METHODICAL RECOMMENDATIONS
for students

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<th>Educational discipline</th>
<th>Surgery</th>
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Vinnytsya 2016
**Actuality**

Vascular diseases of extremities are widespread enough pathology with that in the first turn, surgeons, domestic and district doctors, and also the doctors of urgent first-aid have business mostly. Arterial thrombosis and embolisms of main vessels are a division of urgent surgery of vessels, which until now is to perfection an unsolved problem. It and large death rate (from 20 to 35%), large frequency of amputations of extremities on soil of gangrene, loss of capacity, a considerable exit on disability of patient, that worsens quality of life. The timely diagnostician of sharp arterial ischemia, reduction of time for diagnostics and grant of skilled medical care is stipulated by the economies of extremities and considerably improve the social problems of patient.

**Educational objectives:**
- to teach students to recognize the symptoms of acute arterial ischemia;
- to able to differentiate embolism and thrombosis of blood vessels;
- to be able to determine the location of vascular lesions;
- to teach students to choose their own method of operative surgery;
- to know the methods of surgical treatment of thrombosis, embolism;
- to conduct necessary conservative therapy (thrombolytics, anticoagulants, antiplatelet agents, antispasmodics, etc.).

**The student should to know:**
- arterial and venous circulatory system;
- to determination of acute arterial ischemia;
- causes thrombosis;
- morphological tissue changes in acute arterial obstruction;
- reasons for the development of acute arterial ischemia;
- to definition and causes of arterial embolism;
- classification of acute arterial ischemia (V.S.Savelyev, 1978);
- symptoms and clinical course of acute limb ischemia;
- variants of clinical course and complications;
- diagnostic algorithm examination of the patient;
- differential diagnosis of thrombosis, embolism, spasm of the arteries of the extremities;
- tactics and choice of treatment.

**The student should to be able to:**
- to identify pulsation in the extremities;
- to identify violations of blood circulation;
- to diagnose the causes of artisanal embolism and thrombosis;
- to identify the clinical signs of acute arterial ischemia;
- to interpretation pursue complementary examination methods (coagulation, vascular ultrasound, angiography of blood vessels);
- to able to determine the location of thrombus and embolism;
- to be able to formulate a diagnosis violation artisanal circulation;
- to conduct a differential diagnosis of thrombosis, embolism, spasm of the arteries of the extremities;
- to be able to work out the tactics of choice of surgical treatment;
- to hold anticoagulation or thrombolysis.

**Table of contents of theme**

*Sharp arterial impassability*

Sharp arterial impassability believe the sudden cessation of blood circulation in the main artery embolism as a result of thrombosis or against other diseases.

*Etiology and pathogenesis*

In 80-93% of cases the cause arterial embolism have heart disease, including atherosclerotic infarction, acute myocardial infarction, rheumatic mitral defects like.

When arterial embolism of the extremities due to lack of time the possibility of development of collateral circulation is always limited.

Acute thrombosis prerequisites for enhancing collateral circulation in most cases formed during the progression of the underlying disease (atherosclerosis, arteritis, etc.). It also helps to increase the flow of arterial occlusion proximal level.

Causes intravascular thrombus R. Virhov (1856), which united them-known triad: damage to the vascular wall, changes in the blood and circulatory disorders. In 90% of cases the cause of arterial thrombosis is "arteriosclerosis".

*Pathomorphism*

In patients with acute arterial obstruction in the first minute of watching histochemical and ultrastructural changes in tissue that indicate their ischemia: no cytochrome, succinate dehydrogenase, glycogen and degradation of existing mitochondria. In the future, there are degenerative, necrobiotic, necrotic processes, and infarcts, hemorrhage and gangrene.

*Classification of acute ischemic limb*

The classification is based by V.S.Savelyevym (1973) laid the clinical course of the disease (table 1).
### Table 1

<table>
<thead>
<tr>
<th>The degree of limb ischemia</th>
<th>The main feature of</th>
</tr>
</thead>
<tbody>
<tr>
<td>IS (ischemic stress)</td>
<td>No symptoms of ischemia at rest (their appearance only at load)</td>
</tr>
<tr>
<td>I A</td>
<td>Numbness, cold, paresthesia</td>
</tr>
<tr>
<td>I B</td>
<td>Pain</td>
</tr>
<tr>
<td>II A</td>
<td>Paresis</td>
</tr>
<tr>
<td>II B</td>
<td>Plehiya</td>
</tr>
<tr>
<td>III A</td>
<td>Subfaksialnyy swelling muscles</td>
</tr>
<tr>
<td>III B</td>
<td>Partial contracture</td>
</tr>
<tr>
<td>III C</td>
<td>Total contraction</td>
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**Symptomatology and clinical motion**

*Subjective symptoms of acute ischemic limbs.* The pain in the affected limb in most cases is not the first sign of acute arterial obstruction. Especially when he is pronounced embolism. The beginning of the disease in these cases is always sudden, although the power of pain can be different. However, acute thrombosis of major arteries syndrome pain in most cases develops gradually. In the initial stages of its intensity expressed slightly, then it increases, and thereafter it may no different from similar embolism. The nature of this syndrome is primarily caused by low arterial spasm and depends on the extent of ischemia tissue.

Feeling of numbness, drop in temperature, paresthesia appear for patients both at embolism and at a sharp thrombosis. They usually grumble about feeling of "crawl of ants", passing of electric current" in extremity, "pricking needles". The degree of expression of the indicated complaints often depends on the psychological equilibrium of patients.

*Evidence of acute ischemic limbs. Change the color of the skin.* At the onset of the disease observed moderate pale skin. Then it joins cyanosis, which is at a much severe ischemia causes the "marbled pattern" skin.

