



Башкирский государственный
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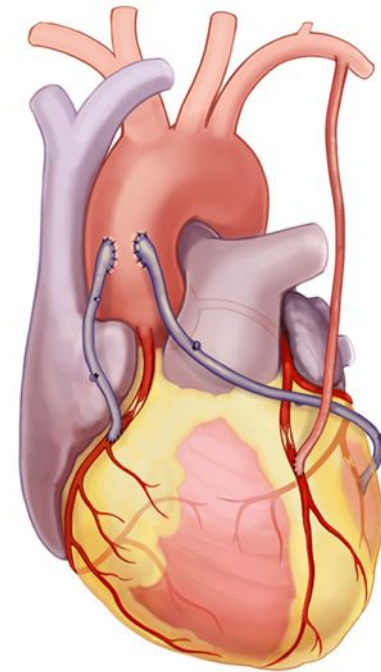


Surgical revascularization of myocardium

Myocardial revascularization is an intervention aimed at eliminating the deficit of blood supply to the heart muscle

Methods of myocardial revascularization:

- Coronary artery bypass grafting
- Transluminal balloon angioplasty
- Percutaneous coronary intervention



Main indications for myocardial revascularization:

- severe angina, poorly amenable to medical treatment
- stenosis of all coronary arteries by more than 70 %
- developing for 4-6 hours from the beginning of PAIN.
- ischemic pulmonary edema
- stenosis of the left coronary artery by more than 50 %

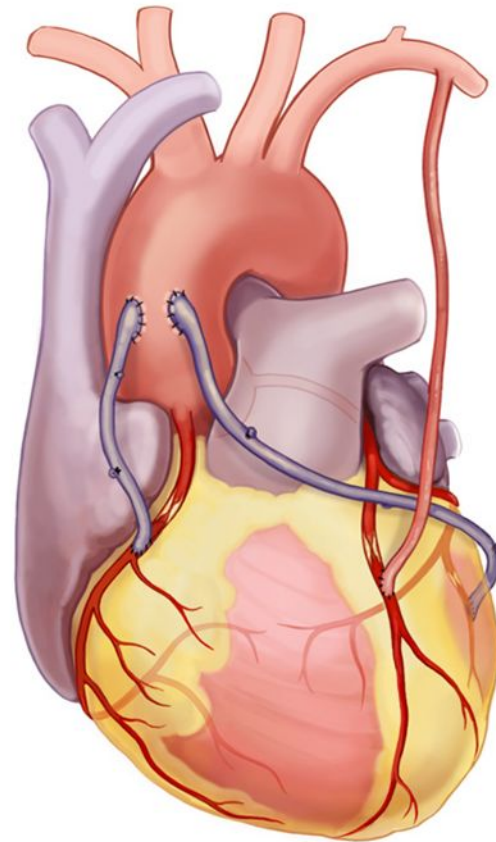
Relative contraindications to myocardial revascularization:

- diffuse lesion of all coronary arteries
- a sharp decrease in left ventricular FV to 30%
- congestive heart failure
- chronic nonspecific lung diseases
- renal failure
- oncological disease

Preparation of the patient for surgery

- The last meal in the evening, after midnight it is forbidden to take water
- In the area of postoperative wounds, the hair should be shaved
- In the night before the operation and in the morning, bowel cleansing is carried out
- Informed voluntary consent to surgery

Coronary artery
bypass grafting
(CABG) – surgery,
which allows restore
blood flow in the
arteries of the heart
by bypassing the
stenosis of the
coronary vessel

