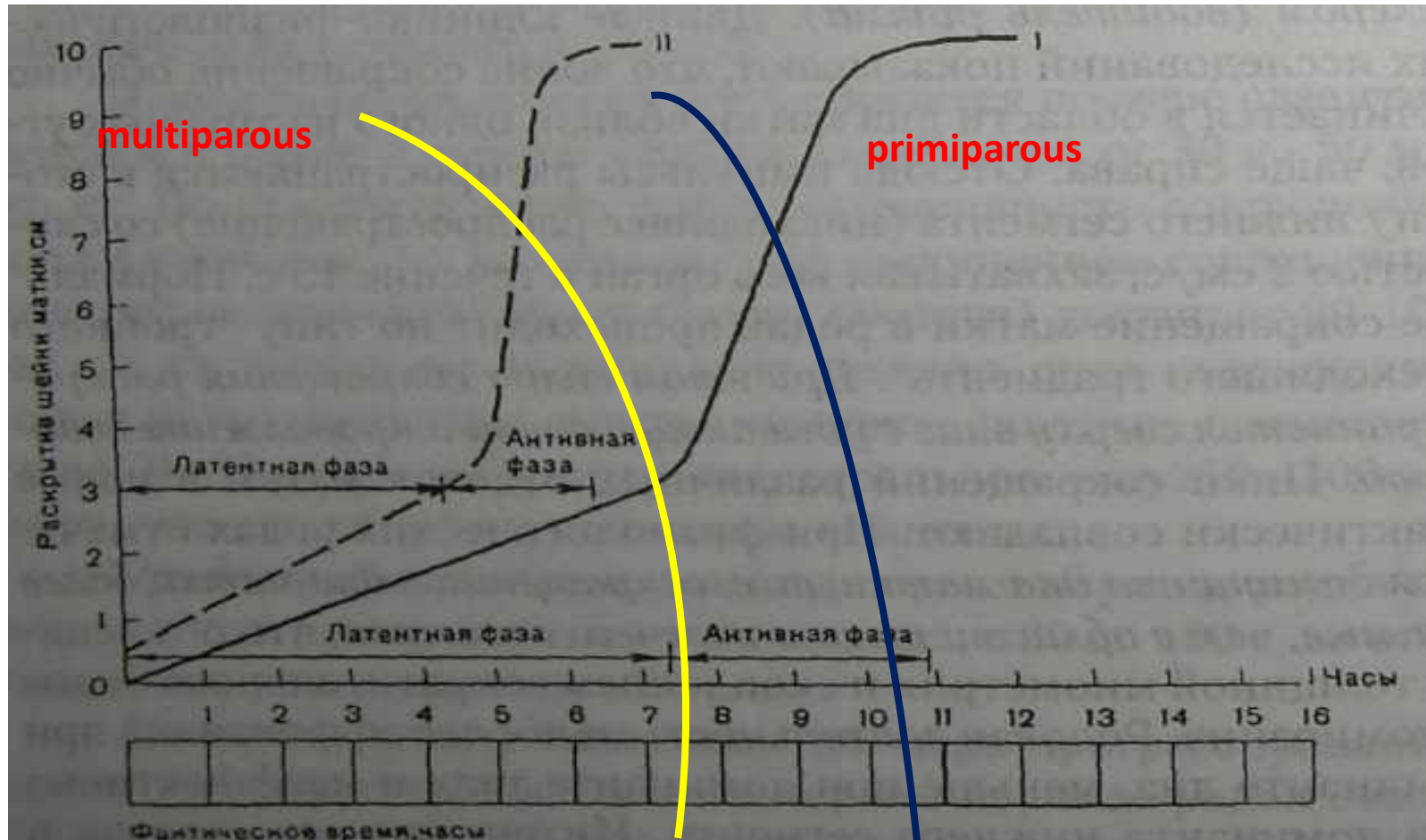
- Palpation (inaccurate)
- CTG with external transducer or using intrauterine pressure catheter (accurate)



Speed of cervical dilatation

- The speed of cervical dilatation in the first stage of labor in the **latent phase** -
0, 35 cm/h
- in primiparous **active phase** -
1.5-2 cm/h
- in multiparous **active phase** -
2-2.5 cm/h
- The speed of fetal head descent -1.0 cm/h

