Kharkov national
medical university

Obstetric hemorrhages second lecture

of

Department of obstetrics and gynecology N0 1

Placental presentation

Is pregnancy complication, at which the placenta is located in the inferior uterine segment below the presenting part, coverinhg the internal ostium of uterus. At physiological pregnancy low margin of placenta does not reach 7 cm the internal os.

Classification

1. Complete – the placenta covers the internal ostium copletely
2. Incomplete – the placenta covers the internal ostium partially:

•lateral placenta presentation – the internal ostium is covered by 2/3 of its area;

•marginal presentation – the placenta margin reaches the internal ostium.

3.Low insertion of placenta – the placenta is located in the inferior uterine segment by 7 cm below the internal ostium not covering it

The degree of presentation is clarified at cervical dilation by 5-6 cm.

MARGINAL

LATERAL

COMPLETE

VARIANTS OF ABNORMAL PLACENTAL ATTACHEMENT

Reasons of presentation

1. Changes on the side of uterus
2. Changes on the side of the fetal egg

Clinical symptoms

The main symptom is uterine bleeding not accompanied by pain against the background of normal uterine tone, is undulating character, may repeat periodically, arises spontaneously or after physical load:

- with beginning of uterine contractions in any age of pregnancy;
- not accompanied by pain;
- not accompanied by hypertonus.

Degree of condition determine by volume of blood loss:

- at complete presentation- massive;
- at incomplete – may be from insignificant to massive.

Anaemisation as result of bleeding,which repeated.

Often are high location of the presenting part, pelvic presentation or fetal malposition.
May be pre-term labour.

Algorithm of examination of pregnant woman with bleeding:

•anamnesis;

•common condition, volume of blood loss;

• common clinical investigations (blood type,rhesus, analysis of blood, coagulogramm);

•external obstetric examination;

• examination of the cervix and the vagina at the unfolded operating-room with vaginal speculars for an exception such reasons as bleeding, cervical polyp, cervical cancer,rupture of varicose node,estimation of discharges;

• additional methods of examination(USE) according to indications on testimonies in default of necessity for urgent delivery.

Obstetric management

Depend on:

- Type of presentation;
- Intensity of bleeding;
- Term of pregnancy;
- Present or absent of labor activity

Principles of conduction of patients with placenta presentation:

1.In case of small blood loss (less than 250 ml), no symptoms of hemorrhagic shock, fetal distress, absence of birth activity, immaturity of the fetal lungs at pregnancy term less than 37 weeks – expectant management
2. If the bleeding stop -USE,preparation of the fetal lungs. Aim of expectant management- prolongation of pregnancy to the term of viable fetus.
(more than 250 ml) and accompany with hemorrhagic shock,fetal distress, independently of term of pregnancy, fetus condition (alive,distress, dead) –urgent delivery

Clinical variants

1Blood loss (to 250 ml),absent symptoms of hemorrhagic shock, fetus distress, term of pregnancy till 37 weeks:

•hospitalization;

•tocolytic therapy by indications;

• acceleration of fetal lung ripening (at the term less than 34 weeks) - Dexamethasone 6 mg in 12 h, 2 days;

•monitoring the condition of the pregnant woman and fetus.

At progressive bleeding(more than 250 ml) –delivery.

Clinical variants

Significant blood loss (more than 250 ml) by pre- term pregnancy – regardless of degree of presentation urgent cesarean section.

Clinical variants

If blood loss is less than 250 ml pregnancy is full-term.

In the condition of the operating theatre the degree of presentation is clarified:

• in case of partial placental presentation, possibility to reach the amniotic sac and cephalic presentation of the fetus, active uterine contractions, amniotomy is performed. When the hemorrhage is stopped, the delivery is conducted through the natural maternal passages. After the fetus is born – i.m. introduction of 10IU Oxytocin, close observation of uterine contractions and the character of vaginal discharge.

If hemorrhage resumes, cesarean section is carried out

• at complete or incomplete placental presentation, fetal malposition (oblique, transverse) cesarean section is carried out

•at incomplete presentation, dead fetus amniotomy is possible, at bleeding arrest – delivery through the natural maternal passages

Premature detachment of normally located placenta

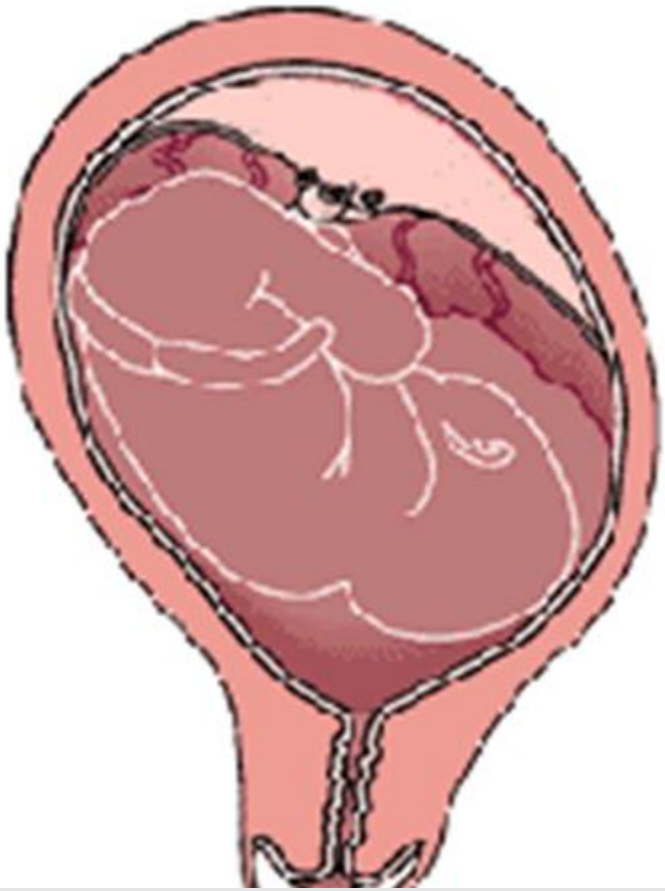
takes place during pregnancy or in the 1-st-2 –stage of labor .

Classification

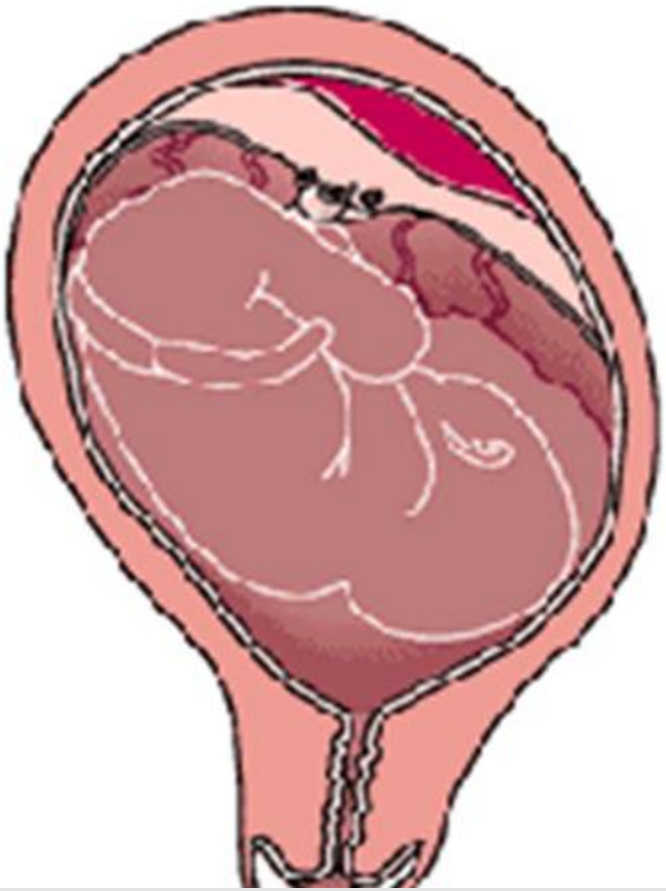
1.Complete detachment (detachment of the whole placenta).