*Reducing the skin temperature* celebrate almost 100% of cases. Its fluctuations acquire a wide range, so always have to measure the temperature in the symmetric parts of sick and healthy limb.

*Sensitivity disorders* also constantly accompany acute ischemia of the limbs. In the initial stages of arterial occlusion reduced the surface, and then, with an increase ischemia, and deep sensitivity. During prolonged ischemia and significant comes complete anesthesia.

*Violations of active movements* in joints limbs are characteristic of ischemia. They can occur either as constraints (paresis), or absence (plehiya) active movements or first in the distal and later in the proximal joints.

*Tenderness* ischemic muscle indicates unfavorable course of acute ischemic
limbs and usually occurs in severe forms. **Subfascialny swelling** of the muscles occurs when long-standing, long, very severe ischemia. It mainly "tight" and does not extend above the knee joint and the feet above the elbow to the hand.

Coronary **heart muscle** contracture usually indicates the beginning necrobiotic phenomena in limbs. There are partial (partial) individual contracture of joints in which passive movements are not possible, and try to active movements painful, and total (complete) contracture, in which the movement is not possible in all joints.

Clinical manifestations of ischemia are most pronounced in the distal limb. Their proximal limits are always below the occlusion, but define it in many cases impossible.

**Variants of clinical motion and complication**

Acute occlusion of the aortic bifurcation is characterized by clinical signs of ischemia both extremities, anterior abdominal wall, pelvic and distal spinal cord.

Acute occlusion of the femoral artery, usually develops in the origin of the deep artery of the thigh. The upper limit is poor circulation between the upper and middle thirds of the thigh. In all cases, time has not treated the disease movements in the ankle joints of fingers and feet are missing, and only 28-30% of patients with this symptom can be observed in the knee joint.

The sharp occlusion of popliteal artery mostly arises up at the level of trifurcation, that is on a 6-7 cm below poples. The top limit of violation of sensitiveness is no communicative between overhead and lower one third of shin. The changes of agile functions, as a rule, will keep indoors the joint of tibial foot for an area.

For the occlusion of arteries of overhead extremities characteristic is that a sharp ischemia arises up in young age (35-40 years) and in default of any diseases of heart. In anamnnesis on occasion it is possible to reduce the phenomenon of plexites or neck-pectoral radiculitis, quite often at the inspection of supraclavicular area find out smoothing or bulging of supraclavicular fossula at palpation of that determine dense education with a pulsation.

**Classification of variants of motion of sharp ischemia of extremity**

<table>
<thead>
<tr>
<th>Classification of variants of motion of sharp ischemia of extremity</th>
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<tbody>
<tr>
<td><strong>Ischemia of tension</strong></td>
</tr>
<tr>
<td>A sharp increasing ischemia of extremity</td>
</tr>
<tr>
<td>Ischemia of tension</td>
</tr>
<tr>
<td>With slow</td>
</tr>
<tr>
<td>With rapid growth</td>
</tr>
<tr>
<td>Quick as lightning</td>
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Table 2
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<tr>
<th>growth</th>
<th>Gangrene</th>
<th>Chronic arterial insufficiency</th>
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Semiotics angiographic embolism, breakage of contrast in the area of bifurcation of the arteries, "poor" net of collateral (Pict. 1).

Angiographic semiotics of acute thrombosis, placed crooked line breakage contrast, uneven, jagged contours on femoral artery atherosclerotic vascular lesions and well-developed net of collateral (Pict. 2).


Pict. 2. Thrombosis of right general iliac artery. Arteriogram. A pointer is indicate localization of blood clot.
Diagnostic program

1. Complaints, anamnesis.
3. Palpation, auscultation of arteries.
4. Dopplerographic of inspection.
5. Aortoarteriography.
6. Coagulogram.

The gangrene of extremity, that is necessary to be considered the most dangerous complication with a poor prognosis, develops in case of the unliquidated sharp arterial impassability.

Differential diagnosis

Table 3

<table>
<thead>
<tr>
<th>Diagnostic sign</th>
<th>Embolism</th>
<th>Sharp thrombosis</th>
<th>Spasm</th>
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<tbody>
<tr>
<td>Beginning</td>
<td>Acute</td>
<td>Subacute</td>
<td>Acute</td>
</tr>
<tr>
<td>Pain</td>
<td>Very intense</td>
<td>Mild</td>
<td>Intense</td>
</tr>
<tr>
<td>Ischemia</td>
<td>Sharply expressed</td>
<td>Moderate</td>
<td>Moderate</td>
</tr>
<tr>
<td>Skin sensitivity</td>
<td>Anesthesia</td>
<td>Reduced</td>
<td>Reduced</td>
</tr>
<tr>
<td>Motor function</td>
<td>Ischemic paralysis</td>
<td>Reduced muscle strength</td>
<td>Reduced muscle strength</td>
</tr>
<tr>
<td>Skin temperature</td>
<td>Sharply reduced</td>
<td>Moderately reduced</td>
<td>Moderately reduced</td>
</tr>
<tr>
<td>The color of the skin</td>
<td>Pale, almost white or marble</td>
<td>Pale</td>
<td>Pale purple tint</td>
</tr>
<tr>
<td>Swelling of limbs</td>
<td>Sometimes, after first aid and only shin</td>
<td>Do not have</td>
<td>There is early in acute venous thrombosis</td>
</tr>
</tbody>
</table>
Angiography

<table>
<thead>
<tr>
<th>Angiography</th>
<th>A clear contrast level cliff</th>
<th>The contours of the vessel unequal, line break</th>
<th>Vessels with smooth disappearance of contrast</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collaterals</td>
<td>Missing</td>
<td>A large number of</td>
<td>Collaterals of narrowed diameter</td>
</tr>
</tbody>
</table>

**Tactics and choice of treatment**

In acute arterial obstruction indications for conservative treatment there can only be a contraindication to surgery. 