Partograph of normal labor



- Duration of labor - primiparous - 10-12 hours
- multiparous - 6-8 hours

Classification

- **With normal polarity:**
 - ✓ Hypotonic dysfunctions (uterine inertia)
 - ✓ Hypertonic dysfunctions (excessive contractions)
- **With abnormal polarity (incoordinate uterine action):**
 - ✓ spastic lower uterine segment,
 - ✓ colicky uterus,
 - ✓ asymmetrical uterine contraction,
 - ✓ constriction ring
 - ✓ generalized tonic contraction of the uterus
 - ✓ cervical dystocia

Etiology of Abnormal Uterine Action

Pathology of mother's organism:

- Prolonged pregnancy
- Somatic disease and obstetrical complications
- Emotional factor (anxiety, stress, fatigue)
- Overdistension of the uterus (twins, big fetus, polyhydramnion)
- Constitutional factor (obesity)
- Pathological changes in the myometrium
- Contracted pelvis
- Weakness of the abdominal muscles in multiparous women
- Defects of the abdominal wall

Placental and fetal pathology:

- Malformations of the nervous system of the fetus
- Aplasia of the fetal adrenal glands
- Placenta previa and its low location
- Accelerated or delayed of placenta maturation
- Malpresentation

Iatrogenic factors:

Administration of sedatives, analgesics and oxytocics

Pathogenesis

- CNS and ANS disorders that provide complex labor coordination mechanisms
- reduction of specific α - and β -adrenergic receptors, which determine synchronization of uterine body contraction and relaxation of the lower segment
- reduction in prostaglandin synthesis and ratio of E2 and F2 α , changing rhythmic release of oxytocin
- decrease of biochemical processes in the myometrium, supporting the energy supply of the uterus
- change localization of "pacemaker" that from the angle of the tube can move to the center area of the body to the lower uterine segment

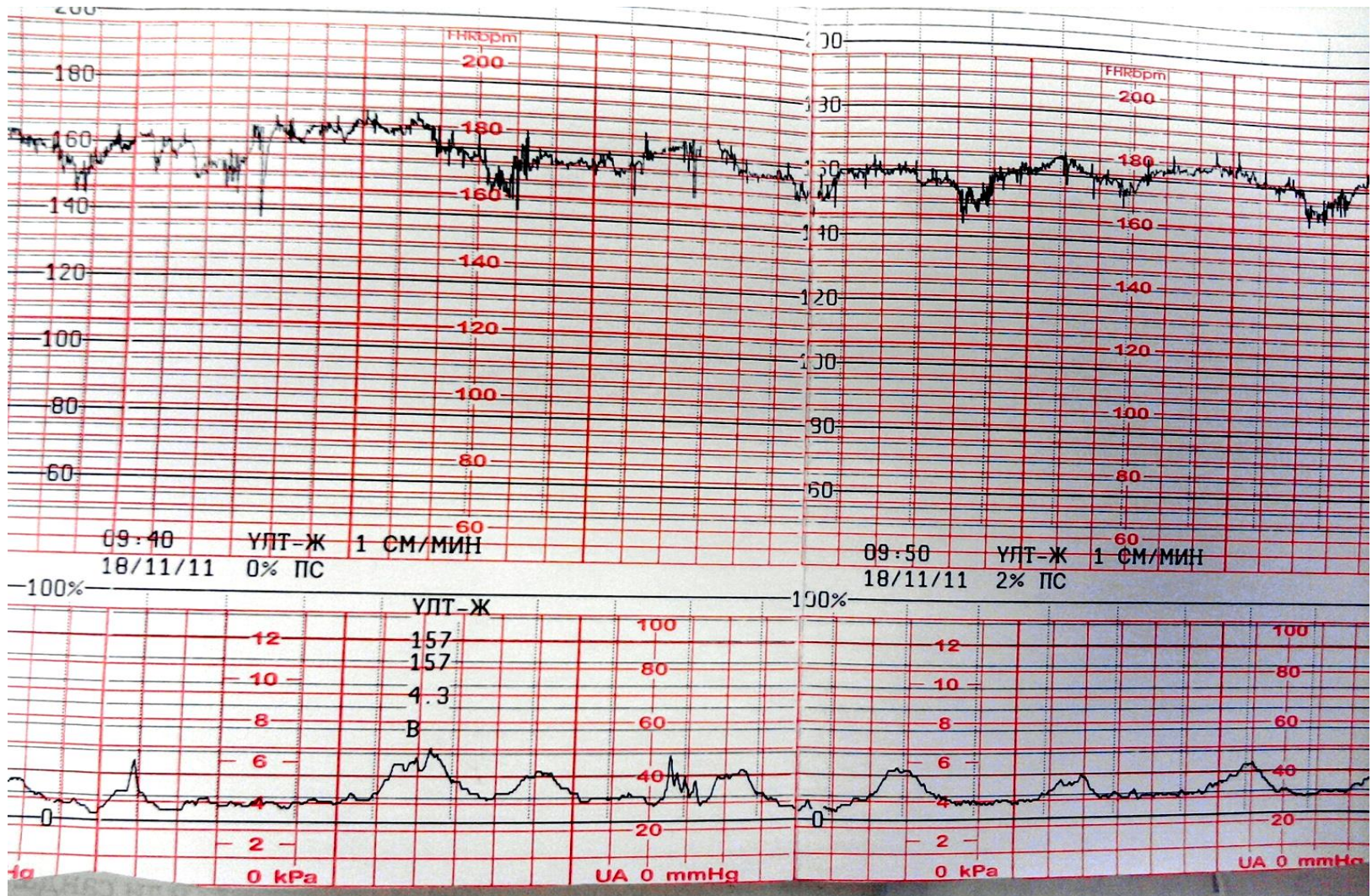
Diagnosis of uterine inertia (hypotonic uterine dysfunction)