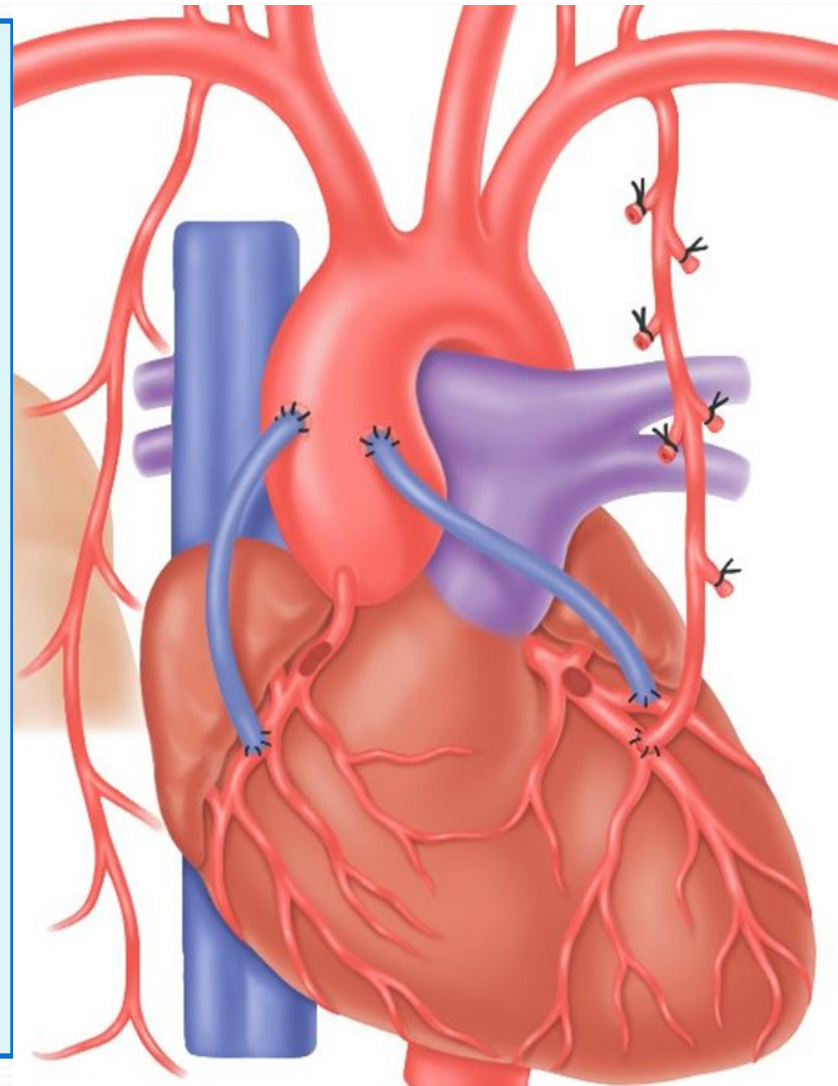


Methods for creating a workaround:

- **mammароcoronary anastomosis**
- **coronary artery bypass with autovenous or autoarterial graft**

