PSMU

Department of obstetric and gynecology №2

Lections for the second (master's) level of higher education
№2

Organization of obstetrical-gynecological helpings. Physiological duration of pregnancy, labor and postpartum terms

Plan of the lection

- Normal (physiologycal) labor
- The 1st stage of labor
- Change of uterine cervix form
- The head of fetus descent and flexes
- The 2nd stage of labor
- The 3rd stage of labor
- Clinical course and management during the first stage of labor requires
- Clinical course and management during the second stage of labor requires
- Clinical course and management during the third stage of labor.

Normal (physiologycal) labor

- is labor with the spontaneous beginning and progress of contractile activity
- in pregnant with low risk degree
- within 37-42 weeks of pregnancy, occipital presentation of fetus
- and satisfactory state of mother and new-born after labor.

Labor and delivery are
the final phases of a pregnancy,
which end with the baby and
placenta birth.

During labor
fetus and placenta are expelled
from the uterus

Normally labor occurs between 37 and 42 weeks gestation

• Till 36 week	37-42 weeks	late 42 weeks
• preterm labor	term labor	post term labor

Labor often lasts

- between 12 and 14 hours – or longer – for first-time mothers, but is usually shorter in subsequent births.

It is divided into stages

- **In the first stage**
- the cervix opens to full dilatation to allow the head to pass through
- **The second stage is**
- from full dilatation to delivery of the fetus.
- **The third stage last**s
- from delivery of the fetus to delivery of the placenta.

10-16 h nulipara
8-10 h multipara

The 1st stage — is the longest stage of labor

- From beginning of uterine contractions till full dilation of cervix

After 37 week pregnant woman has spasmodic pains at the low abdomen and sacrum
with mucous-hemoregical or watery (in case of amniotic fluid escape) discharge from vagina;

Labor is beginning when take place painful uterine contractions.

- The indication of beginning labor is regular contractions of uterus, which last more 10-15 seconds and happening between no more 10 or 15 minutes.

Labor consists of 3 simultaneous process

- Uterine contractions
- Effacement and dilation uterine cervix
- Moving of the fetal head

The labor contractions are involuntary contractions of uterine muscles. Intervals between the contractions are called a pause.

The interval between contractions

- diminishes gradually from approximately 10 minutes in early labor to 1-2 minutes near the end of labor.

Regular labor activity is such contractile activity which causes structural changes of uteral cervix (effacement and dilation of cervix canal)

CHANGE OF UTERINE CERVIX FORM:

Effacement.

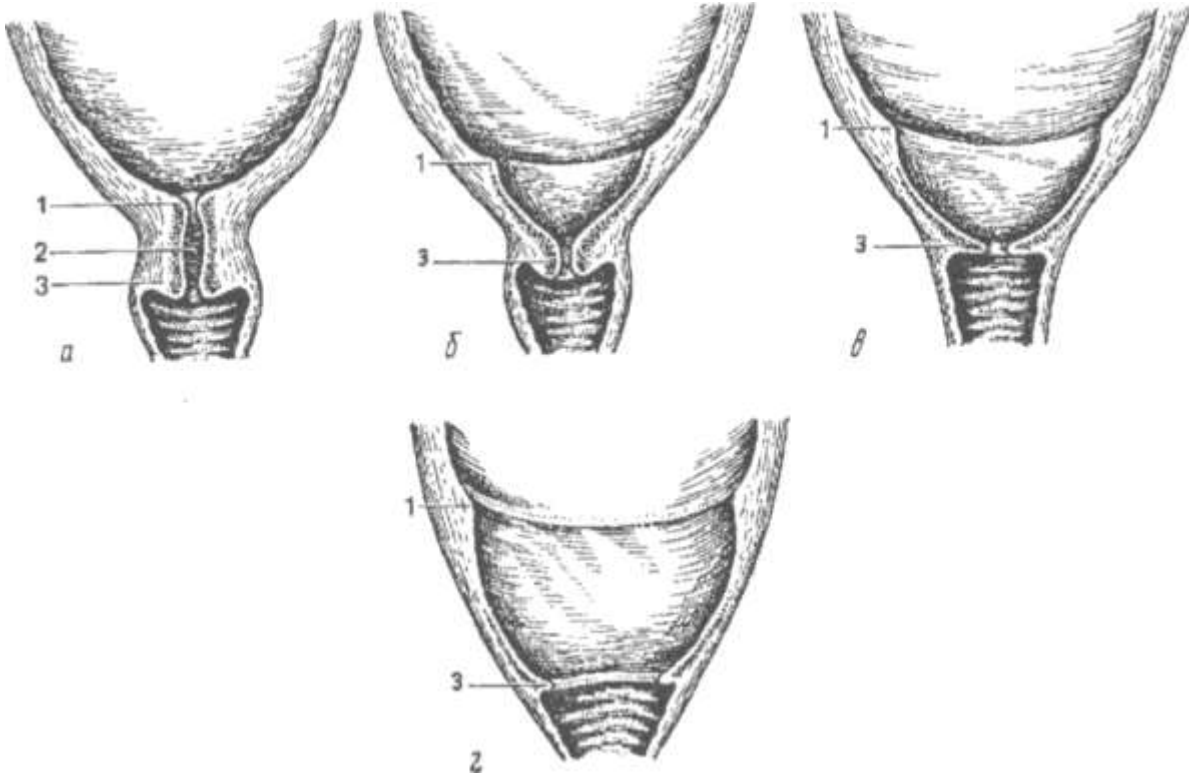
- Prior to birth, the cervix begins to soften and thin, a process known as effacement.
- The only way to detect effacement is for a physician to examine the cervix during a vaginal exam.