Primary dysfunctional labor develops from the onset of labor in the **latent phase** of the first period

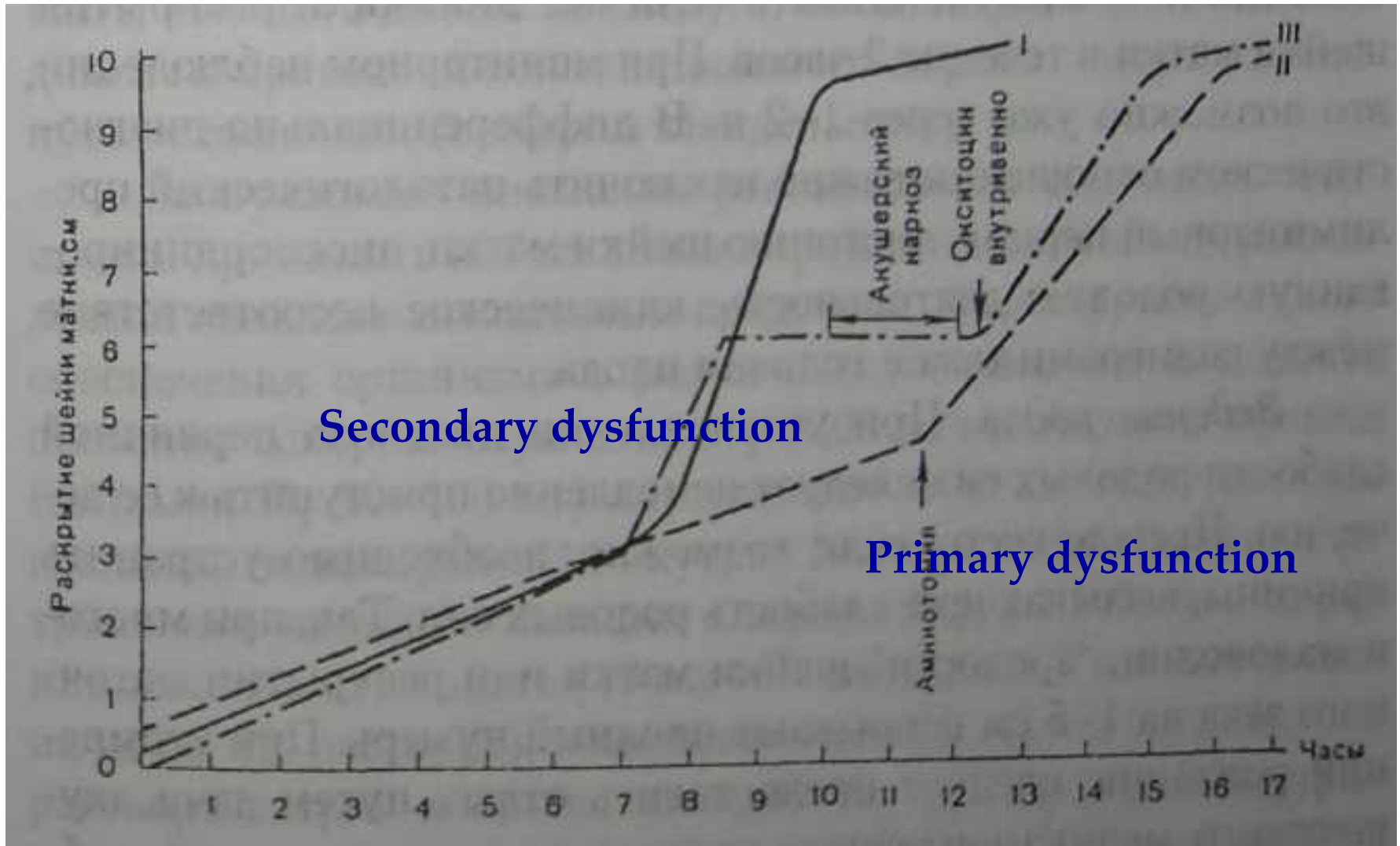
Secondary dysfunctional labor develops into an **active phase** of the first period after variable period of effective contractions or in the period of **expulsion**