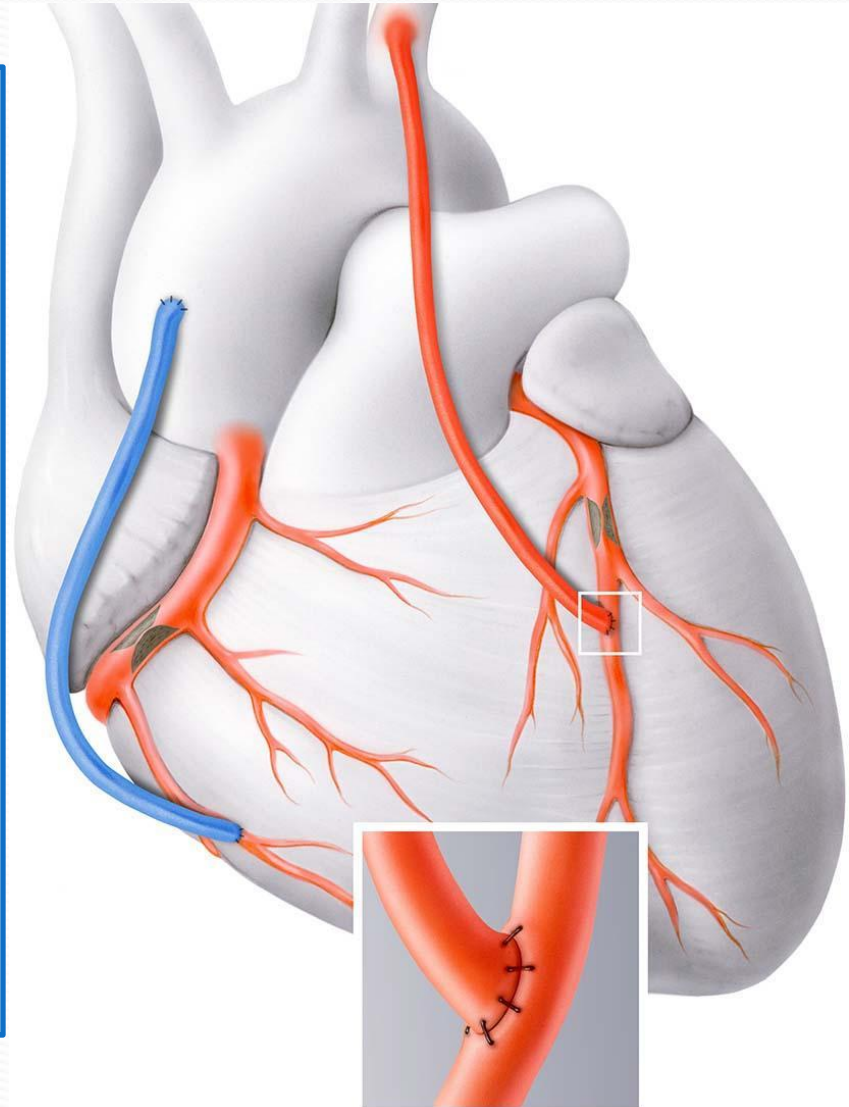
Mammароcoronary bypass

Use the internal thoracic artery (ITA), which is "switching" to the coronary pool by anastomosing with the coronary artery below the stenosis. ITA is filling naturally from the left subclavian artery, from which it branches



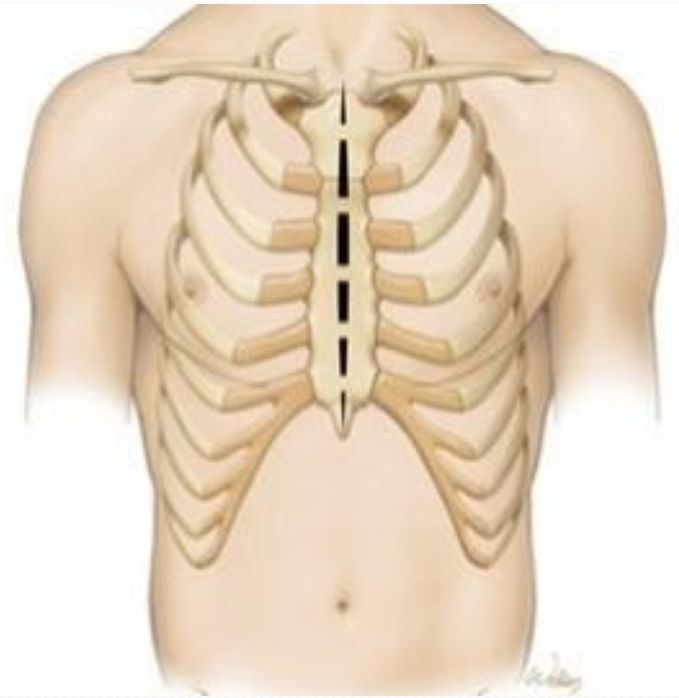
Coronary artery bypass grafting

- Use "free" conduits (from the great saphenous vein, radial artery or ITA) the distal end is anastomosed with the coronary artery below the stenosis, and the proximal end with the ascending aorta



