

# Abdominal aortic aneurysm

**Abdominal aortic aneurysm** (AAA) is a saccular enlargement of the abdominal aorta by at least half of its diameter (that means over 3 cm). The aneurysm very often occurs subrenally - just below the renal arteries, and ends above the aortic bifurcation (however, it may progress to common iliac arteries).

## Occurrence

AAA is the most common type of aneurysm, the incidence has been rising recently, 4 times more often in men, it increases with age, the prevalence in men over 60 is 4%.

## Risk factors

Risk factors include smoking, hypertension, male gender, older age, positive FA, hypercholesterolemia, CLLID (chronic lower limb ischemic disease) and IHD (ischemic heart disease).

### Risk of rupture within 5 years:

- in aneurysms over 6 cm - 33%,
- in aneurysms over 7 cm - 95%.

## Causes

1. Changes in the vessel wall - atherosclerosis, cystic degeneration of the medium, infections, etc .; 2. Genetic factors - congenital diseases of the connective tissue (Marfan's syndrome, Ehlers-Danlos syndrome, Loeys-Dietz syndrome); 3. Trauma

## Clinical appearance

It is **asymptomatic for a long time**, later manifested by **back, hip, epigastric pain**, sometimes vomiting (may be confused with colic, pancreatitis or diverticulitis), pain occurs in rapidly growing aneurysms and usually precedes rupture for several hours or days. When the clot is embolized from the aneurysm sac, **ischemia of the organs or limbs** can occur.

### Rupture

Rupture manifests itself as severe, agonizing pain, rapidly deepening shock, severe hypotension, increasing abdominal volume, pulsating resistance. It appears most often on the back with subsequent bleeding into the retroperitoneum, secondarily it may continue into the peritoneum. Less often it ruptures directly into the peritoneum or into the v. Cava inf. (massive A-V short circuit - overload of Right heart). Rarely perforated into the duodenum - massive hematemesis and melena.

## Diagnostics

In the asymptomatic phase, it is usually discovered randomly as pulsating resistance on physical examination or on USG from another indication.

There may be an audible murmur above the aneurysm. **Palpation** - if we can insert our hand between the resistance and the rib arch, then it is an infrarenal aneurysm. The **X-ray** may show calcifications in the wall, **angiography** - it will not show the whole volume, but it will clarify the possible involvement of the branches. **USG** - reliable examination, **CT** and **MRI** are even better. Up to 50% of aneurysms are diagnosed with symptoms!

## Therapy

The therapy is either surgical, the aneurysm sac is opened longitudinally, the prosthesis is sutured according to the extent (aorto-aortic, aortoiliac or aortofemoral), the endoprosthesis is sutured with aneurysm resection (and suturing the visceral arteries) or bypass. More recently, endovascular insertion of stent grafts has been performed. Mortality of elective performance is below 10%.

### Indications for surgery or endovascular surgery

- an aneurysm wider than 5.5 cm in men and 5 cm in women
- enlargement faster than 0.5 cm / year
- in symptomatic (pain, rupture) - urgently, within hours (max. days)

**Complications of surgical treatment** Respiratory insufficiency, haemocoagulation disorders, heart or kidney failure. Ischemic colitis - ligation of the inferior mesenteric artery with insufficient collateral blood flow.

## **Conservative therapy**

Aneurysms not indicated for surgery or endovascular surgery are treated with a conservative procedure that includes:

- smoking cessation,
- treatment of hypertension (beta-blockers, ACE-i, AT1-blockers),
- hypolipidemics (statins),
- regular monitoring of the maximum size and growth rate of the aneurysm.

## **Prognosis**

In rupture: 50% of those affected die before reaching the hospital, 25% perioperatively, the total operative mortality is 50%, the total mortality of the rupture is 75-90%.