- Patient feels less pain during uterine contraction
- **External examination**
- Palpation during uterine contraction reveals less hardening
- Uterus becomes relaxed after the contraction
- Fetal parts are well palpable and fetal heart rate remains normal
- **Internal examination**
- slow dilatation of the cervix
- membranes usually remain intact
- presenting part of the fetus is slowly moving down the birth canal
- **CTG**
- All characteristics of uterine contractions are less than normal

Primary and secondary dysfunctional labor



Partograph of primary and secondary labor weakness



Complications of uterine inertia

- Delayed delivery
- Maternal fatigue
- Extended waterless period
- Genital tract infection
- Hypo-or atonic bleeding
- Inflammatory disease in the postpartum period

Treatment of uterine inertia during the 1 stage of labor:

- Amniotomy (artificial rupture of membranes)
- Oxytocics : **OXYTOCIN**
- Has strong uterotonic effect on smooth muscle cells of the myometrium
- Oxytocin can be used only after the rupture of amniotic membranes
- Safety and efficacy of intravenous oxytocin depend on individual sensitivity of the uterus to oxytocin, the correct dosage of the drug
- Cesarean section

Complications of oxytocics:

- Uterine hyperfunction
- Incoordinate uterine action
- Placental abruption
- Uterine rupture
- Fetal hypoxia, fetal trauma, intrapartum fetal death

Cesarean section is indicated in combination of primary hypotonic dysfunction with risk factors:

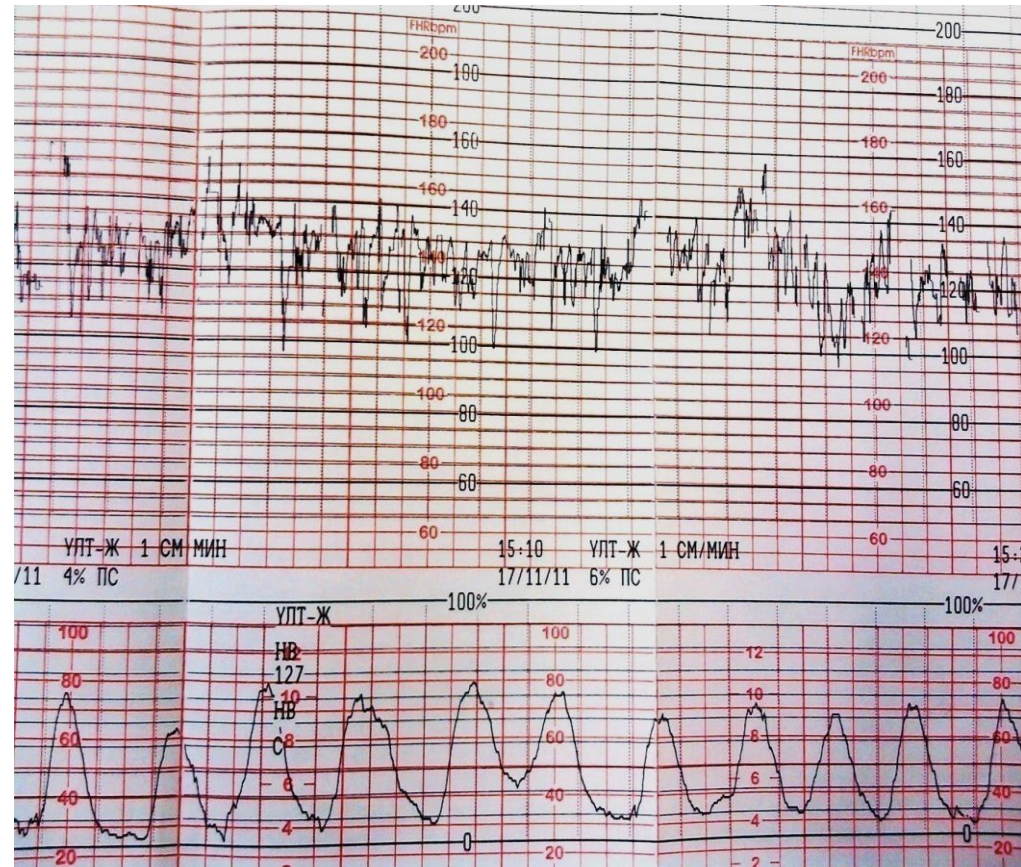
- big fetus,
- malpresentations,
- contracted pelvis,
- fetal hypoxia,
- scar on the uterus,
- primiparous age 30 years and older,
- bad obstetrics history,
- preeclampsy,
- somatic diseases
- prolonged pregnancy,
- premature birth