*Absolute contraindications are:* agonal condition of the patient, total limb ischemic contracture (acute ischemia degree IPR), a very serious condition patient with mild ischemia (acute ischemia IA - IB degrees).

*By relative contraindications* should include acute myocardial miokardachy stroke, tumors that are not subject to the operation, and easy ischemia without signs of progression.

In all other cases of acute arterial obstruction appropriate emergency surgery. The optimal time for surgery for embolism is the first 6 hours of onset and acute thrombosis - 12-24 hours.

The essence of surgery (Pict. 3) embolism is emboli generally remove the catheter, vascular rings, vacuum suction, by retrograde flushing the arteries Pict. 4), or spury balloon probe. The most famous among them, recently received a special method embolectomy balloon catheter by Fogarty. Its use has made low-impact operation, simple and much more effective.

Surgeries acute thrombosis fundamentally different from dealing with embolism. Features of surgical intervention in patients with acute thrombosis is that while thrombectomy should also eliminate the cause of the disease, that performs particular reconstruction arteries.

In uncomplicated postoperative patients can prescribe outpatient treatment for 12-15 days. In the future, they should be at the dispensary under the control of the surgeon, and if necessary - and cardiologist and rheumatologist. After undergoing reconstructive surgery on main arteries they must also conduct periodic state determination coagulation of the blood system. Such patients should receive aspirin regularly and trental. If necessary, we must purposefully use indirect anticoagulants with obligatory once in six months, a full examination of the patient in the clinic or hospital conditions.
Pict. 3. Removal of emboli (scheme):
A - stream of blood; B - tweezers; C - Fogarty catheter; D - vacuum suction.

Pict.4. Scheme of operation of the retrograde washing of artery force-feeds.

Tests and tasks are added.
Theme: The arterial thrombosis and embolisms

Tests (Step-2)

Variant 1

1. The patient, 35 years old, from rheumatism in the active phase has mitral valve stenosis fourth stage, atrial fibrillation. Six hours ago the expressed pains appeared at a calmness in a right lower limb, at an objective review the arterial pulsation of femoral artery is absent on the right, the temperature of skin of foot is mionectic, bluish color, motion limits in a foot, a sensitiveness is stored. Define illness.
   A. Sharp violation of cerebral circulation of blood
   B. Sharp right femoral artery thromboembolism
   C. Sharp thrombophlebitis of deep veins of right shin
   D. Erysipelas right tibia
   E. Lymphangitis acute right lower limb

2. A patient with the sharp ischemia of both lower limbs, that arose up simultaneously, absent pulsation on right and left femoral, popliteal arteries. Great pain appeared in a stomach, vomit, collapse, liquid chairs, positive symptoms of irritation of peritoneum. What is the condition of the patient?
   A. Occlusion of right iliac artery
   B. Thrombosis and embolism aortic bifurcation inferior mesenteric artery
   C. Thrombosis of both femoral arteries
   D. Layering aortic aneurysm
   E. Total thrombosis of bifurcation of aorta

3. The man complained of pain in the left arm, pain at bending in elbow and radial-wrist joints. Pains appeared 12 hours ago after heavy physical activity. Objectively: the edema of the left brush, forearm, shoulder is expressed. Skin on the left limb cyanotic, reduced pain and tactile sensitivity. Pulse on the hand, forearm and shoulder is not defined. Formulate a preliminary diagnosis:
   A. Sharp thrombosis of the subclavian vein
   B. Sharp thrombosis of humeral artery
   C. Syndrome by Reyno
   D. Illness by Reyno
   E. Break of armpit artery
4. The patient, 56 years old, complaining of intense pain in the left leg, there were three hours ago suddenly, numbness and cold extremities. During the year, noted the pain in the leg while walking, increased sensitivity to cooling. The left foot and lower leg with marble pattern, marked "a symptom of the groove." At the touch of foot cold reduced active movement of the foot, toes saved. Pulse detectable only in the femoral artery. Above her systolic murmur is heard. Formulate a preliminary diagnosis:
   A. Endarteritis obliterans
   B. Syndrome by Reyno
   C. Sharp thrombophlebitis
   D. Atherosclerosis of vessels of lower limbs, sharp thrombosis
   E. Illness by Buerger

5. The patient, 62 years old, complaining of intense pain in the left leg, there were three hours ago suddenly, numbness and cold extremities. During the year, noted the pain in the leg while walking, increased sensitivity to cooling. The left foot and lower leg with marble pattern, saphenas slept. At the touch of foot cold reduced active movement of the foot, toes saved. Pulse detectable only in the femoral artery. Above it rough systolic murmur is heard. Formulate a preliminary diagnosis:
   A. Endarteritis obliterans
   B. Stenosis of the left popliteal artery
   C. Sharp occlusion of the left femoral artery
   D. Sharp thrombophlebitis
   E. Sharp ileofemoralnyy arterial thrombosis
Theme: The arterial thrombosis and embolisms

Tests (Step-2)

Variant 2

1. In patients with acute ischemia of the extremities of both encountered while, but has more significant manifestations of matter, there is no ripple in the right femoral, popliteal arteries and the arteries of the foot. Determined relaxation ripple left thigh arteries and other arteries of the left lower limb. Determine the level of occlusion:
   A. Occlusion of the right iliac artery
   B. Tromb - "rider" aortic bifurcation
   C. Occlusion of both femoral arteries
   D. Forensic thrombosis aortic bifurcation
   E. Occlusion of the right external iliac and femoral arteries of the left internal