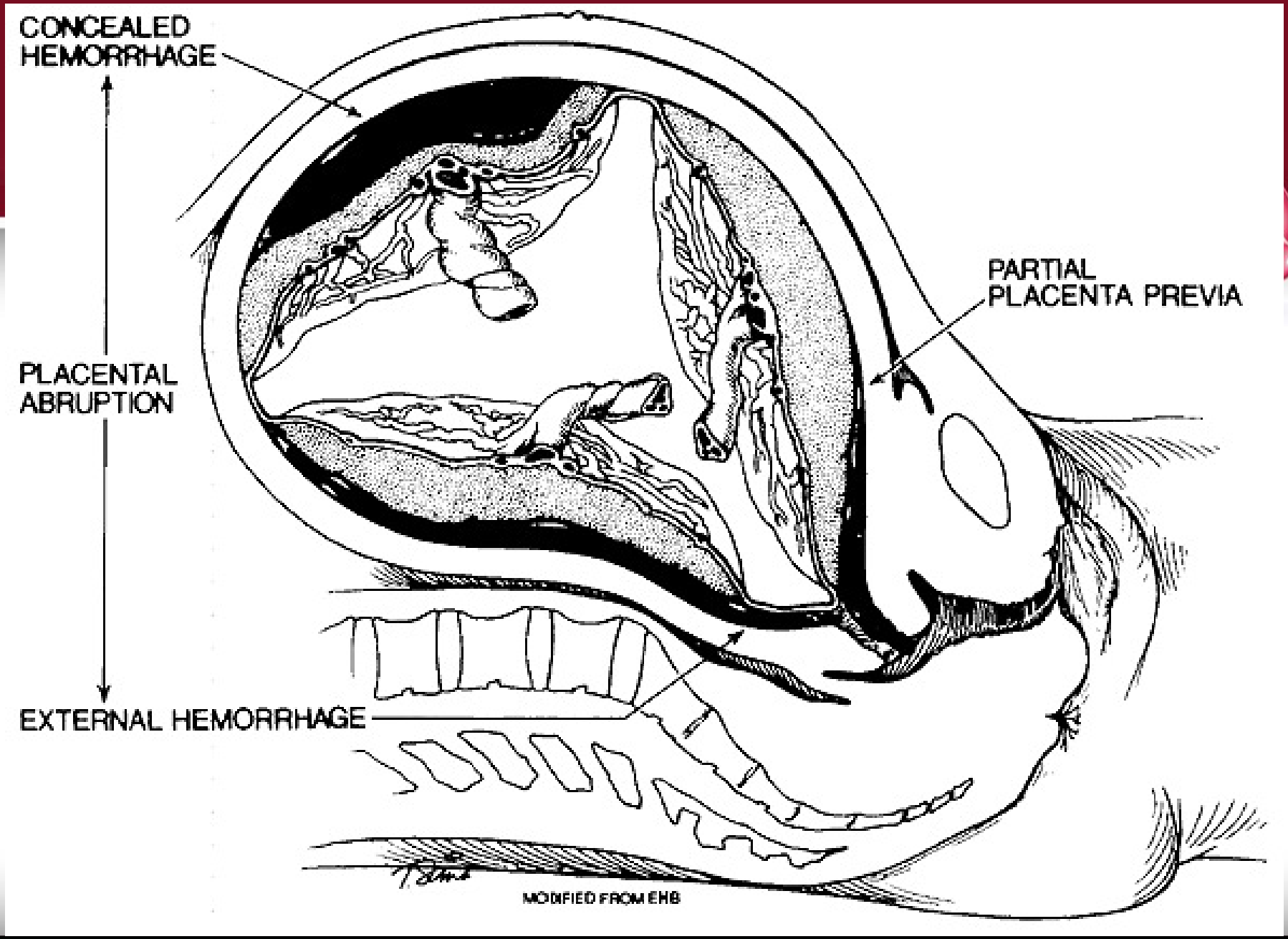
2. Partial detachment : marginal or central

NORMAL



PLACENTA DETACHMENT




CONCEALED HEMORRHAGE
PLACENTAL ABRUPTION
EXTERNAL HEMORRHAGE
PARTIAL PLACENTA PREVIA
MODIFIED FROM EHB

Risk factors

1. **Predisposing reasons:**

- gestoses, hypertension;
- kidney diseases;
- isoimmune conflict between mother and fetus;
- hyperextension of the uterus(large fetus,polyhydramnios,twins);
- diseases of the vessels;
- diabetes melitus;
- diseases of connective tissues;
- inflammation of uterus and placenta;
- Anomalies of development and tumors of uterus.
- **Causes**
- Mechanical and psychical trauma
- Surgical intervention
- Rapid contraction
- Short umbilical cord

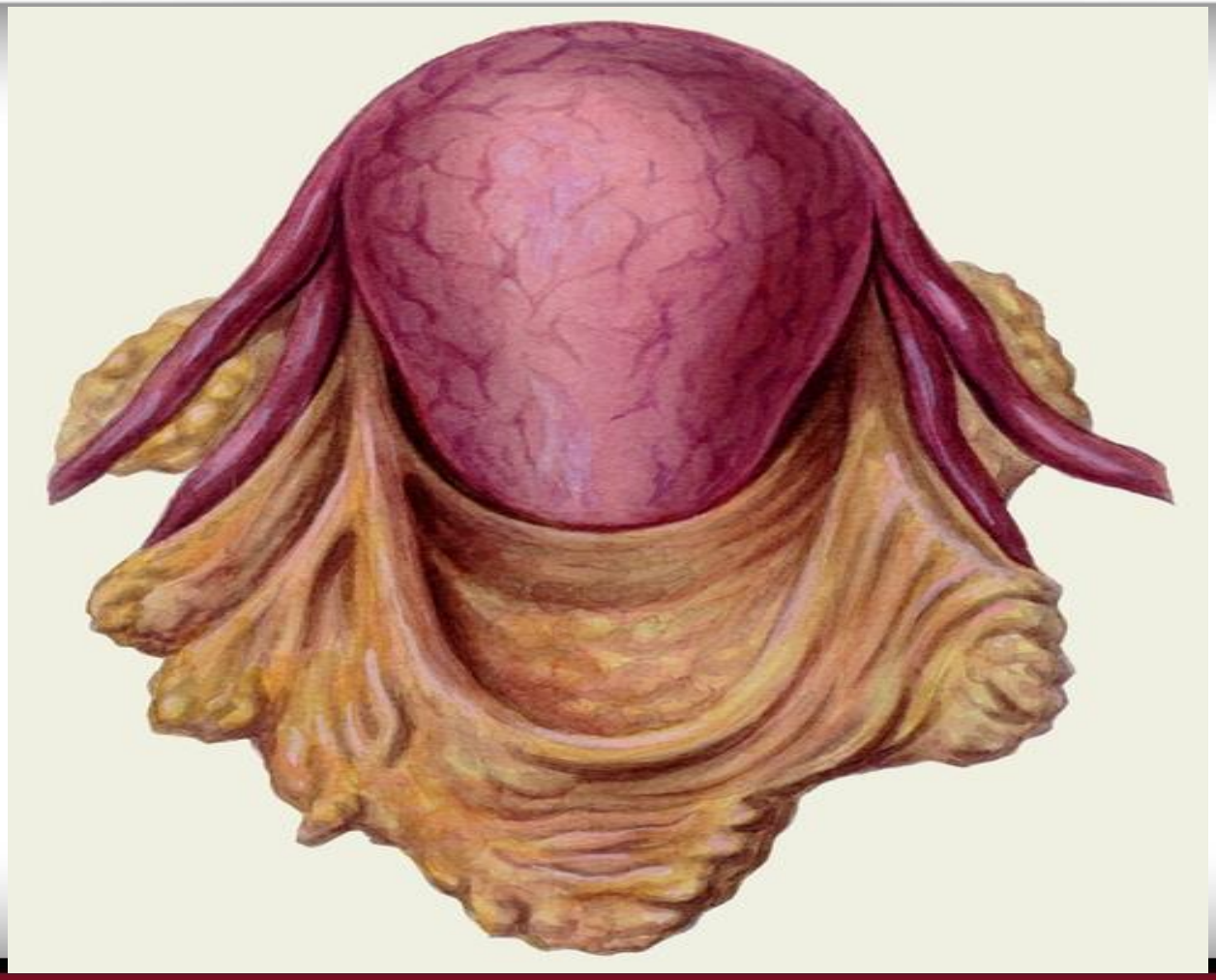
Clinical symptoms depend on degree of detachment