Treatment of uterine inertia during the 2 stage of labor

- Oxytocics
- In the absence of the effect of drug therapy:
 - ✓ CS
 - ✓ perineotomy+forceps or vacuum-extractor

Hypertonic dysfunction (excessive contractions)

- Strong, long-lasting and frequent contractions
- rapid progression of cervical dilatation
- fast fetal progression through the birth channel
- rapid or prompt delivery (precipitate labor – all stages of labor less than 2 hours))



Complications of hypertonic dysfunction

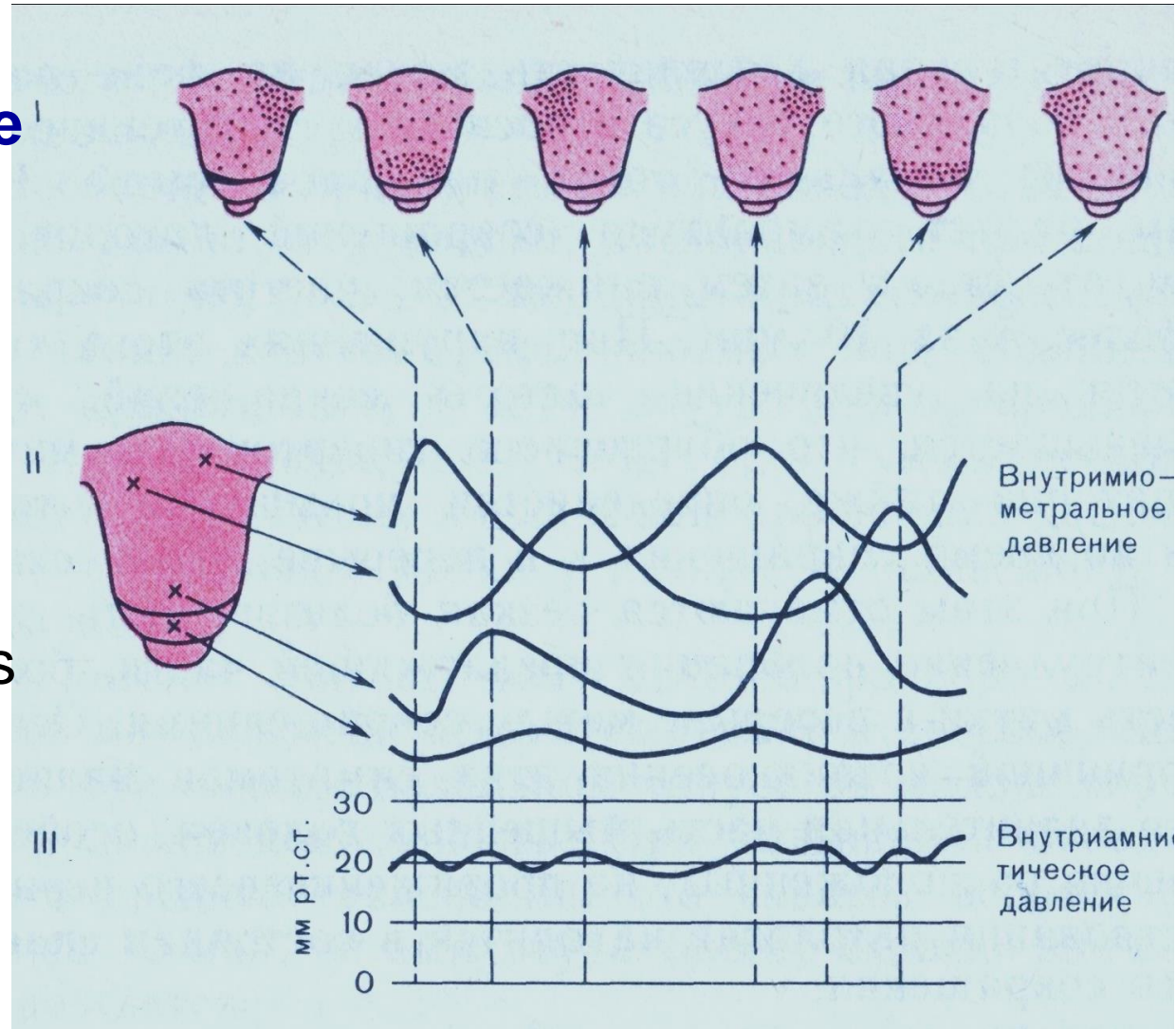
- Extensive laceration of the cervix, vagina and perineum
- Uterine rupture
- Placental abruption
- Amniotic fluid embolism
- PPH due to uterine hypotonia
- Postpartum infectious complications
- Fetal hypoxia and injuries - intracranial hemorrhage because of rapid expulsion without time for moulding of the head