2. The patient, 45 years old, is on treatment for rheumatism, active phase, combined mitral valve defect. During the morning the toilet suddenly felt pain in his left hand, followed her numbness. Pain and numbness are grew. Objective: pale skin of his left hand, relatively cold. Pulsation of the arteries throughout the hand is missing. What is the most appropriate therapeutic approach?
   A. Appointment fibrinolysis, anticoagulants
   B. Purpose of antibiotics and anti-inflammatory drugs
   C. Emergency embolectomy
   D. Probing heart
   E. Emergency trombintymektomiya

3. In the district hospital which is located 30 km from the central district hospital and 180 km from the regional hospital, hospitalized patient is 62 years of intramural myocardial infarction. After 25 days of onset of night he suddenly appeared sharp pain in the left lower limb. Ending immediately became pale. Gone active movement of toes and ankle-stage joint, decreased skin sensitivity to palpation of the calf muscle moderately painful. Ripple in the hip during inguinal artery connection, left - enhanced, compared with femoral artery pulsation right. What is the most likely diagnosis?
A. Thrombosis of the femoral artery  
B. Atherosclerosis of the arteries of the lower extremities  
C. Embolism femoral artery  
D. Illness by Reyno  
E. Endarteritis obliterans of the lower extremities

4. The patient, 60 years old, there was a sharp pain in the left lower limb, which appeared within hours and growing. Vascular Angiography revealed that the contours of the popliteal artery uneven, irregular line break, plenty of collaterals. What is the status of the patient?
   A. Popliteal artery embolism  
   B. Trumbo popliteal artery  
   C. Spasm of the popliteal artery  
   D. Illness by Reyno  
   E. Tthrombophlebitis

5. The patient came to the clinic 3 hours ago with the onset of pain in his right leg. Sick 10 years, suffering from atherosclerosis. The end of the cold to the touch, pale, bluish tint of the foot and lower leg. Ripple on the right femoral artery is absent. What is the preliminary diagnosis?
   A. Sharp thromboangiitis right foot  
   B. Deep vein thrombosis sharp right foot  
   C. Sharp right femoral artery spasm  
   D. Sharp thrombosis of the right femoral artery  
   E. Sharp lymphocytosis, lymphedema
Theme: The arterial thrombosis and embolisms

Tests (Step-2)

Variant 3

1. The patient, 76 years old, ambulance transported in serious condition with complaints of sharp pain in the left lower limb, which appeared within hours and growing. When walking feels the lack of solid support, cold feet. He suffers from coronary artery disease, diabetes mellitus. On examination, the left lower limb pale knee, shin and foot cold under the skin traced small vessels. Pain sensitivity broken leg and foot on the left. Ripple on foot and popliteal fossa missing left, weakened femoral arteries.
   A. Popliteal artery thrombosis
   B. Diabetic gangrene of the left lower limb
   C. Atherosclerosis
   D. Illness by Reyno
   E. Thrombophlebitis

2. In the department of vascular surgery delivered from the central district hospital patient, 66 years old, with complaints of pain, loss of sensitivity and movement in his right foot. These symptoms arose three days ago, was treated conservatively. Objective: body temperature - 38.2 degrees, skin pale, blood pressure - 110/70 mm of mercury column, pulse - 110 min., Locally - foot and leg cold, active movement in the knee and foot are absent, swelling and soreness of muscles legs, heart rate is determined only on the femoral artery. What should to be the surgeon?
   A. Conduct of the popliteal artery thrombectomy
   B. Make fastsiotomiya on the shin
   C. Hold thrombolytic therapy with streptokinase
   D. Do amputation at the hip
   E. Do amputation at the tibia

3. The man complained of pain in the left arm, pain in bending the elbow and Acute radiation-carpal bones joints. Pain appeared 12 hours ago after heavy exercise. Objective: edema of the left hand, forearm, shoulder. Skin on the left limb cyanotic, reduced pain and tactile sensitivity. Pulse on the hand, forearm and shoulder is not defined. Formulate a preliminary diagnosis:
A. Sharp thrombosis of the subclavian vein  
B. Sharp brachial artery thrombosis  
C. Syndrome by Reyno  
D. Illness by Reyno  
E. The gap groin artery

4. The patient was hospitalized in the department of vascular surgery on the third day of onset with severe muscular contracture of the right leg. Leg limited in all joints mobile, bluish skin color, reaction to pain stimulation there. What is type of surgery need to do?  
   A. Embolectomy  
   B. Tromboektomiya  
   C. Amputation  
   D. Shunting  
   E. Prosthesis

5. In the district hospital which is located 30 km from the central district hospital and 180 km from the regional hospital, hospitalized patient is 62 years of intramural myocardial infarction. After 25 days of onset of night he suddenly appeared sharp pain in the left lower limb. Ending immediately became pale. Gone active movement of toes and ankle-stage joint, decreased skin sensitivity to palpation of the calf muscle moderately painful. Ripple in the hip during inguinal artery connection, left - enhanced, compared with femoral artery pulsation right. What is the most likely diagnosis?  
   A. Thrombosis of the femoral artery  
   B. Atherosclerosis of the arteries of the lower extremities  
   C. Embolism femoral artery  
   D. Illness by Reyno  
   E. Endarteritis obliterans of the lower extremities
Theme: The arterial thrombosis and embolisms

Tests (Step-2)