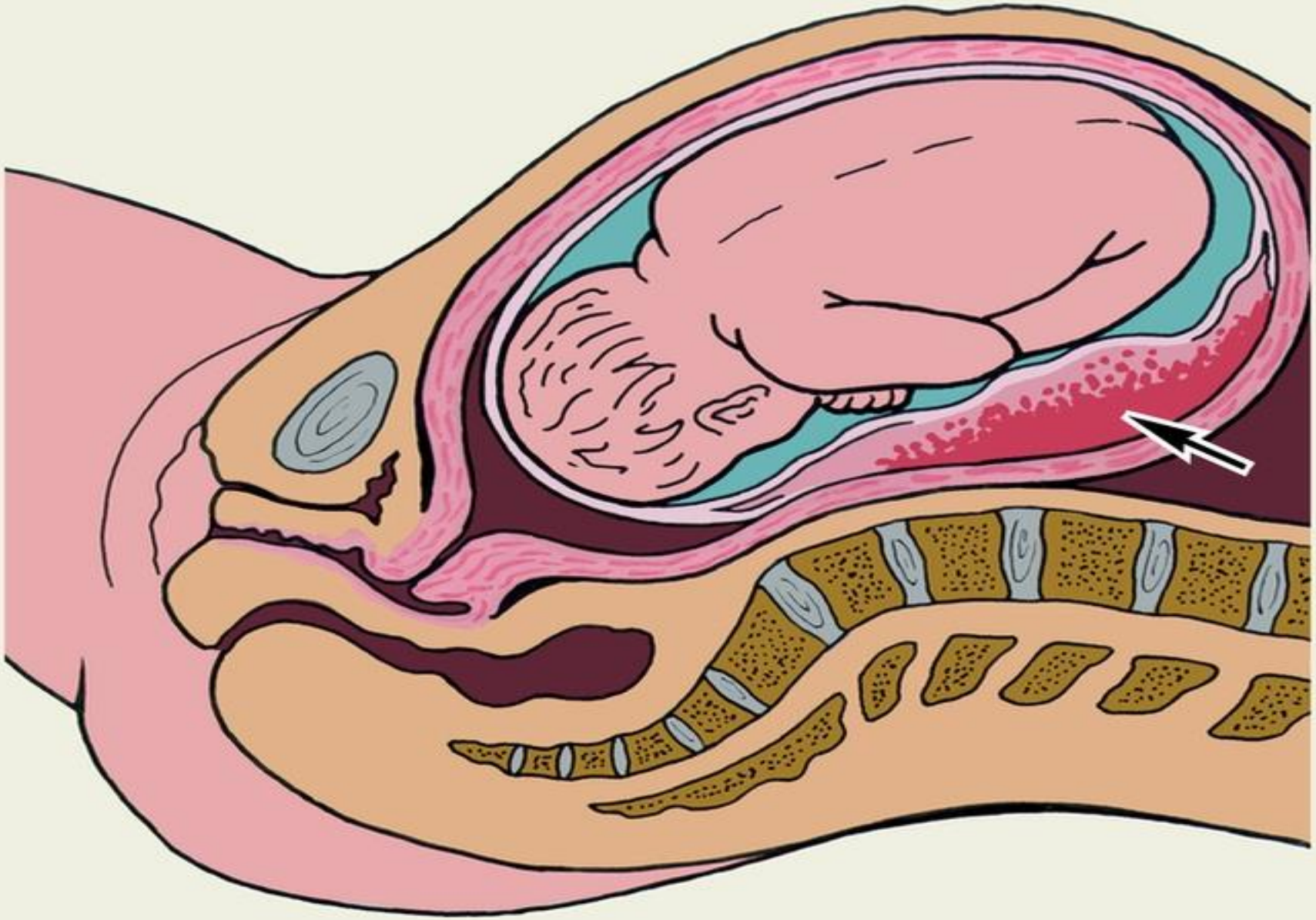
1. Pain syndrome : acute pain in the projection of localization of placenta, that after spreads to all uterus and becomes diffuse. Pain is most expressed with central detachment and may be unexpressed with marginal detachment.

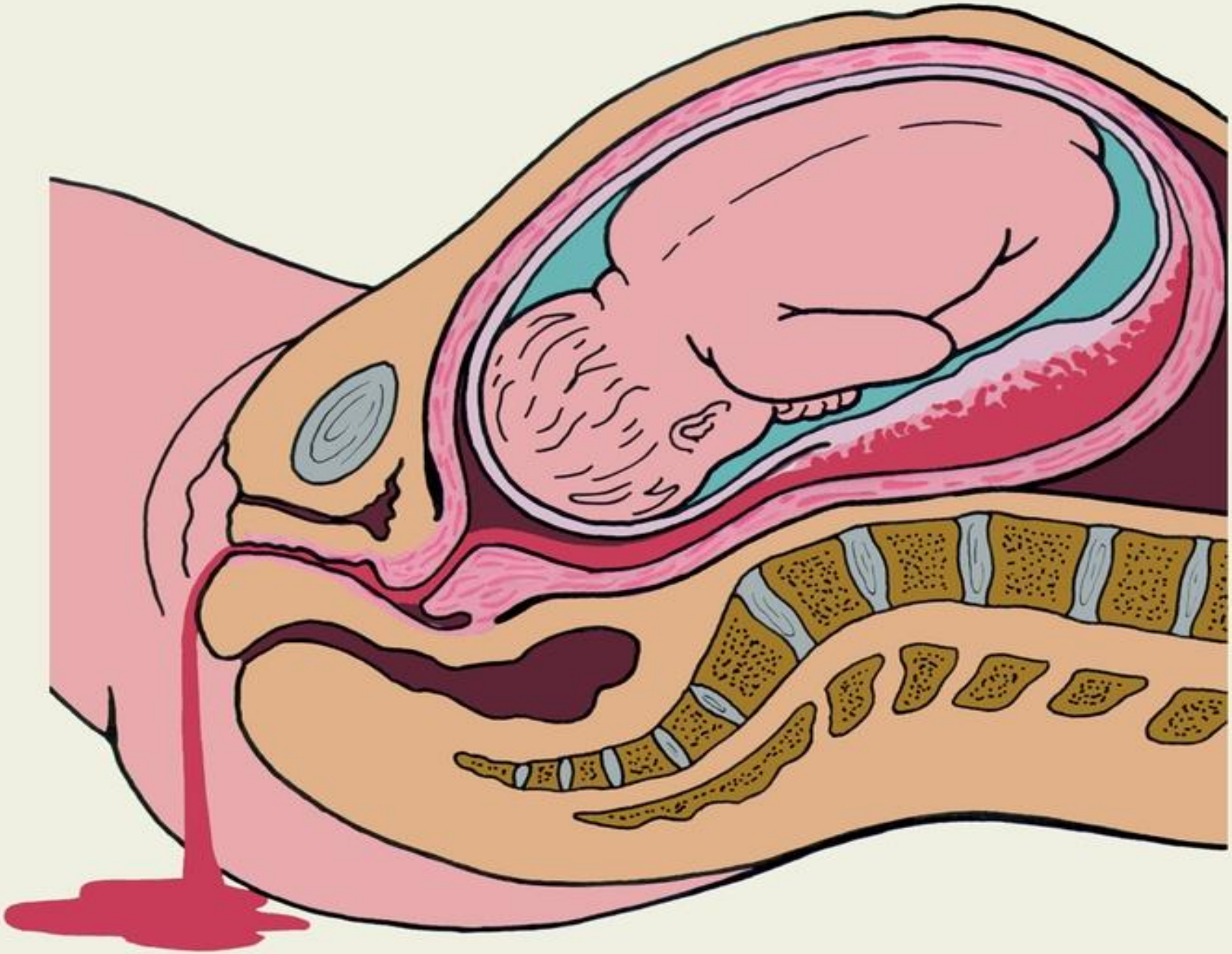
2. From hypertonus of the uterus to tetanus , which is no taken off by spasmolytics and tocolytics.