Treatment of hypertonic dysfunction

- The patient with previous history of precipitate labor should be hospitalized prior to labor
 - Oxytocin augmentation should be avoided
 - During labor the uterine contraction may be suppressed by administering magnesium sulfate, antispasmodics, tocolytics
 - Management of 2 stage of labor "on the side" position
 - Delivery of the head should be controlled
 - Episiotomy should be done liberally

Incoordinate uterine action

- **New pacemakers appear all over the uterus.**
- The myometrium contracts spasmodically and irregularly
- This contraction force neither dilates the cervix nor pushes the fetus down

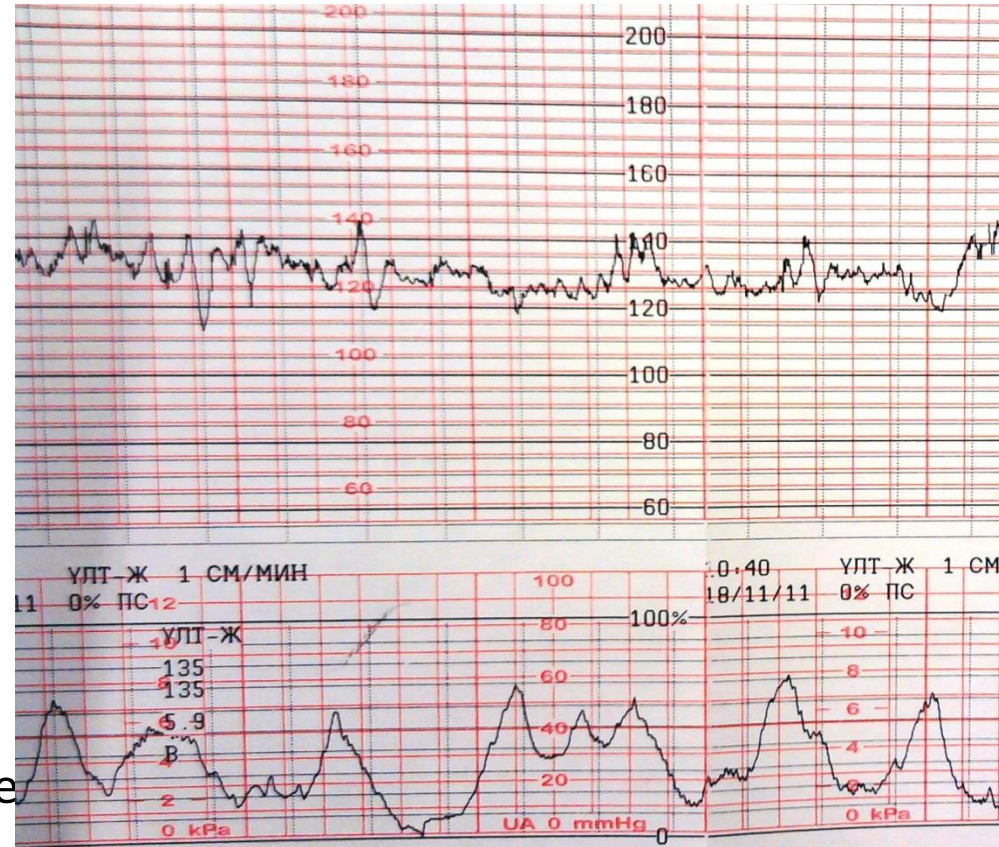


Incoordinate uterine action

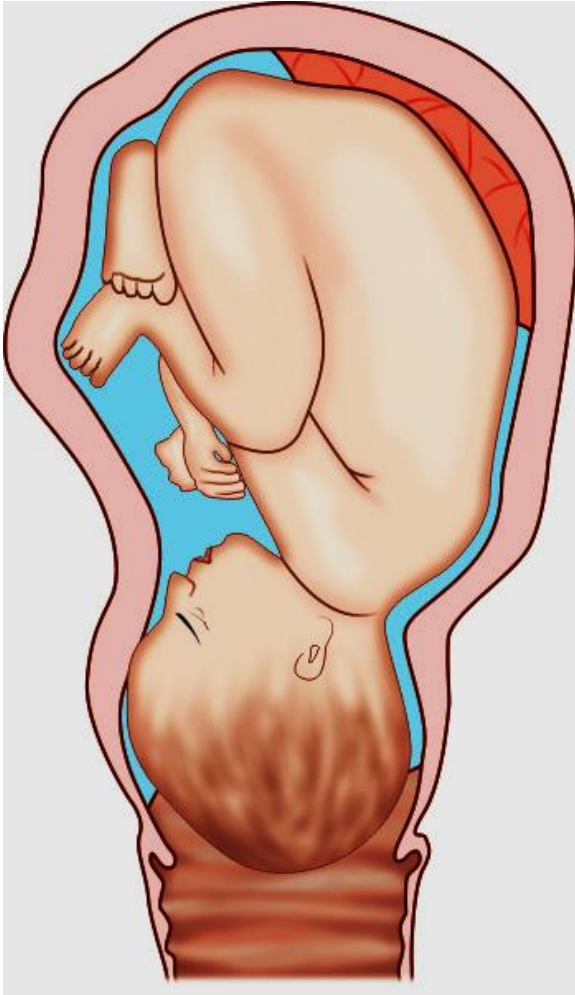
- Clinical forms:
- spastic lower uterine segment,
- colicky uterus,
- asymmetrical uterine contraction,
- constriction ring
- generalized tonic contraction of the uterus
- cervical dystocia

Incoordinate uterine action

- The presence of irregular painful contractions with different intensity and duration
- The lower segment contractions are stronger
- Inadequate relaxation in between contractions - basal tone is raised above the critical level of 20 mm Hg
- There are premature attempts to bear down
- Palpation of the fetal parts is difficult
- labor inefficiency, delay opening of the cervix, cervical edema, flat amniotic sac, high localization of the presenting part
- Tired mother, arrest of labor
- Fetal distress appears early