Variant 4

1. The patient, 52 years old, complained of sharp pain in his left leg and foot, which came 2 hours ago when you change position in bed? Sick mitral heart defect and atrial fibrillation. Locally: left foot and lower leg pale, cold to the touch, active movement in the foot limited tactile sensitivity of the limbs is reduced. Ripple in the popliteal artery and below the missing on both femoral and popliteal right - preserved. What is causes this pathology clinical picture?
   A. Sharp thrombosis of the left femoral artery
   B. Spasm of artery left lower limb
   C. Atherosclerosis left lower limb
   D. Left popliteal artery embolism
   E. Lymphocytosis left lower limb

2. In patients suffering from heart defect and atrial fibrillation, sudden sharp pain in the left lower leg and foot. Foot and lower third of the tibia pale, cold to the touch. Palpation shin painful tactile sensitivity is reduced, limited movement, pulsation of the arteries of the foot is not defined. What is the most likely diagnosis?
   A. Sharp thrombosis
   B. Sharp phlebitis
   C. Erysipelas
   D. Thrombosis of the femoral artery
   E. Gangrene

3. The patient is taken to hospital after 1 hour after the onset of severe pain in his left leg. In history - heart defect. The left foot is cold to the touch, pale thigh sharply, palpation patient complains of sharp pain. Ripple femoral artery during under Poupart's ligament expressive; in other arteries of the legs - no pulsation. Formulate a preliminary diagnosis:
   A. Sharp thrombosis left leg
   B. Deep vein thrombosis, sharp left leg
   C. Sharp thrombosis of the left femoral artery
   D. Sharp lymphocytosis, lymphedema left
E. Sharp left shin phlebothrombosis

4. The patient, 42 years old, who suffers from rheumatism and combined mitral heart defect suddenly appeared sharp pain in the right upper extremity for 2 hours. In vascular angiographic examination revealed a clear contrast level of breakage of the right brachial artery collaterals available. What is the status of the patient?
   A. Brachial artery thrombosis
   B. Spasm of the brachial artery
   C. Brachial artery embolism
   D. Illness by Reyno

5. The patient, 35 years old, from rheumatism in the active phase has mitral valve stenosis fourth stage, atrial fibrillation. Six days ago there were severe pain at rest in the right lower limb, with no objective review of arterial pulsation of the femoral artery right, foot skin temperature is lowered, bluish color, foot movement is limited, sensitivity is preserved. Identify disease.
   A. Sharp cerebrovascular accident
   B. Sharp right femoral artery thromboembolism
   C. Sharp deep vein thrombosis right leg
   D. Erysipelas right tibia
   E. Lymphangitis sharp right lower limb
Theme: The arterial thrombosis and embolisms

Tests (Step-2)

Variant 5

1. The patient, 32 years old, who suffers congenital heart defect and atrial fibrillation, sudden sharp pain in the left lower leg and foot. The patient was examined in an hour at home. She moans in pain, foot and lower third of the tibia pale, cold. Palpation sharply painful shin mobility in the ankle joint is absent, superficial and deep sensitivity on the feet are missing. Pulse on femoral arteries clear, the popliteal artery and arteries of the foot - no. What did disease appeared in the patient?
   A. Left femoral artery thrombosis
   B. Sharp left popliteal artery embolism. Ischemia II B degrees. Sharp deep vein thrombosis of the left lower limb
   C. Aftertromboflebitichnyy left lower limb syndrome
   D. Atherosclerosis of the left lower limb. Occlusion of the femoral-segment hamstring

2. The patient was hospitalized in the department of vascular surgery three days from the onset of severe muscular contracture of the right leg. Leg limited in all joints mobile, bluish skin color, reaction to pain stimulation there.
   What is a preliminary diagnosis?
   A. Sharp arterial thrombosis
   B. Sharp phlebothrombosis
   C. Contracture by Dupuytren
   D. Sharp thrombosis
   E. Position syndrome

3. The patient, 35 years old, from rheumatism in the active phase has mitral valve stenosis fourth stage, atrial fibrillation. Six hours ago the expressed pains appeared at a calmness in a right lower limb, at an objective review the arterial pulsation of femoral artery is absent on the right, the temperature of skin of foot is mionectic, bluish color, motion limits in a foot, a sensitiveness is stored.
A. ECG
B. Ultrasound of the heart
C. Extremity vascular ultrasound
D. Monitoring by Holter
E. Phlebography

4. In patients with acute ischemia of the extremities of both encountered while, but has more significant manifestations of matter, there is no ripple in the right femoral, popliteal arteries and the arteries of the foot. Determined relaxation ripple left thigh arteries and other arteries of the left lower limb. Determine the level of occlusion:
   F. Occlusion of the right iliac artery
   G. Tromb - "rider" aortic bifurcation
   H. Occlusion of both femoral arteries
   I. Forensic thrombosis aortic bifurcation
   J. Occlusion of the right external iliac and femoral arteries of the left internal

5. The boy, 10 years old, incised wound of the anterior forearm. With wounds stems thin trickle of dark blood. What method should temporarily stop bleeding apply?
   A. Finger pressing brachial artery
   B. Apply braid above the wound
   C. Apply bandages shaking
   D. Apply braid wound below
   E. Use the method to overbend limbs
Theme: The arterial thrombosis and embolisms

Tests (Step-2)

Variant 6

1. The patient, 62 years old, complaining of intense pain in the left leg, there were three hours ago suddenly, numbness and cold extremities. During the year, noted the pain in the leg while walking, increased sensitivity to cooling. The left foot and lower leg with marble pattern, saphenas slept. At the touch of foot cold reduced active movement of the foot, toes saved. Pulse detectable only in the femoral artery. Above it rough systolic murmur is heard. Formulate a preliminary diagnosis:
   A. Endarteritis obliterans
   B. Stenosis of the left popliteal artery
   C. Sharp occlusion of the left femoral artery
   D. Sharp thrombophlebitis
   E. Sharp ileofemoralnyy arterial thrombosis