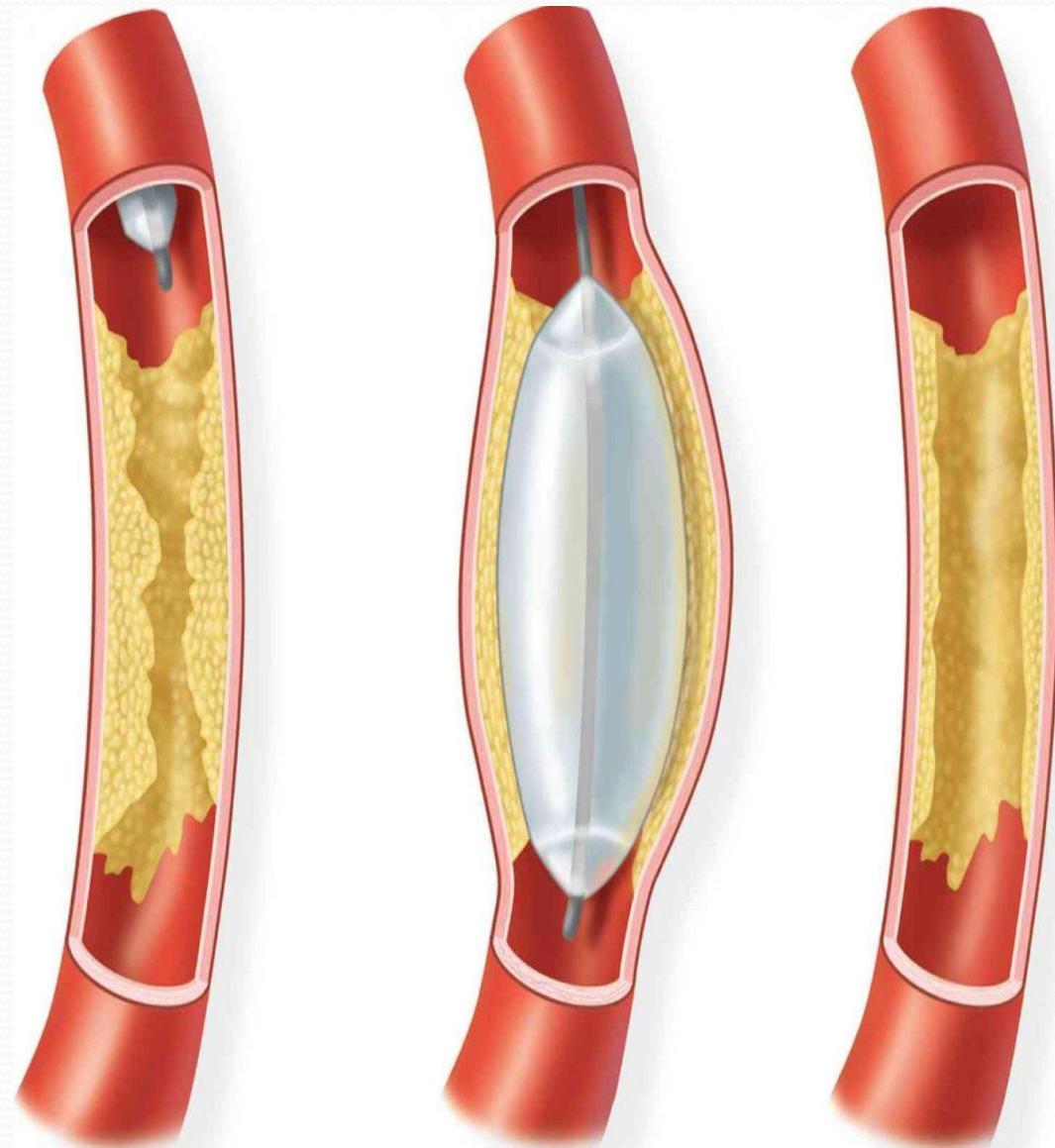
CABG technique

1. Median sternotomy
2. Selection of ITA (autovenousgraft sampling)
3. Cannulation of the ascending part of the aorta and hollow veins and connection to the Artificial Blood Circulation System (ABCS)
4. The clamping of a rising part of the aorta with cardioplegic cardiac arrest



5. Imposition of distal anastomoses with coronary arteries
6. Removing the clamp from the ascending part of the aorta
7. Restoration of cardiac activity
8. Imposition of proximal anastomoses
9. ABCS turn-off
10. Decanulation
11. Suturing of sternotomy incision with drainage of pericardial cavity

Transluminal
balloon angioplasty
(TLBAP) -
operation that
allows recover
blood flow in
arteries of the heart
by carrying catheter
with cylinder and
subsequent by
inflating it