3. Bleeding from the vagina depend on degree from insignificant to massive. If it was formed retroplacental hematoma, external bleeding may be absent.

Uteroplacental apoplexy(Couvelaire uterus) with premature detachment of normally located placenta (arises at impregnation of the uterine wall with blood)







Diagnostic

1Estimation of the state of pregnant, that will depend on the size of detachment, volume of blood loss , onset of symptoms of hemorrhagic shock and THS .

2. External obstetric examination:

● uterine hypertonus;

● uterus grows in size , become asymmetrical because of protrusion of its wall at the side of haematoma.

● palpation is painful;
● small fetal parts become impalpable, difficulties at an auscultation;

● symptoms of distress and its death .

3. Internal obstetric examination:

● tenseness of amniotic sac;

● during escape of amniotic fluid may be painting blood
● bleeding from the uterus
4. USE (echonegative area between the uterus and placenta), but this method is not absolute.

Management with placenta detachment at the end of the I-st or in the II-nd stages:

•amniotomy,if amniotic sac is intact;

• with head presentation of the fetus-applying of obstetric forceps;

• with pelvic presentation-extraction of the fetus by pelvic end;

• with transverse presentation of the second fetus from twins perform obstetric version with extraction of the fetus by the leg. In some cases more better is cesarean section;

•manual separation and removal of placenta;

• contractive preparations- i / v 10 IU Oxytocin, without effect- 800 мсg Mizoprostol(per rectum);

•considerate management in post-partum period;

•restitution of volume of blood loss, treatment of hemorrhagic shock and THS.

Treatment

1. In case of progressive premature detachment of placenta during pregnancy or in the first stage of labor, onset of symptoms of hemorrhagic shock, THS-– urgent delivery by cesarean section. If signs of Couvelaire uterus are present – extirpation of the uterus without appendages. In the case of coagulopathy – ligation of internal iliac arteries.

2. Restitution of volume of blood loss, treatment of hemorrhagic shock and THS.

3. In case of non- progressing placenta detachment at incomplete pregnancy (less than 32 weeks) dynamic observation is possible (conducting therapy for fetal lungs ripening) in institutions with round-the –clock duty of qualified doctors, obstetricians-gynecologists, anesthesiologists, neonatologists.There is carried out monitoring of the condition of the mother and fetus, cardiotocography, ultrasonography in dynamics.

Bleedings in the III-rd stage of labor and post-partum period

Post-partum bleeding- it is blood loss up to 0.5% of body weight. .

1. Bleeding in the III-rd stage of labor.
2. Primary (early) post-partum, which arise in the early post-partum period or first 24 h after labor.
3. Secondary (late) post-partum bleedings, which arise after 24 h and till 6 weeks after labor.

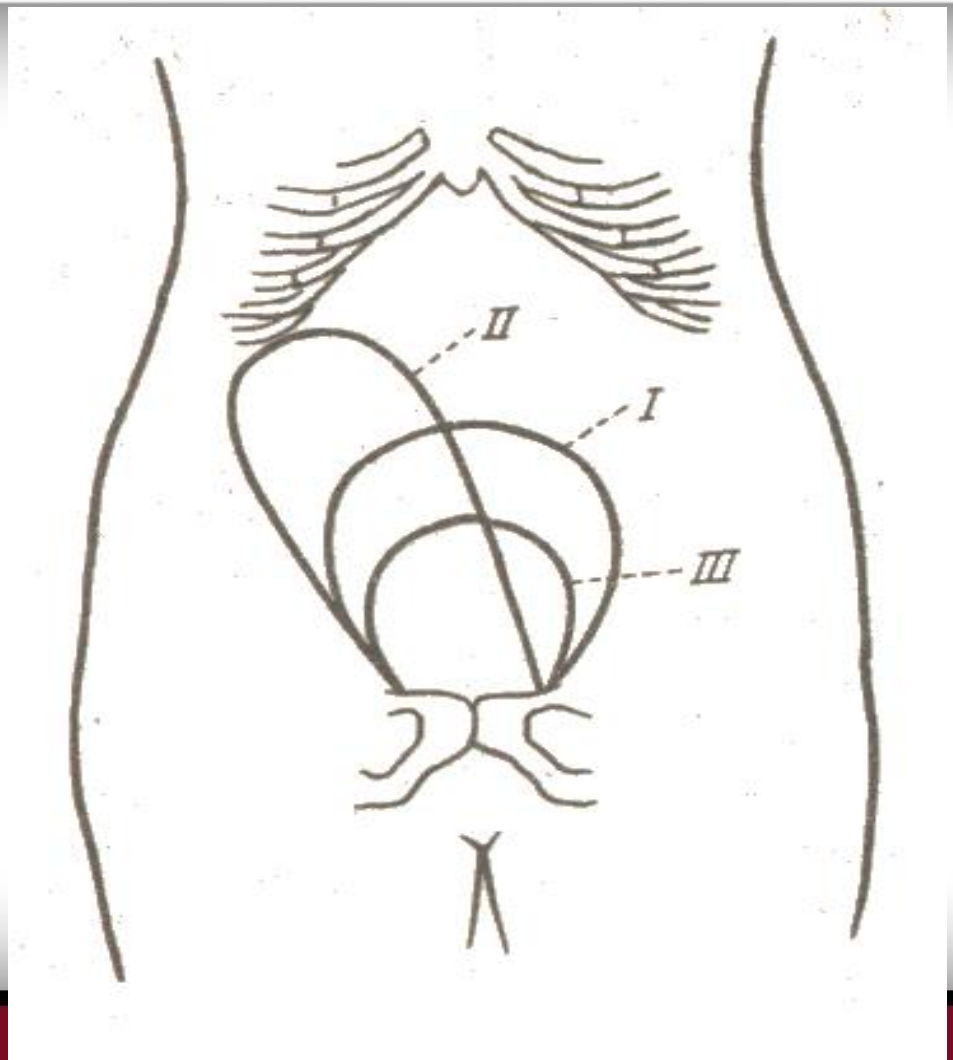
Reasons

- Violations of placenta separation or delay of its parts in an uterus;
- Violation of contractile function of uterus
- Traumatic damages of maternity ways
- Violation of convolutional system of blood.

Clinical symptoms:

- Absent signs of placenta separation during 30 min without significant blood loss – placenta attachment anomalies or fused placenta.
- Bleeding begin just after placenta separation – delay of part of placenta or membranes.
- Bleeding begin after child birth without placenta separation - incarceration, partial fused placenta.