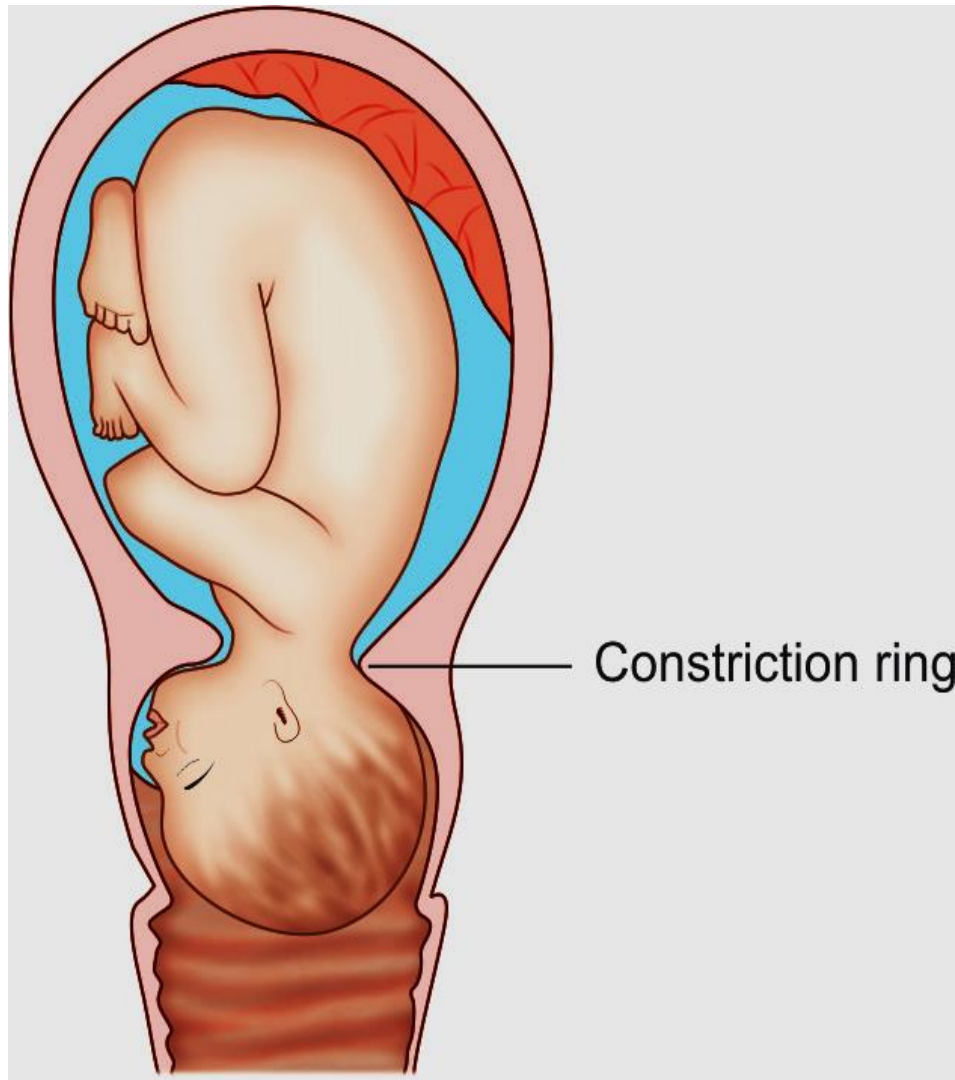


GENERALIZED TONIC CONTRACTION (*Uterine tetany*)



- New pacemakers appear all over the uterus
- In this condition, pronounced retraction occurs involving whole of the uterus up to the level of internal OS
- There is no physiological differentiation of the active upper segment and the passive lower segment of the uterus.
- The whole uterus undergoes a sort of tonic muscular spasm holding the fetus inside (active retention of the fetus)

CONSTRICTION RING



- Localized myometrial contraction forms a ring of circular muscle fibers of the uterus
- **It is usually situated at the junction of the upper and lower segment around** a constricted part of the fetus
- usually around the neck in cephalic presentation

Complications of incoordinate uterine action

- Premature rupture of membranes
- Delayed delivery
- Placental abruption
- Amniotic fluid embolism
- Hypo-and atonic bleeding
- High frequency of fetal distress, acute hypoxia
- Aspiration of amniotic fluid with meconium
- Birth injuries
- High frequency of operative delivery
- Septic complications

Treatment of incoordinate uterine action

- **There is no place of oxytocin augmentation**
- Cesarean section is done in majority of cases

Prevention of abnormal uterine action

- Select a group of high-risk
 - ❖ psychoprophylactic training
 - ❖ prenatal education
 - ❖ friendly attitude
 - ❖ pain relief medication, spinal and epidural anesthesia
 - ❖ partnership delivery

A bouquet of pink tulips with green leaves and a purple ribbon, set against a pink background with horizontal lines.

THANK YOU!

Pathological preliminary period

Irregular in frequency, duration and intensity of the cramping pain in the abdomen, the sacrum, lumbar:

- last more than 6:00