2. A patient suffering from combined mitral defect for 15 years. 6 hours ago there were severe pain in the left leg. On examination, the left foot is cold to the touch, pale from the foot to the thigh, painful on palpation, pulsation of the femoral artery is determined only by Pouparts connection, other arteries no pulse. What is a preliminary diagnosis?
   A. Sharp thrombosis of the left femoral artery
   B. Sharp trombovlebit superficial veins of the left thigh
   C. Deep vein thrombosis, sharp left hip
   D. Sharp lymph venous stasis left foot
   E. Aneurysm of the left femoral artery

3. Patient 5 hours ago was in a car accident. He complains of abdominal pain, headache. Blood pressure was 180/100 mmHg. In Plain radiography free abdominal organs no fluid in the abdominal flank were found. Severe oliguria, urine output of 10 mL / hour. In the abdomen on the white line, largely left palpable formation 10h8 cm., tautoelastic consistency over which auscultation systolic murmur is heard. Over the last 2:00 noticeable trend towards larger entities. Symptoms of peritoneal irritation there. Put the preliminary diagnosis:
A. Traumatic aneurysm of the abdominal aorta  
B. Two-step subscapular spleen rupture  
C. Retroperitoneal hematoma  
D. Rupture of liver subscapular hematoma  
E. Post-traumatic hematoma ripples small intestine

4. In patients with acute ischemia of the extremities of both encountered while, but has more significant manifestations of matter, there is no ripple in the right femoral, popliteal arteries and the arteries of the foot. Determined relaxation ripple left thigh arteries and other arteries of the left lower limb. What is a complementary method to assign?  
   A. Vascular ultrasound  
   B. Angiography of aorta  
   C. Phlebography  
   D. Ultrasound of the heart

5. For a patient with the sharp ischemia of both lower limbs, that arose up simultaneously, absent pulsation on right and left femoral, popliteal arteries. Great pain appeared in a stomach, vomit, collapse, liquid chairs, positive symptoms of irritation of peritoneum. What is the condition of the patient?  
   A. Occlusion of right iliac artery  
   B. Thrombosis and embolism aortic bifurcation inferior mesenteric artery  
   C. Thrombosis of both femoral arteries  
   D. Layering aortic aneurysm  
   E. Total thrombosis of bifurcation of aorta
Theme: The arterial thrombosis and embolisms

Tests (Step-2)

Variant 7

1. The patient came to the clinic 3 hours ago with the onset of pain in his right leg. Sick 10 years, suffering from atherosclerosis. The end of the cold to the touch, pale, bluish tint of the foot and lower leg. Ripple on the right femoral artery is absent.

What is the preliminary diagnosis?
   A. Sharp thromboangiitis right foot
   B. Deep vein thrombosis sharp right foot
   C. Sharp right femoral artery spasm
   D. Sharp thrombosis of the right femoral artery
   E. Sharp lymphocytosis, lymphedema

2. The patient, 45 years old, is on treatment for rheumatism, active phase, combined mitral valve defect. During the morning the toilet suddenly felt pain in his left hand, followed her numbness. Pain and numbness are grew. Objective: pale skin of his left hand, relatively cold. Pulsation of the arteries throughout the hand is missing.

What is the most appropriate therapeutic approach?
   A. Appointment fibrinolysis, anticoagulants
   B. Purpose of antibiotics and anti-inflammatory drugs
   C. Emergency embolectomy
   D. Probing heart
   E. Emergency trombintymektomiya

3. The boy, 10 years old, incised wound of the anterior forearm. With wounds stems thin trickle of dark blood. What method should temporarily stop bleeding apply?
   A. Finger pressing brachial artery
   B. Apply braid above the wound
   C. Apply bandages shaking
   D. Apply braid wound below
   E. Use the method to overbend limbs
4. The patient, 32 years old, who suffers congenital heart defect and atrial fibrillation, sudden sharp pain in the left lower leg and foot. The patient was examined in an hour at home. She moans in pain, foot and lower third of the tibia pale, cold. Palpation sharply painful shin mobility in the ankle joint is absent, superficial and deep sensitivity on the feet are missing. Pulse on femoral arteries clear, the popliteal artery and arteries of the foot - no. What did disease appeared in the patient?
   A. Left femoral artery thrombosis
   B. Sharp left popliteal artery embolism. Ischemia II B degrees. Sharp deep vein thrombosis of the left lower limb
   C. Aftertromboflebitichnyy left lower limb syndrome
   D. Atherosclerosis of the left lower limb. Occlusion of the femoral-segment hamstring.