- ✓ **The Schroder's sign–the uterine fundus elevates and locates above and right of the navel.**
- ✓ **The Alfeld's sign– the ligature on the umbilical cord descends by 8-10 cm lower than vulvar ring.**



- ✓ **The Chukalov –Kustner's sign–when the suprapubic area is pressed with the edge of hand the uterus elevates and the umbilical cord is not pulled into the vagina if the placenta is detached.**

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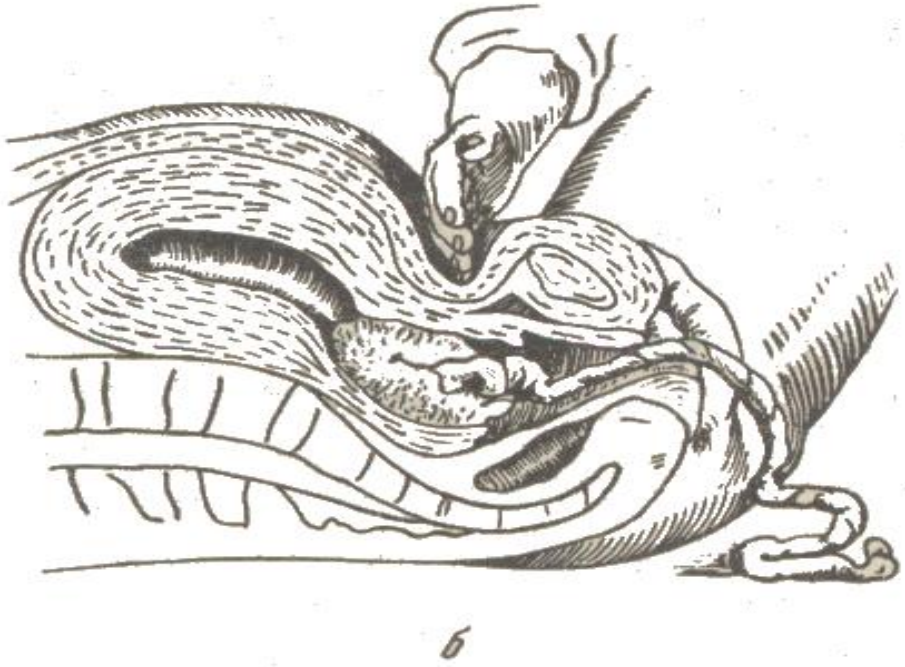

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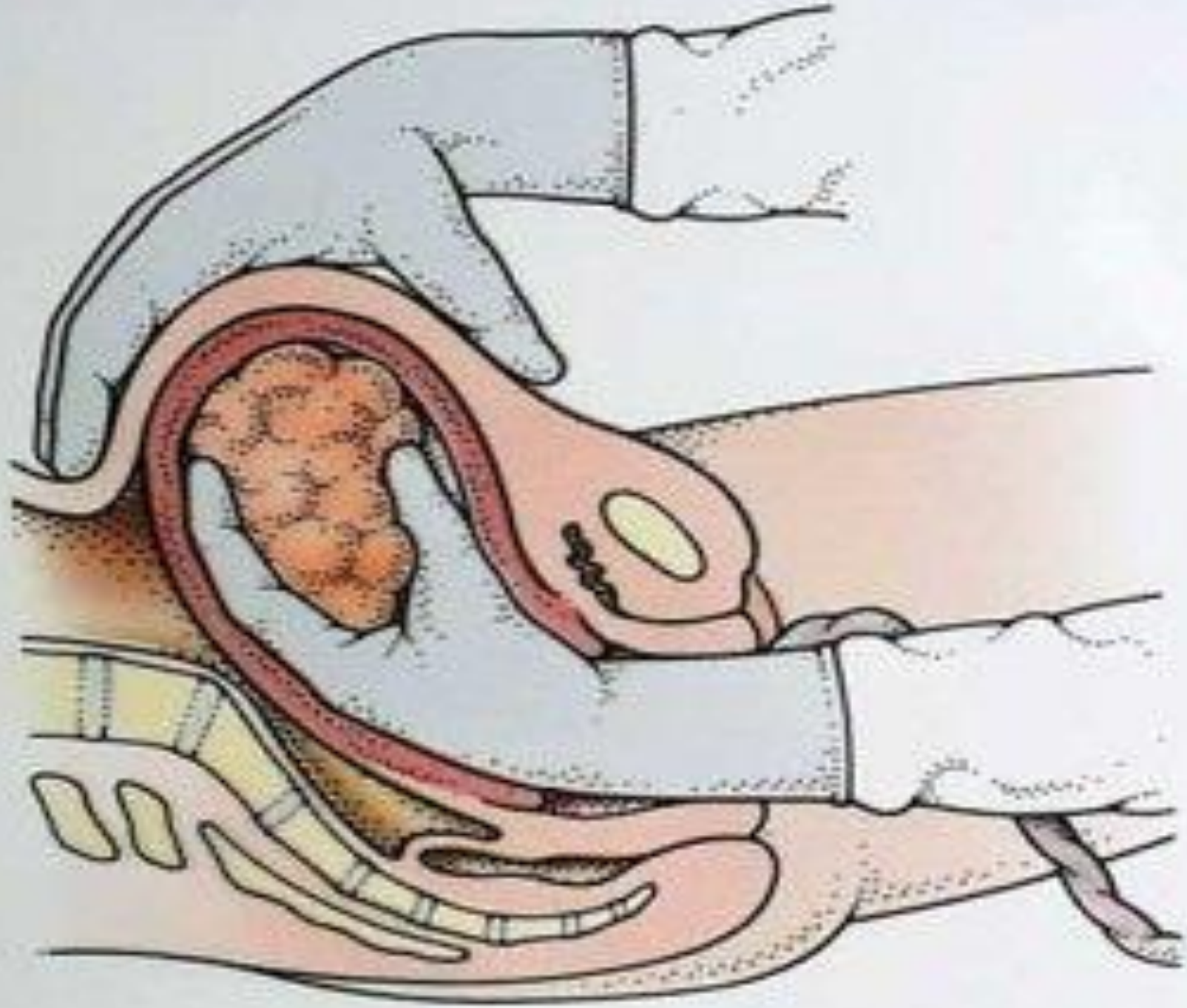
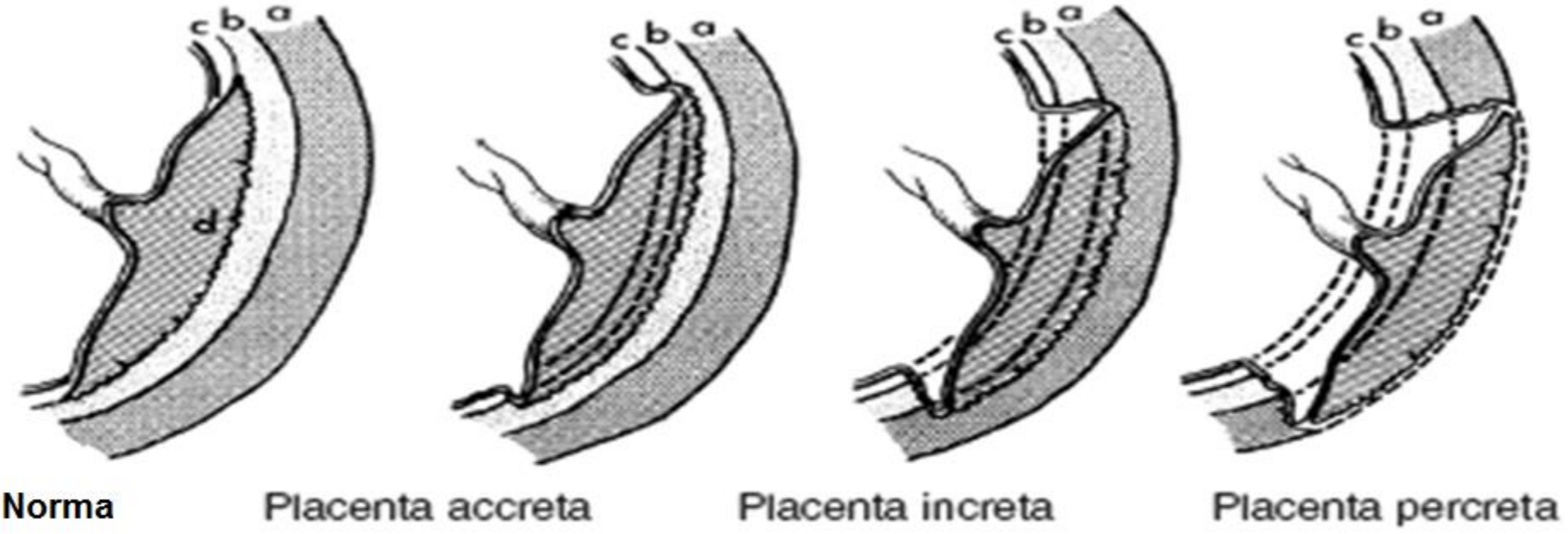


Placenta attachment



Abnormal placenta attachment

a – myometrium b – basal layer of decidual membrane

c – spongious layer of decidual membrane d – placenta

Algorithm of medical care:

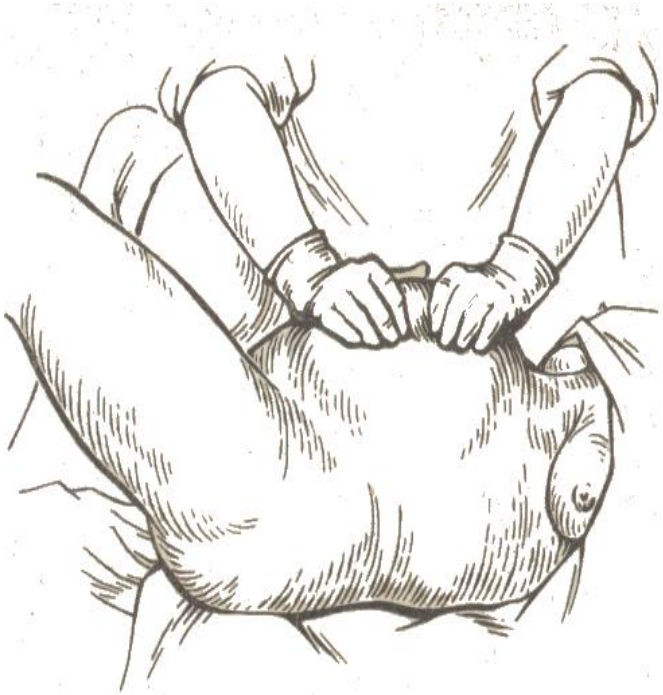
1. Cannulation of peripheral or central vein depending on the state of woman.
2. Urinary bladder empting.
3. Verification of signs of placental separation and removal with manual maneuvers.
4. In the case of placental incarceration- external massage of the uterus, external maneuvers for placenta removal
5. In the case of delay of parts of placenta or membranes- manual investigation of the uterine cavity under narcosis.

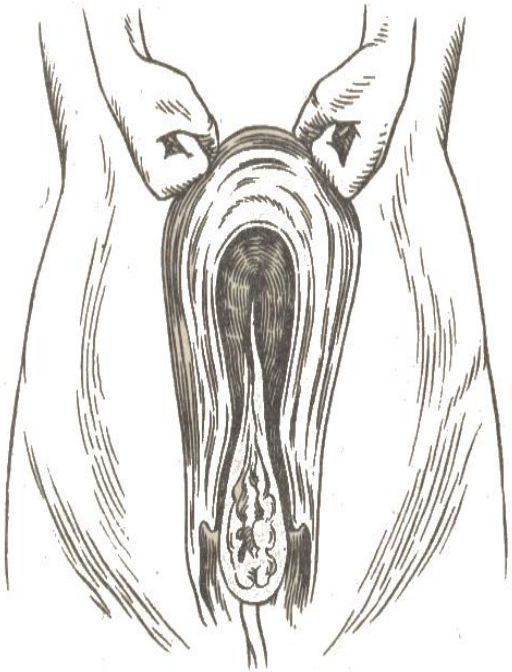
Algorithm of medical care:

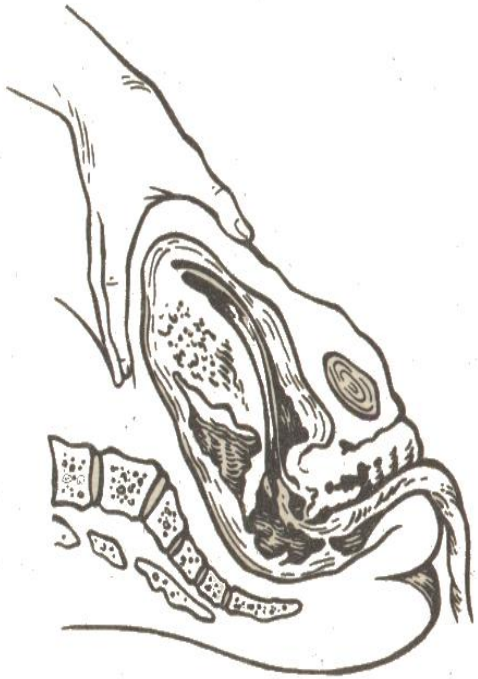
6. In the case of violation of mechanism of placenta separation and absent of bleeding – expectation during 30 min, (in pregnant with group of risk - 15 min);manual separation and removal of placenta.
7. If bleeding begins- urgent manual separation and removal of placenta under narcosis.
8. Uterotonics introduction- 10-20 IU Oxytocin i / v on 400 ml of physiologic saline i / v in drops.
9. At true fused placenta or placenta invasion – laparotomy, extirpation of the uterus without the appendages.
10. Estimation of blood los and restitution volume of blood flow(VBF).