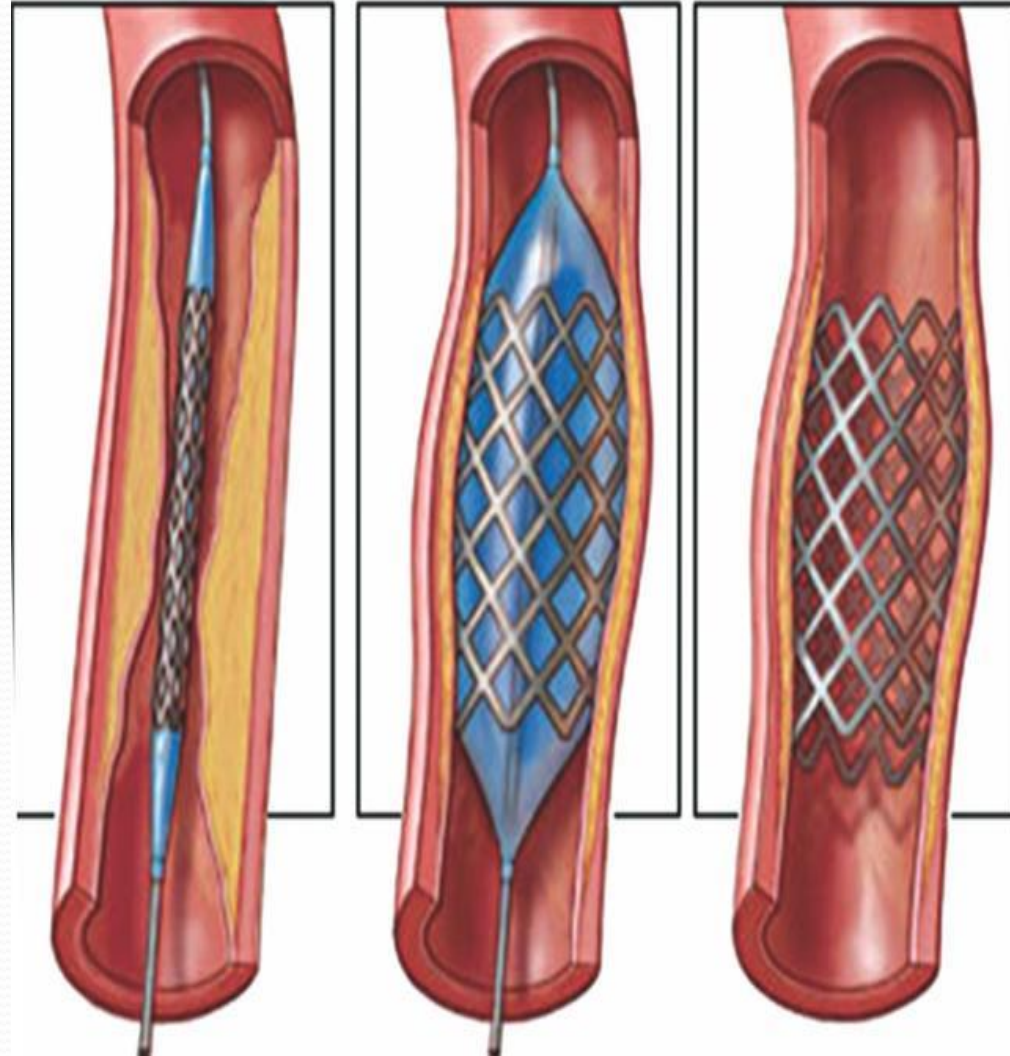


The progress of the operation

1. Restoration of patency of blood flow is carried out under radiological control throughout the operation
2. For this procedure, access to the stenosed vessel through the femoral artery in the inguinal region is used
3. Make a puncture in the skin
4. Install the Introducer, through it to the place of stenosis, a conductor catheter is wound; with a tiny balloon at the end
5. Under pressure, the balloon inflates and "crushes" the atherosclerotic plaque



Coronary artery stenting or percutaneous coronary intervention is an operation that allows recover blood flow in coronary arteries by stent implantation at the narrowing point of them