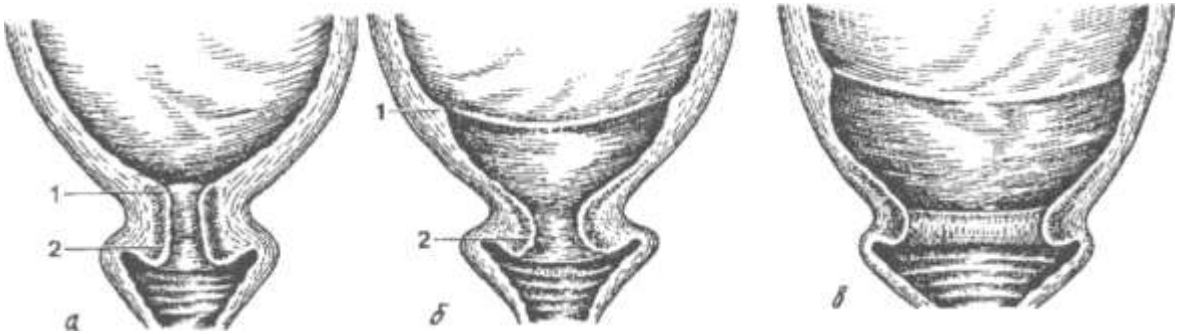
change of uterine cervix form:

Dilation.

- The closer a woman gets to delivery, the more her cervix opens, a process known as dilation.
- A physician measures the degree of dilation in centimeters from 0 to 10. Many women dilate very slowly until labor begins, when dilation quickly increases.

Uterine cervix of nullipara:
a - before labor onset;
b - the beginning of uterus dilation;
c- the first period of labor (cervix effacement);
d - the end of the first period of labor (full dilation of cervix):
1- internal orifice of cervix canal; 2 – canal of uterine cervix; 3 - external orrifice





Uterine cervix of multipara: a - I stage of labor onset; b - simultaneous dilation of internal (1) and external (2) orifices of cervical canal; c – full delation of cervix

1. The latent phase (Early labor).

- The cervix dilates from 0 centimeters to 3-4 centimeters
- Temp of opening – 0.3-0.5 cm/h
- mild to moderately strong contractions last 30 to 60 seconds, arriving every 5 to 15 minutes.
- The latent phase is difficult to time precisely,
- duration varies, averaging 5-8 h;

2. The active phase (Active labor)

- The cervix dilates to nearly 8 centimeters,
- contractions become stronger and longer. Contractions are often 2 to 4 minutes apart.

- Active labor usually lasts between 3 and 8 hours, but may be shorter for women who have had a previous delivery.
- On average, the active phase lasts 5 to 7 h in nulliparas and 2 to 4 h in multiparas.
- The cervix should dilate 1 cm/h

3. Transition.

- The cervix dilates from 8 to 10 centimeters.
- Contractions increase in strength and frequency, with time for only hurried breaths between contractions. Contractions quickly reach peak intensity and last up to 90 seconds.
- Many women feel increased pressure in the lower back and rectum, and may feel hot and sweaty for a minute, then cold and chilled.
- This is usually the shortest stage of labor, Transition can last between 15 minutes and 1.5 hours. Women who have previous vaginal delivery are likely to experience shorter transitions.