Maneuvers of placenta separation

- Abuladze's method
- Genter's method
- Crede- Lazarevich's method





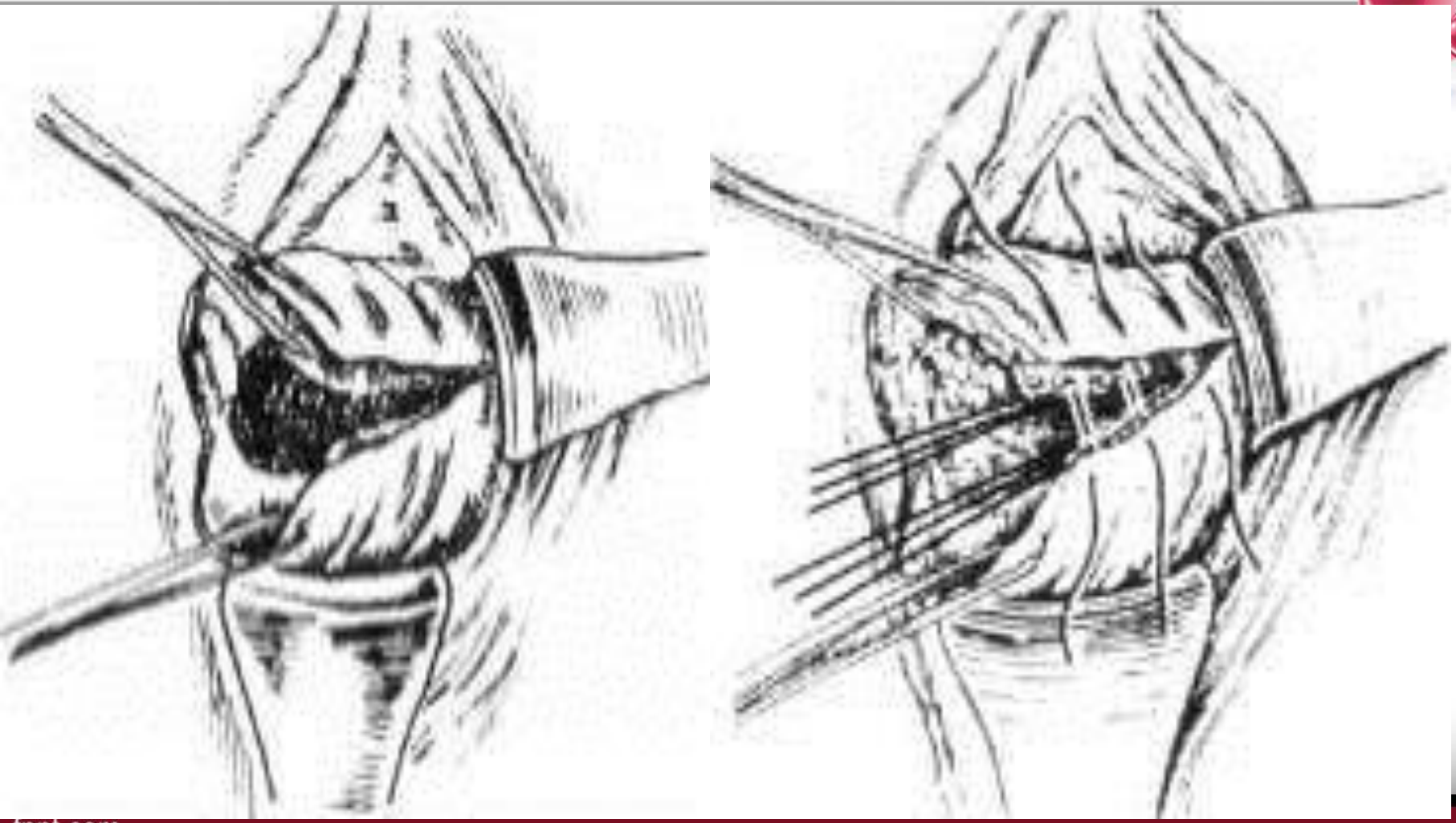


Early (primary)post-partum bleeding

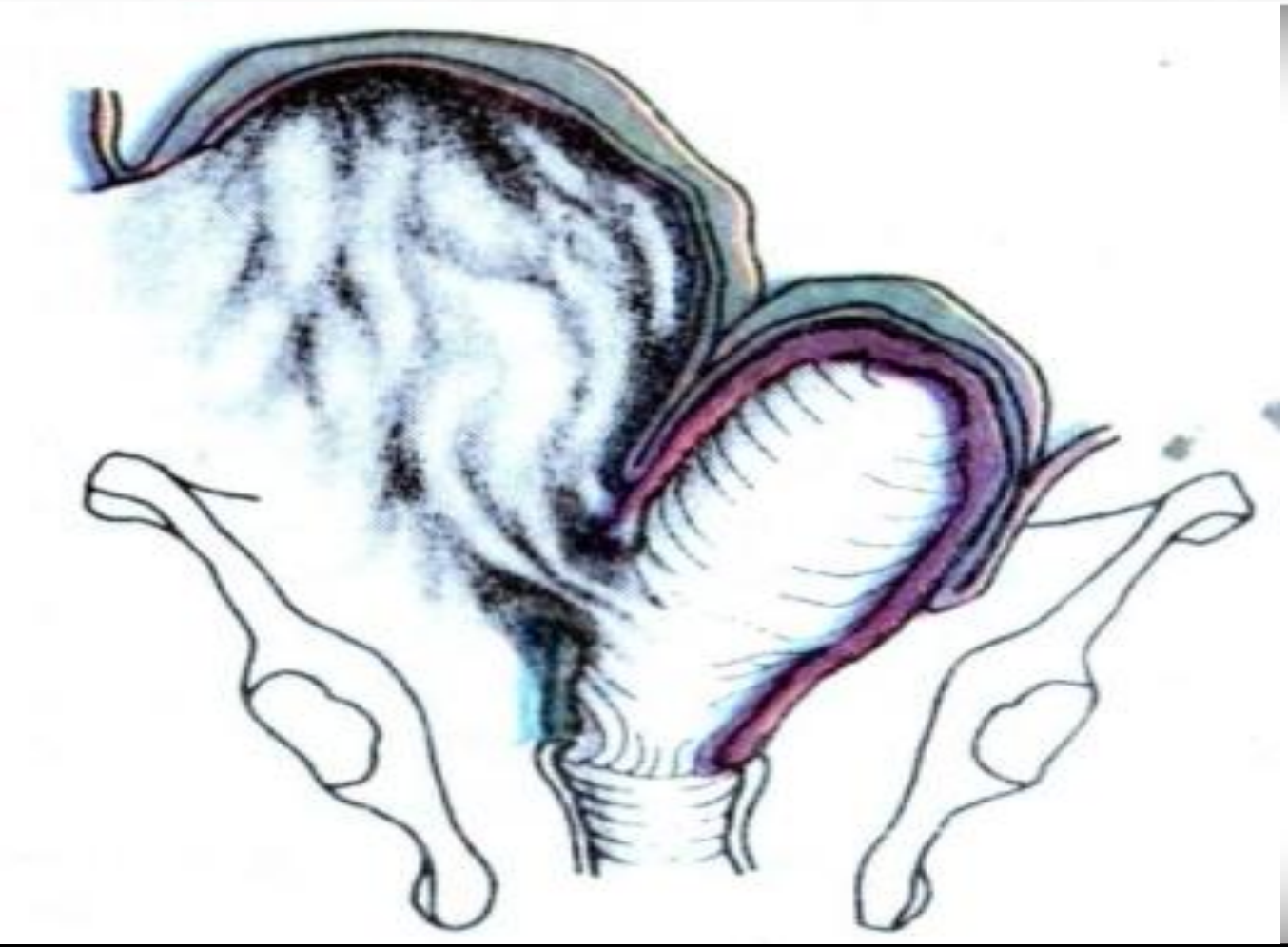
Reasons:

- Hypotony and atony of the uterus(in 90% of cases);
- Delay of parts of placenta and membranes;
- Traumatic injuries in labor;
- Coagulopathic bleeding;
- Embolism by amniotic fluid;
- Primary blood diseases.

Rupture of the cervix and its suture ligation



Rupture of the uterus



Hypotony (atony) of the uterus–impaired contractile function of the uterus.The myometrium completely loses the ability to contract, but usually reacts with contraction to irritators

Reasons:

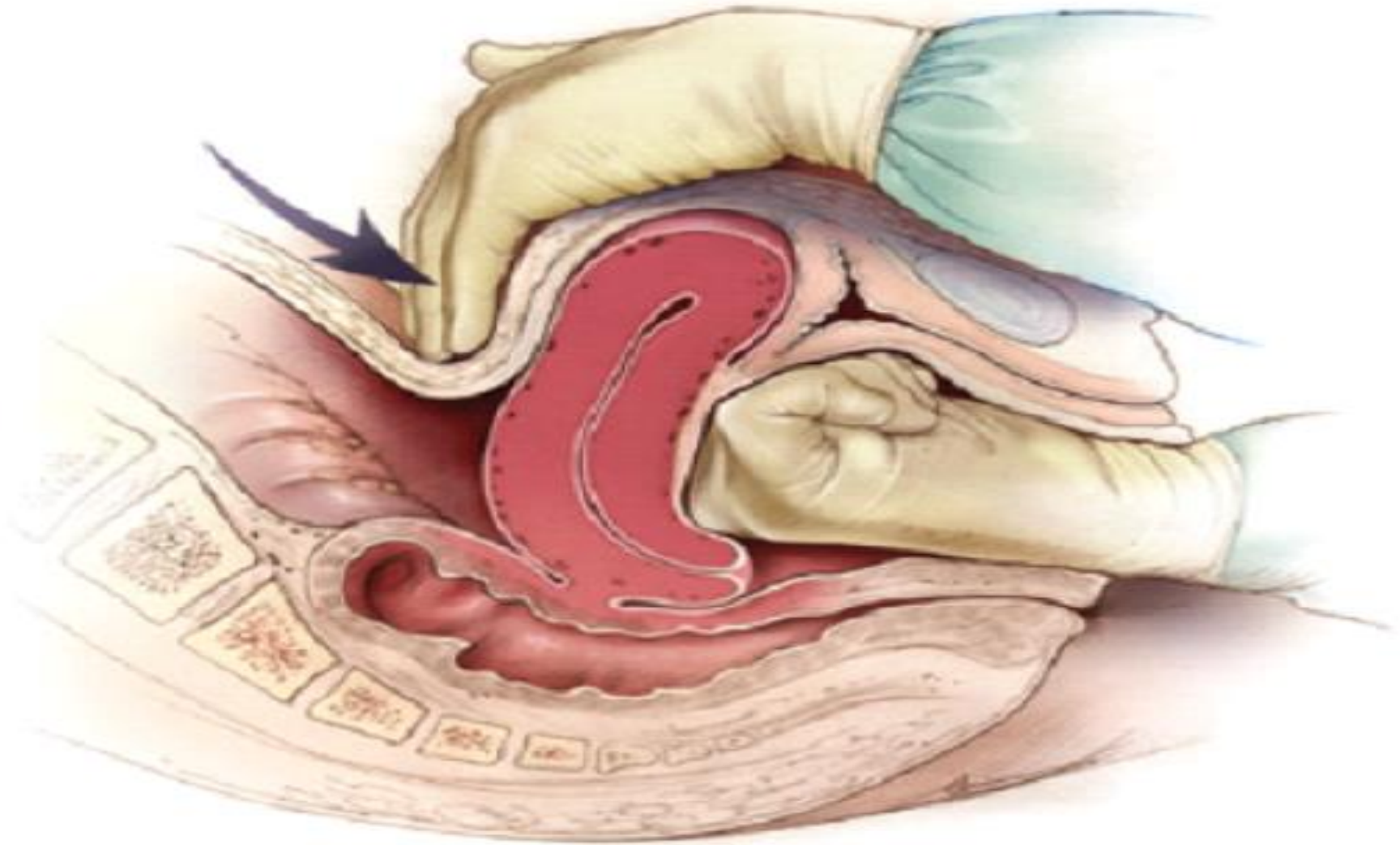
- General reasons: late gestosis, endocrinopathies, acute and chronic infections, etc.
- Local reasons: a large fetus, hydramnion, uterine maidevelopment, chorionamnionitis;
- Complicated delivery course
- Operative delivery;
- Impaired functions of the neuromuscular apparatus of the uterus due to hemostasis defects associated with complications of pregnancy and delivery or hereditary / congenital diseases;
- Iatrogenic reasons.