5. In the department of vascular surgery delivered from the central district hospital patient, 66 years old, with complaints of pain, loss of sensitivity and movement in his right foot. These symptoms arose three days ago, was treated conservatively. Objective: body temperature - 38.2 degrees, skin pale, blood pressure - 110/70 mm of mercury column, pulse - 110 min., Locally - foot and leg cold, active movement in the knee and foot are absent, swelling and soreness of muscles legs, heart rate is determined only on the femoral artery. What should to be the surgeon?
   A. Conduct of the popliteal artery thrombectomy
   B. Make fastsiotomiya on the shin
   C. Hold thrombolytic therapy with streptokinase
   D. Do amputation at the hip
   E. Do amputation at the tibia
Theme: The arterial thrombosis and embolisms

Tests (Step-2)

Variant 8

1. A patient with the sharp ischemia of both lower limbs, that arose up simultaneously, absent pulsation on right and left femoral, popliteal arteries. Great pain appeared in a stomach, vomit, collapse, liquid chairs, positive symptoms of irritation of peritoneum. What is the condition of the patient?
   A. Occlusion of right iliac artery
   B. Thrombosis and embolism aortic bifurcation inferior mesenteric artery
   C. Thrombosis of both femoral arteries
   D. Layering aortic aneurysm
   E. Total thrombosis of bifurcation of aorta

2. The man complained of pain in the left arm, pain in bending the elbow and Acute radiation–carpal bones joints. Pain appeared 12 hours ago after heavy exercise. Objective: edema of the left hand, forearm, shoulder. Skin on the left limb cyanotic, reduced pain and tactile sensitivity. Pulse on the hand, forearm and shoulder is not defined. Formulate a preliminary diagnosis:
   A. Sharp thrombosis of the subclavian vein
   B. Sharp brachial artery thrombosis
   C. Syndrome by Reyno
   D. Illness by Reyno
   E. The gap groin artery

3. In the district hospital which is located 30 km from the central district hospital and 180 km from the regional hospital, hospitalized patient is 62 years of intramural myocardial infarction. After 25 days of onset of night he suddenly appeared sharp pain in the left lower limb. Ending immediately became pale. Gone active movement of toes and ankle-stage joint, decreased skin sensitivity to palpation of the calf muscle moderately painful. Ripple in the hip during inguinal artery connection, left - enhanced, compared with femoral artery pulsation right. What is the most likely diagnosis?
   A. Thrombosis of the femoral artery
   B. Atherosclerosis of the arteries of the lower extremities
   C. Embolism femoral artery
   D. Illness by Reyno
4. The patient, 62 years old, complaining of intense pain in the left leg, there were three hours ago suddenly, numbness and cold extremities. During the year, noted the pain in the leg while walking, increased sensitivity to cooling. The left foot and lower leg with marble pattern, saphenas slept. At the touch of foot cold reduced active movement of the foot, toes saved. Pulse detectable only in the femoral artery. Above it rough systolic murmur is heard. Formulate a preliminary diagnosis:
   A. Endarteritis obliterans
   B. Stenosis of the left popliteal artery
   C. Sharp occlusion of the left femoral artery
   D. Sharp thrombophlebitis
   E. Sharp ileofemoralnyy

5. The patient, 76 years old, ambulance transported in serious condition with complaints of sharp pain in the left lower limb, which appeared within hours and growing. When walking feels the lack of solid support, cold feet. He suffers from coronary artery disease, diabetes mellitus. On examination, the left lower limb pale knee, shin and foot cold under the skin traced small vessels. Pain sensitivity broken leg and foot on the left. Ripple on foot and popliteal fossa missing left, weakened femoral arteries.
   A. Popliteal artery thrombosis
   B. Diabetic gangrene of the left lower limb
   C. Atherosclerosis
   D. Illness by Reyno
   E. Thrombophlebitis
Theme: The arterial thrombosis and embolisms

Tests (Step-2)

Variant 9

1. The boy, 10 years old, incised wound of the anterior forearm. With wounds stems thin trickle of dark blood. What method should temporarily stop bleeding apply?
   A. Finger pressing brachial artery
   B. Apply braid above the wound
   C. Apply bandages shaking
   D. Apply braid wound below
   E. Use the method to overbend limbs

2. The patient was hospitalized in the department of vascular surgery on the third day of onset with severe muscular contracture of the right leg. Leg limited in all joints mobile, bluish skin color, reaction to pain stimulation there. What is type of surgery need to do?
   A. Embolectomy
   B. Tromboektomiya
   C. Amputation
   D. Shunting
   E. Prosthesis

3. In patients suffering from heart defect and atrial fibrillation, sudden sharp pain in the left lower leg and foot. Foot and lower third of the tibia pale, cold to the touch. Palpation shin painful tactile sensitivity is reduced, limited movement, pulsation of the arteries of the foot is not defined. What is the most likely diagnosis?
   A. Sharp thrombosis
   B. Sharp phlebitis
   C. Erysipelas
   D. Thrombosis of the femoral artery
   E. Gangrene

4. The patient, 42 years old, who suffers from rheumatism and combined mitral heart defect suddenly appeared sharp pain in the right upper extremity for 2 hours. In vascular angiographic examination revealed a clear contrast level
of breakage of the right brachial artery collaterals available. What is the status of the patient?
   A. Brachial artery thrombosis
   B. Spasm of the brachial artery
   C. Brachial artery embolism
   D. Illness by Reyno

5. In the department of vascular surgery delivered from the central district hospital patient, 66 years old, with complaints of pain, loss of sensitivity and movement in his right foot. These symptoms arose three days ago, was treated conservatively. Objective: body temperature - 38.2 degrees, skin pale, blood pressure - 110/70 mm of mercury column, pulse - 110 min., Locally - foot and leg cold, active movement in the knee and foot are absent, swelling and soreness of muscles legs, heart rate is determined only on the femoral artery. What should to be the surgeon?
   A. Conduct of the popliteal artery thrombectomy
   B. Make fastsiotomiya on the shin
   C. Hold thrombolytic therapy with streptokinase
   D. Do amputation at the hip
   E. Do amputation at the tibia
Theme: The arterial thrombosis and embolisms

Tests (Step-2)

