

Aortic stenosis

This article has been translated from WikiSkripta; the **formatting** needs to be checked.

Template:Infobox - genetic disorder__BEZOBSAHU__ náhled|290px|right|Aortic stenosis – rheumatic heart **Stenosis (narrowing) of the aorta** occurs in three locations relative to the aortic valve: **subvalvular**, **valvular** (most common) and **supravalvular** . The diffuse narrowing of the ascending aorta is called hypoplasia.

Stenosis is most often congenital, but can also occur due to **degenerative changes** (often on the congenital bicuspid valve) or after rheumatic endocarditis as part of a combined aorto-mitral defect. Aortic stenosis is a barrier to blood flow from the left ventricle, causing **concentric left ventricular hypertrophy**, subendocardial fibrosis and subsequent ischemia. The myocardium is more prone to malignant arrhythmias by re-entering the circuit around the ligament. In the late phase of AoS, the left ventricle **dilates** and **systolic dysfunction** occurs .

Critical narrowing in the newborn has similar symptoms as a hypoplastic left heart:

- low CO, hypotension
- metabolic acidosis,
- severe pulmonary hypertension.

At a later age, aortic stenosis may be asymptomatic, the first manifestations of which are syncope or sudden death. Syncope is caused by a critical **decrease in minute output** during exertion or obstruction of the left ventricular outflow. A dangerous sign of the threat of sudden death is the development of ischemic ECG manifestations. In the natural course, aortic regurgitation occurs over time ^[1]

Significant stenosis has an aortic orifice area < 1 cm², mean gradient> 50 mmHg.^[2]

The clinical picture

- Curious tip (left ventricular hypertrophy).
- Tactile vortex over the aortic orifice.
- Dull I. echo.
- Early systolic click on the tip and above the aorta (unless the valve is calcified).
- Ejection systolic **murmur** over the aorta, crescendo-decrescend, **with propagation to the carotid arteries**.
- Heart rate: slow pulse, poor palpation (pulsus parvus et tardus), small systolic-diastolic BP range.

Among the clinical triad includes:

1. angina pectoris,
2. exertional dyspnea,
3. syncope and arrhythmias.

Diagnosis

- clinical finding
- transthoracic and transesophageal echocardiography

Treatment

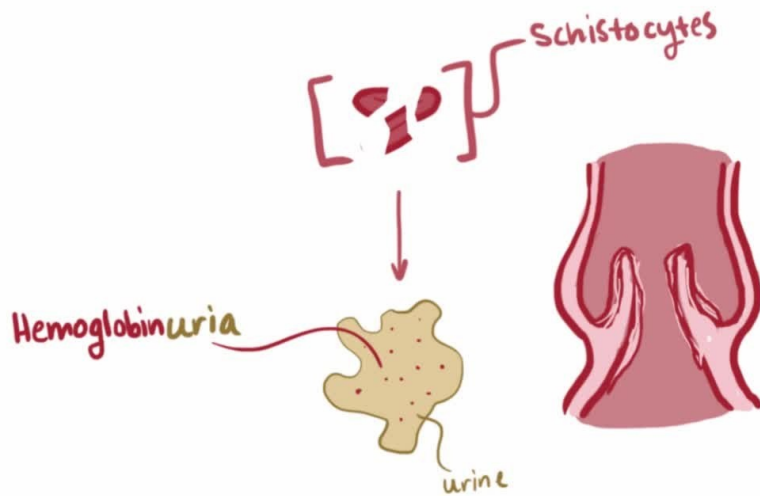
- **Surgical**: aortic valve replacement. After surgery, the systolic and diastolic function of the LV improves. Patients at high surgical risk may undergo valve replacement by **TAVR** - transcatheter aortic implantation of the aortic valve. In older individuals, **bioprostheses** are used more. Their lifespan is 10-15 years and the advantage is that the patient does not have to be anticoagulated for a long time. **Mechanical** prostheses have a longer service life with the disadvantage of long-term anticoagulation. Another possibility, **Ross's** operation consists in inserting an implanted self-valve into the patient's aortic position, followed by a pulmonary bioprosthesis.
- **Drug** treatment: supportive treatment as for heart failure. Studies have not confirmed that statins could inhibit the progression of AoS. Arterioldilatory drugs - nitrates, iACE could reduce systemic pressure.

Prevention of complications - mainly we prevent complications of endocarditis - proper treatment of respiratory infections is important. A larger one-time load is not recommended for children.

Summary video

MICROANGIOPATHIC HEMOLYTIC ANEMIA

TREATMENT



Auscultation



References

Related articles

- Congenital heart defects • Acquired heart defects
- Aortic regurgitation • Abdominal aortic aneurysm
- Aorta abdominalis • Aorta thoracica • Elastic artery (histological specimen)

External links

- Aortální stenóza - Šelest - Audio nahrávky (TECHMED) (<https://www.techmed.sk/ejekcny-systolicky-selest/>)
- Diagnostika chlopenních vad pomocí Valsalvova manévru (<http://kardioblogie.blogspot.com/2012/07/tipy-triky-valsalvuv-manevr.html>)

Sources

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- Beneš, J., Studijní materiály (<http://www.jirben.wz.cz>)
- http://int-prop.lf2.cuni.cz/zof/vysetreni/srdce_n.htm

References

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- 1. ČEŠKA, Richard. *Interna*. 2. edition. Prague : TRITON v Praze, 2015. pp. 116-117. ISBN 9788073878955.
- 2. ČEŠKA, Richard, ŠTULC, Tomáš, Vladimír TESAŘ a Milan LUKÁŠ, et al. *Interna*. 3. vydání. Praha : Stanislav Juhaňák - Triton, 2020. 964 s. ISBN 978-80-7553-780-5.