Algorithm of medical care

1. General examination of paturient: estimation of blood loss; estimation of state:complaints,BP,pulse rate, colour of skin and mucous,amount of urine, stage of hemorrhagic shock.
2. Urgent laboratory investigation:
   •estimation of Hb level, Ht; coagulogramm;
   •estimation of blood group and Rh;
3. Catheterization of periphery vein or central vein
4. Catheterization of urinary bladder .
5. Beginning or continuation of intriduction of uterotonics: 10-20 IU Oxytocin i/v on 400 ml of physiologic saline.
6. Manual investigation of the uterine cavity under i/v narcosis.

Algorithm of medical care

7. Examination of soft tissues of birth canal.
8. External massage of the uterus.
9. In the case of continuation of bleeding in addition introduce 800 mcg Mizoprostol per rectum.
10. Restoration of VBF and blood loss.
11. If bleeding resumed and blood loss volume makes 1.5 % and more of the body weight, surgical treatment is indicated – exirpation of the uterus without appendages; if bleeding continues –ligature of the femoral arteries.
12. During preparing for operative treatment temporarily bimanual external or internal compression of the uterus for decrees of blood loss.



DIS- syndrome

–it is heterospecific multicomponent pathological process, that the real and potential intensification of coagulant potential of blood, due to that blood in the beginning exposed to coagulation in the zones of microcirculation , blocks by fibrin and cellular aggregates the capillary flow, and then exhausting coagulant and anticoagulant potential, loses a capacity to coagulation, that is expressed by thrombosis or profuse bleedings, by the block of microcirculation, and as a result of it development of syndrome of polyorganic insufficiency.

Basic reasons of development of DIC – syndrome in obstetric are:

-embolism of amniotic fluid;

-shock

- detachment of placenta;

-pre-eclampsia of severe stage;

-eclampsia;

-sepsis;

- septic abortion;

-syndrome of massive hemotransfusion;

- transfusion of incompatible blood;

-intrauterine fetal death;

-ectopic pregnancy;

-cesarean section;

- extragenital disease of pregnant woman.

Classification of DIS:

Clinical duration:

- acute;
- subacute;
- chronic;
- recurrent.

Clinical stages:

- I -hypercoagulation;
- II – hypocoagulation without generalized activation of fibrinolysis;
- III –hypocoagulation with generalized activation of fibrinolysis;
- IV –complete incoagulability of blood

Management of patient with DIS:

Depend on stage, severity of clinical picture:

1)Removal of reason causing DIS.

2) Removal of real(potential) hypercoagulation and blocking of microcirculation.

3) Substituting for the consumed factors of coagulation, naturals anticoagulants and plasminogen.

4) Supression of surplus fibrinolysis, proteolysis.

5) Maintenance at adequate level of oxygen-transport function of blood

Treatment

- I stage- low- molecular anticoagulants
- II stage – inhibitors of fibrinolis

– Fresh-frozen plasma
– Stimulation of vasculo-throbocyte link of hemostasis,
– Antiplasmin-preparations (tranexam acid)

Prophylaxis of DIS.

- Adequate, timely treatment and prophylaxis of the states that cause development of DIS. Timely estimation of blood loss, adequate renewal of VBC by cristaloids and colloid solutions. From colloid solutions advantage is given to preparations of gelatin, at their absence - to the derivatives ofhydroxyethylkpahmal. Does not apply reopolyglukin and 5-albumin. System does not use preparations that promote coagulated potential of blood (ethamzilat, aminocapronicacid and other)
- Without strict testimonies does not apply preparations that cause thrombocytopenia or violate the function of thrombocytes(heparin, peopolyglukin, dipiridamol, semisynthetic penicillins).
- On testimonies surgical interference is executed in good time and in full(extirpation of uterus) and in maximally short term. At continuation bleeding perform ligation of internal iliac artery

Hemorrhagic shock-

Is an acute cardiovascular collapse conditioned by inadequacy of the circulating blood volume with the bloodstream capacity, which is caused by blood loss and is characterized by the imbalance between tissue need in oxygen and the speed of its real supply

Classification of hemorrhagic shock (L.P.Chepkyi with co-authors ,2003)

Severity degree	Shock stage	Blood loss volume	
		% blood volume	%body weight
1	Compensated	15 – 20	0,8 – 1,2
2	Subcompensated	21 - 30	1,3 – 1,8
3	Decompensated	31 – 40	1,9 – 2,4
4	Irreversible	> 40	> 2,4

Criterias of severity of HS.

Index	Shock stage				
	0	1	2	3	4
blood loss(ml)	< 750	750–1000	1000-1500	1500-2500	> 2500
Blood loss(% bfv)	< 15%	15 – 20%	21 – 30%	31 – 40%	> 40%
Pulse, b/min	< 100	100 – 110	110 – 120	120 – 140	>140 or < 40*
Systolic BP mm Hg	N	90 – 100	70 – 90	50 - 70	< 50**
Shock index	0,54 – 0,8	0,8 – 1	1 - 1,5	1,5 – 2	> 2
CVP mm Hg	60 - 80	40 - 60	30 - 40	0 – 30	≤ 0
Test of white spot	N (2 c)	2 – 3 c	> 3 c.	> 3 c.	> 3 c.
Ht	0,38 – 0,42	0,30 - 0,38	0,25 – 0,30	0,20 – 0,25	< 0,20
breath in a min.	14 – 20	20 – 25	25 – 30	30 – 40	> 40
Psychical status	Quiet	Insignificant anxiety	Alarm, moderate	Insignificant anxiety	Entangled of consciousnes

Basic principles of treatment of HS:

1. Arrest of bleeding.
2. Blood volume adjustment
3. Providing of adequate interchange of gases
4. Treatment of organ dysfunction and prophylaxis of polyorganic insufficiency
5. Correction of metabolic violations

Infusion – transfusion therapy

Volume of blood loss		Инфузионные среды					
%BCV	%from body weight	Ringer -lactat	Helofusin	Fresh-frozen plasma	Альбумин (10 – 20%)	Red corpuscles mass	Thrombo-concentrate
till25% (до1,25 л)	till 1,5%	1 - 2 l	1 - 2 l				
till 50% (до 2,5 л)	till 3,0%	2 l	2 - 2,5 l	1 x 250 ml		1 x 250 ml	
till 65% (до3,25 л)	till 4,0%	2 l	2 - 2,5 l	1-3 x 250 ml	0,25-1 л	1-3 x 250 ml	
till 75% (до 3,75л)	till 4,5%	2 l	2 - 2,5 l	3-5 x 250 ml	0,25-1 л	3-6 x 250 ml	
> 75%	> 4,5%	2 l	2 - 2,5 l	5 x 250 ml and more	0,5 - 1 л	6 x 250 ml and more	If necessary