1. **Theoretical question: Multiple pregnancy. Classification. Pathogenesis. Possible complications. Management of labour.**
2. **Clinical case.**

A 29 years old pregnant woman came to the outpatient clinic with complaints of edema of the lower extremities, the anterior wall of the abdomen. Edema does not significantly decrease after a night's rest.

**Anamnesis data.** Menstrual periods started from the age of 13, established immediately for 3-4 days with an interval of 27-28 days, painless. The first day of the last menstrual period was 02.10.2019 (October, 2).

Sex life since the age of 22, she is married.

This pregnancy is the 2nd. The gestational age is 33 weeks. The first pregnancy terminated by normal birth four years ago. The child is alive.

Two weeks ago, she noticed edema on her legs.

**Examination data**. The height-170 cm, body weight-86 kg. There are significant edema on the legs, external genitals, anterior abdominal wall. Body temperature-36.6 °C, pulse -76 per min, rhythmic, blood pressure -150/80-150/85 mmHg.

The abdomen is ovoid, enlarged due to pregnancy. The bottom (fundus) of the uterus is in the middle of the distance between the xiphoid process and the navel. The position of the fetus is longitudinal, the head is movable above the entrance to the small pelvis. Fetal heartbeat is clear, rhythmic, 140 beats/min. Pelvic sizes: 25-28-31-21 cm. There is no labor activity.

**The vaginal examination:** the cervix is 3 cm long, deflected posteriorly, the external os passes the tip of the finger. Through the anterior arch, the head of the fetus is determined to be movable above the entrance to the small pelvis, the promontory of the sacrum is not reached.

Urine alysis: straw-yellow color, acid reaction, relative density-1012. Protein – 0.6 g/l. Microscopy of the sediment: white blood cells-2-3 in the field of view, squamous epithelial cells-single, no cylinders.

Protein content in daily urine: 2 g/l

CBC: hemoglobin -104 g/liter; red blood cells— 3,5 \*1012/l, white blood cells— 5,8 \*109/l; leukogram-no changes; ESR — 19 mm/h.

Questions:

1. Establish and justify the diagnosis.

2. What additional methods of examination are necessary in this situation?

3. With what diseases should differential diagnosis be carried out and how?

4. What is the pathogenesis of this pregnancy complication?

5. Determine the management tactics of this patient.

1. **Practical scill: the signs of detachment of placenta (not less than 3).**

**The standard of the answer**

1. **Multiple pregnancy** is a pregnancy where more than one fetus develops simultaneously in the womb.

Classification.

There are two types of twins:

Terms used for multiple births or the genetic relationships of their offspring are based on the zygosity of the pregnancy:

* Monozygotic – multiple (typically two) fetuses produced by the splitting of a single zygote.
* Dizygotic – multiple (typically two) fetuses produced by two zygotes.

Multiple pregnancies are also classified by how the fetuses are surrounded by one or more placentas (chorionicity) and amniotic sacs (amnionicity): monochorionic/dichorionic and monoamniotic/diamniotic.

Pathogenesis:

Monozygotic twin pregnancy occurs:

• upon fertilization of polynucleate egg;

• upon atypical cleavage of conceptus (pre-embryo): one ovum fertilized by one sperm cell turns into two embryos (polyembryonism).

Dizygotic twin pregnancy occurs:

• upon simultaneous fertilization of two eggs that matured in one or both ovaries (several eggs can mature in one follicle) by spermatozoa from one or different males;

• upon fertilization of an egg that ovulated while there was already a pregnancy within one menstrual period (superfecundation)\*;

• upon fertilization of an egg that ovulated while there was already a pregnancy during the next menstrual period (superfetation)\*\*.

Dizygotic twins can be of one (75%) or different sex. Their genotype is not the

same.

Complications:

* Vanishing twin syndrome.
* Threatening abortion and threatening premature labour.
* Anemia.
* twin-to-twin transfusion syndrome (TTTS).
* Twin anaemia polycythaemia sequences (TAPS).
* Vomiting of pregnancy.
* Preclampsia.

Management of labour.

Indications for planned elective cesarean section:

• monoamniotic twins;

• triplets or more fetuses;

• breech presentation or unfavorable lie of the first fetus (transverse, oblique).

2. **Pregnancy III, 33 weeks of gestational age. Moderate preeclampsia. Mild anemia.**

Justification of the diagnosis:

Arterial hypertension (previously undiagnosed): systolic blood pressure-150 mmHg in combination with proteinuria (daily protein loss-2g / l) - diagnostic criteria for moderate preeclampsia. In addition, the patient has edema of the lower extremities and the anterior abdominal wall (stage I), which is also a symptom of preeclampsia.

Mild anemia: according to the CBC data (hemoglobin 104 g / l).

2. What additional methods of examination are necessary in this situation?

• Biochemical blood test, including serum iron and ferritin

• Coagulogram

\* Fetal ultrasound (fetometry+Dopplerometry)

• CTG

3. The differential diagnosis should be made with hypertension and kidney diseases (glomerulonephritis, pyelonephritis, nephroangiosclerosis). The presence of kidney disease may indicate the progression of the disease in connection with infectious diseases (angina) and the presence of signs of disease before pregnancy (increased blood pressure, hematuria, prolonged swelling) with characteristic changes in the urine (leached erythrocytes, renal epithelium, etc.).

4. The pathogenesis is based on a violation of trophoblast invasion, which entails a violation of the process of vascular remodeling. As a result, the vessels of the utero-placental complex have a smaller diameter and do not lose the muscle layer, and, therefore, the ability to constrict. Therefore, the placenta is in a state of ischemia and releases high concentrations of pro-inflammatory cytokines into the bloodstream, which, in turn, attack the vascular endothelium. As a result of vascular endothelial damage and RAS activation, systemic vasoconstriction occurs. Edema is also caused by a violation of the integrity of the vascular wall, as a result of which the fluid leaves the vessels and penetrates into the tissues.

5. prolongation of pregnancy to the term of 37 weeks. 6 days.

Necessary conditions: CTG-every 7-10 days, ultrasound (fetometry+Doppler) - every 7-10 days.

Treatment includes antihypertensive therapy. The first-line drug is Methyldopa (the average daily dose is 1 g, the maximum is 2 g). The drug is taken orally. In addition, anemia therapy is necessary –iron supplementation in tablets (for example, Ferrum lek 100 mg 2 times a day).

**3. The signs of detachment of placenta.**

• Kustner sign: when the sharp of the hand is pressed over the symphysis pubis, the

cord is not pulled into the genital tract (Fig. 8.19);

• Alfeld sign: the detached placenta sinks to the lower uterine segment or

vagina so that the ligature or clamp placed on the cord when ligating it goes

down;

• Schroeder sign: change in the shape of uterus or fundal height. Immediately

upon delivery of the fetus the uterus becomes oval and positions itself along

the middle line. The fundus is at the navel level. After placental separation the

uterus extends, shifts to the right, and the fundus rises to the right subcostal

space.

• Dovzhenko sign: retraction of the cord upon deep respiration indicates that the

placenta has not detached;

• absence of cord retraction upon inspiration indicates separation of the placenta;

• Strassman sign: oscillating motions of blood in the placenta upon tapping the

uterus are transmitted along the cord if the placenta has not detached;

• Klein sign: upon pushing or slight pressing down on the uterus the cord moves

outside and does not retract if the placenta has detached.