The amniotic sac

(which holds the fluid that surrounds and protects the **fetus**)

- ruptures usually in the active phase.

- If woman's water "breaking" in 1 stage until the active phase, it is called

early rupture of membranes.

- If amniorrhexis happen until the begin labor it is called

premature rupture of membranes.

- If the membranes have not spontaneously ruptured,

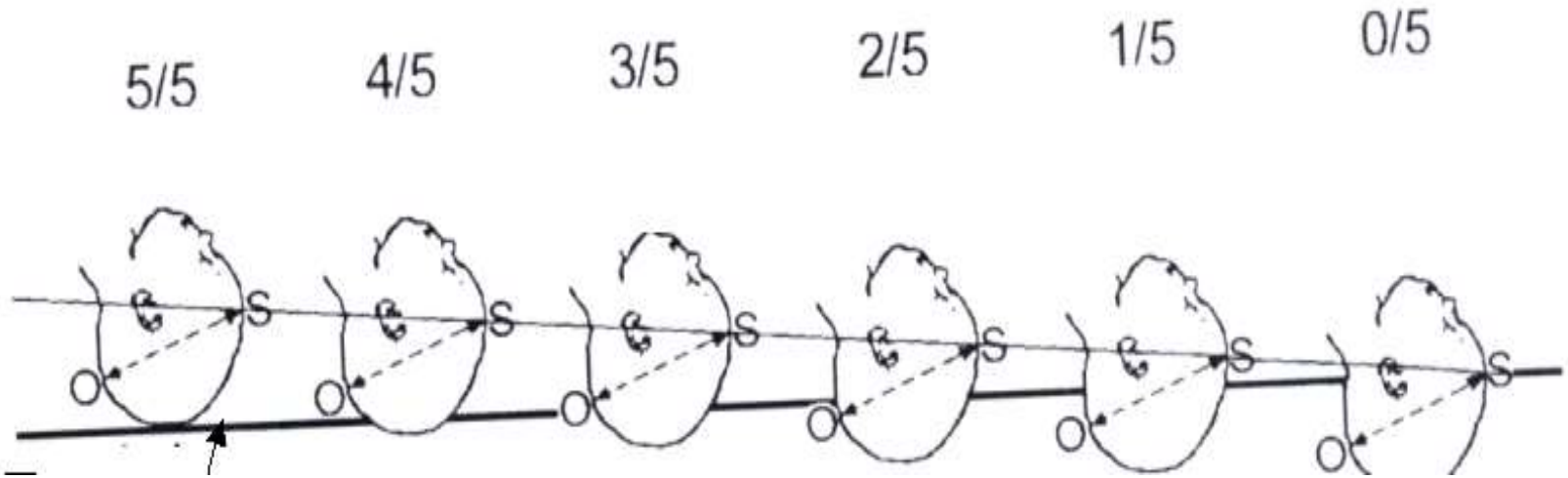
amniotomy

(artificial rupture of membranes)

is typically done during the active phase.

The head of fetus descent and flexes

- Due to contractions of uteri and simultaneous dilatation of cervix the head of fetus descent and flexes



It is thus, the normal characteristics of 1 stage of labor are:

- Average duration 8 h in nuliparous 4h in multiparous.
- Uterus contraction which have sufficiently strength and frequency for dilatation of cervix and descent of fetus head
- Amniorrhexis
- The head of fetus descent and flexes

The 2nd stage

- it is the phase when the baby is actually born.

- from full cervical dilation to delivery of the fetus.
- On average, it lasts 2 h in nulliparas (median 50 min) and 1 h in multiparas (median 20 min).

Contractions of uteri

- continue in 2 stage but they are more strength and frequent.
- “bearing down” efforts– uterine contractions supplemented by contractions of abdominal muscles (occurs when the presenting part of fetus attains the pelvis floor)

The II stage divided into 2 separate phases

- *early phase* of the second stage - from the full dilation to beginning of “bearing down” efforts,

- *active phase* – after start of “bearing down” efforts .

The head of fetus

1. rotates from occipito- transverse to occipito-anterior (or posterior).
2. When rotation is completed, the head of fetus reaches pelvic floor. The intrauterine pressure accompanied intraabdominal pressure, that mean pushing (“bearing down” efforts).
3. On the pelvic floor the head start extends and it is delivered over perineum.
4. Them trunk rotates back, before the shoulders deliver.