Variant 10

1. The patient, 60 years old, there was a sharp pain in the left lower limb, which appeared within hours and growing. Vascular Angiography revealed that the contours of the popliteal artery uneven, irregular line break, plenty of collaterals. What is the status of the patient?
   A. Popliteal artery embolism
   B. Trumbo popliteal artery
   C. Spasm of the popliteal artery
   D. Illness by Reyno
   E. Thrombophlebitis

2. The patient, 62 years old, complaining of intense pain in the left leg, there were three hours ago suddenly, numbness and cold extremities. During the year, noted the pain in the leg while walking, increased sensitivity to cooling. The left foot and lower leg with marble pattern, saphenas slept. At the touch of foot cold reduced active movement of the foot, toes saved. Pulse detectable only in the femoral artery. Above it rough systolic murmur is heard. Formulate a preliminary diagnosis:
   A. Endarteritis obliterans
   B. Stenosis of the left popliteal artery
   C. Sharp occlusion of the left femoral artery
   D. Sharp thrombophlebitis
   E. Sharp ileofemoralnyy arterial thrombosis

3. The patient, 56 years old, complaining of intense pain in the left leg, there were three hours ago suddenly, numbness and cold extremities. During the year, noted the pain in the leg while walking, increased sensitivity to cooling. The left foot and lower leg with marble pattern, marked "a symptom of the groove." At the touch of foot cold reduced active movement of the foot, toes saved. Pulse detectable only in the femoral artery. Above her systolic murmur is heard. Formulate a preliminary diagnosis:
   A. Endarteritis obliterans
   B. Syndrome by Reyno
   C. Sharp thrombophlebitis
D. Atherosclerosis of vessels of lower limbs, sharp thrombosis
E. Illness by Buerger

4. In patients with acute ischemia of the extremities of both encountered while, but has more significant manifestations of matter, there is no ripple in the right femoral, popliteal arteries and the arteries of the foot. Determined relaxation ripple left thigh arteries and other arteries of the left lower limb. What is a complementary method to assign?
   A. Vascular ultrasound
   B. Angiography of aorta
   C. Phlebography
   D. Ultrasound of the heart

5. The patient, 32 years old, who suffers congenital heart defect and atrial fibrillation, sudden sharp pain in the left lower leg and foot. The patient was examined in an hour at home. She moans in pain, foot and lower third of the tibia pale, cold. Palpation sharply painful shin mobility in the ankle joint is absent, superficial and deep sensitivity on the feet are missing. Pulse on femoral arteries clear, the popliteal artery and arteries of the foot - no. What did disease appeared in the patient?
   A. Left femoral artery thrombosis
   B. Sharp left popliteal artery embolism. Ischemia II B degrees. Sharp deep vein thrombosis of the left lower limb
   C. Aftertromboflebitichnyy left lower limb syndrome
   D. Atherosclerosis of the left lower limb. Occlusion of the femoral-segment hamstring
Theme: The arterial thrombosis and embolisms

Tests (Step-2)

Variant 11

1. The patient, 52 years old, complained of sharp pain in his left leg and foot, which came 2 hours ago when you change position in bed? Sick mitral heart defect and atrial fibrillation. Locally: left foot and lower leg pale, cold to the touch, active movement in the foot limited tactile sensitivity of the limbs is reduced. Ripple in the popliteal artery and below the missing on both femoral and popliteal right - preserved. What is causes this pathology clinical picture?
   A. Sharp thrombosis of the left femoral artery
   B. Spasm of artery left lower limb
   C. Atherosclerosis left lower limb
   D. Left popliteal artery embolism
   E. Lymphocytosis left lower limb

2. The patient is taken to hospital after 1 hour after the onset of severe pain in his left leg. In history - heart defect. The left foot is cold to the touch, pale thigh sharply, palpation patient complains of sharp pain. Ripple femoral artery during under Pouparts ligament expressive; in other arteries of the legs - no pulsation. Formulate a preliminary diagnosis:
   A. Sharp thrombosis left leg
   B. Deep vein thrombosis, sharp left leg
   C. Sharp thrombosis of the left femoral artery
   D. Sharp lymphocytosis, lymphedema left
   E. Sharp left shin phlebothrombosis

3. The patient, 76 years old, ambulance transported in serious condition with complaints of sharp pain in the left lower limb, which appeared within hours and growing. When walking feels the lack of solid support, cold feet. He suffers from coronary artery disease, diabetes mellitus. On examination, the left lower limb pale knee, shin and foot cold under the skin traced small vessels. Pain sensitivity broken leg and foot on the left. Ripple on foot and popliteal fossa missing left, weakened femoral arteries.
   A. Popliteal artery thrombosis
   B. Diabetic gangrene of the left lower limb
C. Atherosclerosis  
D. Illness by Reyno  
E. Thrombophlebitis  

4. The patient was hospitalized in the department of vascular surgery three days from the onset of severe muscular contracture of the right leg. Leg limited in all joints mobile, bluish skin color, reaction to pain stimulation there.  
What is a preliminary diagnosis?  
   A. Sharp arterial thrombosis  
   B. Sharp phlebothrombosis  
   C. Contracture by Dupuytren  
   D. Sharp thrombosis  
   E. Position syndrome  

5. The patient, 35 years old, from rheumatism in the active phase has mitral valve stenosis fourth stage, atrial fibrillation. Six days ago there were severe pain at rest in the right lower limb, with no objective review of arterial pulsation of the femoral artery right, foot skin temperature is lowered, bluish color, foot movement is limited, sensitivity is preserved. Identify disease.  
   A. Sharp cerebrovascular accident  
   B. Sharp right femoral artery thromboembolism  
   C. Sharp deep vein thrombosis right leg  
   D. Erysipelas right tibia  
   E. Lymphangitis sharp right lower limb