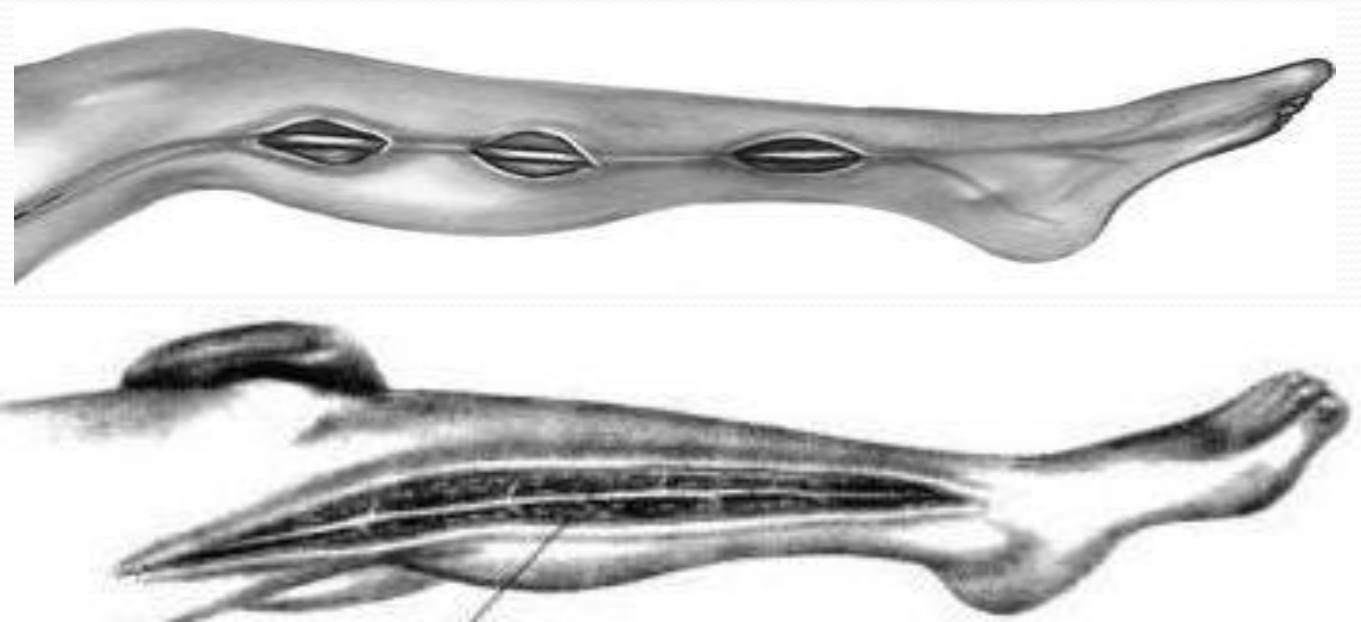
The progress of the operation

1. A puncture is performed in the wrist or hip area
2. The Introducer is installed, a conductor catheter is wound through it
3. A microconductor is passed through the catheter into the artery through the affected area
4. A balloon catheter is wound along the microconductor to the affected area
5. High pressure is produced by the destruction of atherosclerotic plaque
6. A coronary stent is implanted in place of the residual narrowing

Methods of dissection vascular grafts

Dissection of the great saphenous vein

Autovene is taken from separate incisions with small skin bridges between them or long surgical approach



Dissection of the radial artery

1. Held on a non-dominant hand
2. Longitudinal incision of the skin is performed in the projection of the radial artery
3. Stands out in the block with the surrounding tissues
4. After systemic heparinization, the artery is cut off and stored in a solution of heparin with calcium antagonists or papaverine



Technique of internal thoracic artery dissection

1. Sternotomy
2. Asymmetric expansion of the wound with a retractor
3. The dissection begins anywhere along the internal thoracic artery
4. The lateral arterial and venous branches are coagulated or clipped with metal clips
5. The dissection is performed by two methods:
 - with surrounding tissues
 - in the form of complete skeletonization of the artery
6. The advantage of the first method is a low probability of injury of the artery. The second method is the largest possible length of the internal thoracic artery
7. Clipping of the largest lateral branch in the first intercostal space
8. Systemic heparinization
9. The artery is cut off 1 cm above the bifurcation

Technique of gastro-omentum artery dissection

1. Sternotomy
2. Upper median laparotomy
3. The artery is visualized and isolated from the adipose tissue, with the lateral branches being clipped sequentially
4. Distally dissection continues to $\frac{2}{3}$ large curvature of the stomach, and proximally-towards the duodenum to the pyloric section of the stomach
5. After cutting off the distal part of the artery, it is carried through the diaphragm into the pericardial cavity
6. The entrance to the pericardium should be close to the coronary artery where bypass would be attached

Lifestyle after surgery

- Dietary food
- Breathing exercises-the patient is offered a balloon, inflating which, the patient straightens the lungs, which prevents the development of venous congestion in them
- Physical gymnastics, first lying in bed, then walking down the corridor

Complications of the heart revascularization

CABG

- hyperthermia;
- bleeding;
- heart attack;
- deep vein thrombosis;
- pericarditis;
- arrhythmia;
- embolisms;
- stroke;
- wound infection;
- osteomyelitis of the sternum;

Stenting

- Bleeding;
- Angina;
- Infarction;
- Stroke;
- Lesion of the artery walls;
- Violation of the kidney;
- Blood clot in the artery;
- Hematoma;
- Pain;
- Allergy to the substance injected into the bloodstream.

Balloon angioplasty

- Rupture of the inner lining of the artery and its detachment;
- Thrombosis or spasm
- Injury of the vessel with a catheter or infection in the area of its introduction
- Bleeding
- Detachment of the thrombus and blockage of small branches
- Infarction
- Sudden cardiac arrest



Thanks for attention