- change circadian rhythm of sleep and wakefulness and cause fatigue mothers, emotional discomfort
- not cause structural changes do not lead to the disclosure of the cervix
- lead to the appearance of intrauterine fetal hypoxia

Pathological preliminary period can go into any form of anomalies in labor

Diagnostics of pathological preliminary period

External obstetrical examination:

- Increased tone of the lower uterine
- Difficult palpation of fetal parts
- High location of the presenting part of the fetus

Vaginal examination:

- Increased tone of the pelvic floor and vagina
- Definition more "immature" cervical

CTG:

Contractions of varying intensity and duration with varying intervals between them

Signs of intrauterine fetal hypoxia

Complications - premature rupture of membranes

Treatment of pathological preliminary period

- Normalization of the central nervous system conditions: sedation herbal preparations, tranquilizers
- Normalization of uterine tone: antispasmodics, tocolysis
- Prevention of fetal hypoxia: drugs that increase metabolism in placenta and placental blood flow (aktovegin, pentoxifylline)

Variants of treatment outcome:

- Absence of complaints and uterine activity during CTG, normal maternal and fetus conditions -**waiting tactic**
- Having a "mature" cervix or the regular contractions-**induction of labor**
- Treatment failure when combined with other aggravating factors of the mother and the fetus -**indication for cesarean section**

Indications for caesarean section for pathological preliminary period:

- Preservation of the "immaturity" of the cervix
- Compromised anamnestic history
- Large fetus
- Breech presentation
- Hypoxia, fetal growth retardation
- Prolonged pregnancy
- Age over 30 years
- Anatomically contracted pelvis
- Extragenital diseases