The 3rd stage

- it is the phase when the placenta delivery.

- begins after delivery of the infant and ends with delivery of the placenta
- Its duration must not exceed 30 minutes in case of bleeding signs absence.

The III stage of labor is divided into 2 phases:

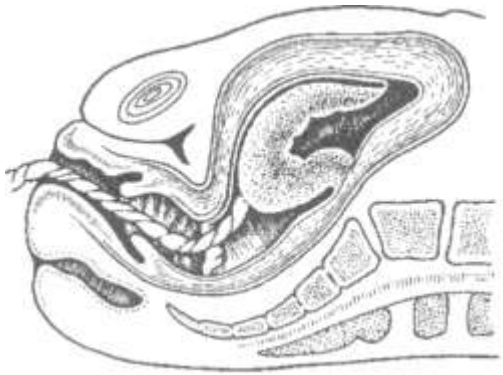
- phase of placenta separation from the wall of uterus;
- phase of placenta with membranes explution from the uterus.

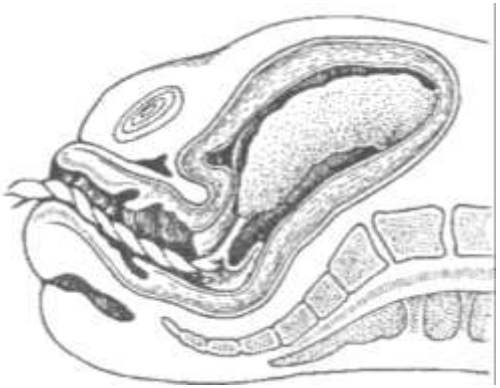
Separation of placenta from uterine wall

Central

marginal

Separation





Clinical management of physiological labor and delivery

- The main purpose of assistance rendering during labor and delivery is to provide safety for a woman and her baby with minimal interference into physiological process by means of:
- careful monitoring of mother and fetus state as well as the labor progress;
- conditions creation for emergency rendering for parturient woman and newborn child;
- measures to prevent infectious and purulent-inflammatory complications;
- introduction and strict compliance with the principle of “thermal chain”.

Clinical course and management during the first period of labor

The monitoring of the first period of labor progress, state of mother and fetus is carried out by partogram.

- 1. Labor progress:
- - Rate of cervix dilation, assessed by the method of internal obstetric examination (every 4 hours)
- - Fetal head descending, assessed by abdominal palpation (every 4 hours)
- - Frequency (for 10 minutes) and duration (in seconds) of uterine contractions (every 30 minutes)
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- 2. State of fetus:
- - Fetal heart beat rate, assessed by auscultation or Doppler analyzer (every 15 minutes)
- - Degree of fetal head configuration (every 4 hours)
- - State of amniotic sac and amniotic waters (every 4 hours)
- 3. State of a woman:
- - Pulse and blood preasure (every 2 hours)
- - Temperature (every 4 hours)
- - Urine: volume (every urination, but not less than every 4 hours); presence of albumin or acetone (according to indications).

Clinical course and management during the second stage of labor requires

- • blood preasure, pulse measurements in woman every 10 minutes;
- • control of fetal cardiac activity every 5 minutes during the early phase, and after every “bearing down” effort during the active phase;
- • control of fetal head advancement down the birth canal by internal obstetric examination hourly.

- Separately it should be noted that the protracted lodgment of fetal head in one plane of small pelvis without the dynamics of advancement can result in forming of recto- and urovaginal fistulae.
- Due to the risk of birth canal ascending infectioning additional internal obstetrical examinations during the first period of labor and delivery are required only when there are indications for them:
  - amniotomy ;
  - multiple pregnancy after the first fetus delivery;
  - necessity of operative vaginal delivery (obstetrical forceps, vacuum extraction or fetus extraction by pelvic end).

Clinical course and management during the third stage of labor.

- There are two approaches in management during the third stage of labor: active and expectant.

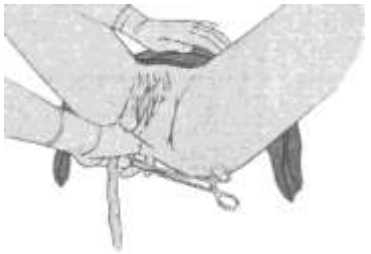
Active management during the third stage of labor

The method of active management during the third stage of labor allows to reduce frequency and amount of postpartum hemorrhage caused by uterine atony by 60% as well as hemotransfusion necessity.

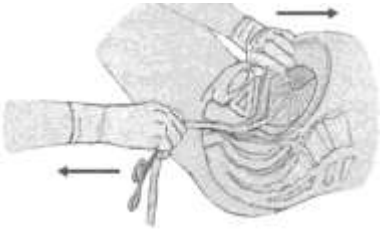
The standard components of active management during the third stage of labor include:

- Step 1. Intramuscular injection of oxytocin (commonly, 10 IU, no more than 1 min after delivery)

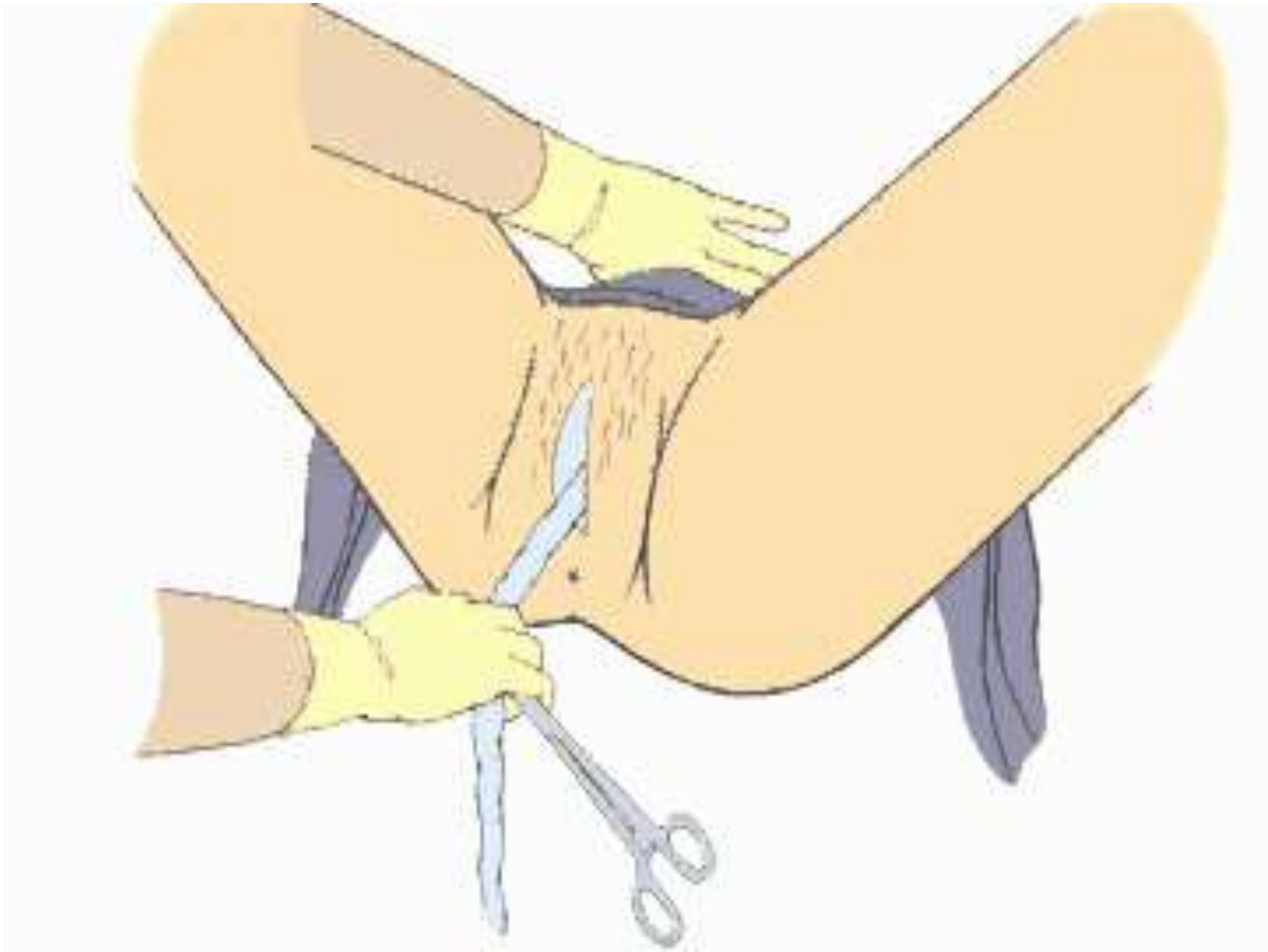
- Step 2. Umbillical cord clamping and preparation for traction.



- Step 3. Controlled cord traction with simultaneous uterine contractions.
- Step 4. Placenta delivery by "wringing". After placenta delivering it is held by both hands and gently rotated, wringing the membranes. It is then slowly pulled down to finish delivery.



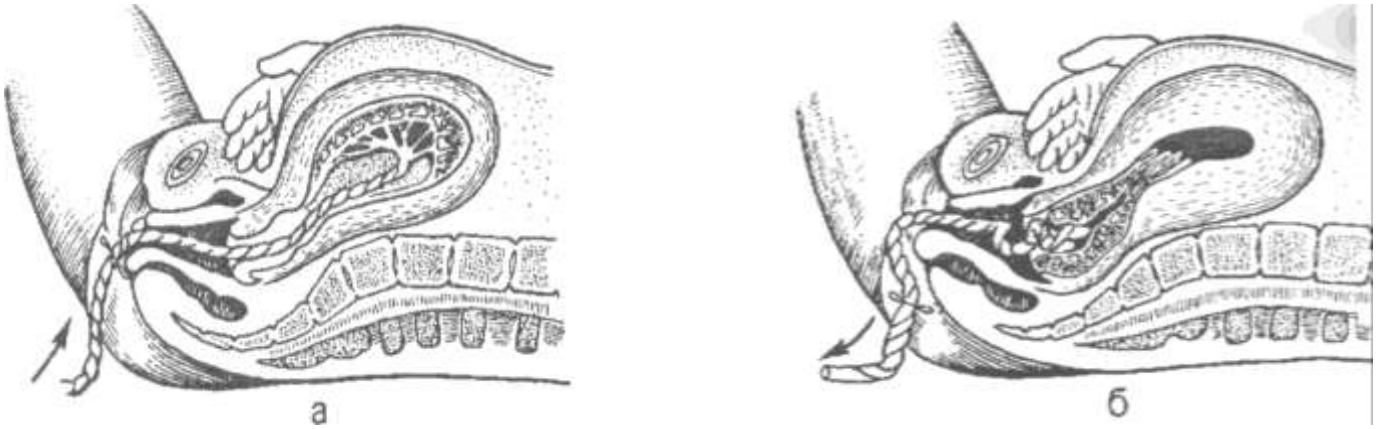
- Step 5. Uterine massage.



Physiological (expectant) management during the third stage of labor

- After stoping of umbilical cord pulsation but no longer than 1 minute after baby's birth, the umbilical cord is clamped and cut. Careful supervision after puerpera's general state, signs of placenta separation, amount of blood discharge is carried out.
- If there are signs of placenta separation it is necessary to ask the woman to push that will result in placenta delivering.
- The signs of placenta separation are as follows:

- *Schroder's Sign*: Uterus rises up and is to the right of umbilicus when the separated placenta is descended into the inferior segment or into the vagina; the uterus is sandglass-shaped.
- *Chukalov- Kustner's sign*: In case of placenta separation uterus rises up and umbilicus isn't pulled inside the vagina when pushing by palm edge down the pubic area.



Sign of Chucalov-Kustner: a - placenta is not separated; b - placenta is separated.

- Commonly, after about 30 minutes of waiting or if there is increased bleeding without evidence of placental separation, a manual removal of the placenta is undertaken.
- Anesthesia (local or general) should be used for immediate manual removal of the placenta in case of hemorrhage development.
- After placenta removal it is necessary to carry out its careful examination to be sure of its integrity .

Examination of birth canal after labor and delivery (with vaginal speculum) is carried out only if

- there are signs of bleeding,
- after operative vaginal delivery
- or if the doctor is uncertain of birth canal integrity (accelerated labor, out-hospital delivery).

LIST OF RECOMMENDED LITERATURE

1. Physiological obstetrics [A.M. Gromova, E.A. Taranovskaya, N.M. Demchenko, V.B. Martynenko] – Poltava : Divoswit, 2013. – 130 p.

2. Williams Obstetrics, 26th Ed.-/ F.G. Cunningham, K.G.Leveno, J.S., Dasheetal. - 2022. McGrowHill/Medical – 1328