CONDITION

Mitral stenosis

Mitral stenosis is narrowing of the heart valve that controls blood flow into the main pumping chamber.

WHAT IT IS
Narrowing of the valve between the heart's left chambers

BODY SYSTEM
Heart and circulation

MAIN SYMPTOMS
Breathlessness, tiredness, palpitations, ankle swelling

WHAT CAUSES IT
Usually rheumatic disease; sometimes aging or congenital differences

HOW IT IS DIAGNOSED
Echocardiogram showing valve narrowing and obstructed blood flow

MAIN TREATMENT
Monitoring, symptom medicines, and valve procedures

CAN IT BE CURED?
Sometimes - valve procedures can relieve narrowing

IS IT AN EMERGENCY?
Sometimes - sudden breathlessness or stroke signs

LONG-TERM OUTLOOK
Often manageable with monitoring and timely valve treatment

Overview

Mitral stenosis is a narrowing of the mitral valve inside the heart. This valve sits between the left atrium, which receives oxygen-rich blood from the lungs, and the left ventricle, the heart's main pumping chamber.

A healthy mitral valve opens widely so blood can move forward. When the opening becomes narrow, blood has more difficulty passing through. Pressure can build in the left atrium and in the blood vessels of the lungs. Over time, this may affect breathing, heart rhythm, and the right side of the heart.

Mitral stenosis usually develops slowly. Some people have no symptoms for years. Symptoms may first appear when the heart has to work harder, such as during exercise, pregnancy, an infection, or a fast heart rhythm.

The narrowing does not always need immediate treatment. Regular assessment matters because symptoms and pressure inside the heart can change even when daily life feels much the same.

Symptoms

Mild mitral stenosis may cause no symptoms. When symptoms occur, they often develop gradually.

Possible symptoms include:

Breathlessness happens because higher pressure in the heart can cause fluid and pressure to build in the lungs. An irregular heartbeat may be caused by atrial fibrillation, often shortened to AF. In AF, the heart's upper chambers beat in an uneven and poorly coordinated way.

Symptoms can become more noticeable during pregnancy because the amount of blood circulating through the heart increases. Fever, anemia, thyroid problems, and other conditions that make the heart beat faster can also bring on symptoms.

These symptoms have many possible causes. Having one or more does not mean that you have mitral stenosis.

- Shortness of breath during activity, when lying flat, or at night
- Reduced stamina or unusual tiredness
- A fast, pounding, or irregular heartbeat
- Swelling of the feet, ankles, or legs
- Coughing, sometimes with blood-streaked mucus
- Chest discomfort
- Dizziness or fainting, especially with exertion

Causes and risk factors

Worldwide, the most common cause is rheumatic heart disease. This can follow rheumatic fever, an immune reaction that sometimes develops after an untreated or incompletely treated infection with group A streptococcal bacteria. Rheumatic fever can scar the valve flaps, making them thick and less able to open.

Valve damage may not become apparent until years or decades after the original illness. Some people do not remember having rheumatic fever.

Other causes are less common:

Risk is higher if you have had rheumatic fever or come from a region where rheumatic heart disease remains common. Older age increases the chance of calcium-related valve narrowing.

Mitral stenosis is not usually caused by lifestyle choices. However, smoking, high blood pressure, and other heart conditions can add strain to the heart and affect overall health.

- Calcium can build up around the mitral valve with aging
- A person may be born with an unusually narrow or abnormal valve
- Radiation treatment to the chest can sometimes damage heart valves
- Certain inflammatory or autoimmune conditions can rarely affect the valve

Diagnosis

An echocardiogram is the main test used to confirm mitral stenosis. It uses sound waves to create moving pictures of the heart. It can show how well the valve opens, measure blood flow across it, and estimate pressure in the lungs.

Most people first have a transthoracic echocardiogram, in which a probe is moved over the chest. Sometimes a transesophageal echocardiogram is needed. For this test, a small ultrasound probe is passed into the food pipe after numbing medicine and sedation. It gives a closer view of the valve and can check for a blood clot in the left atrium.

Other tests may include:

Assessment includes more than the size of the valve opening. Symptoms, blood-flow measurements, lung pressure, heart rhythm, and the structure of the valve all help show how significant the narrowing is.

- An electrocardiogram, or ECG, to check heart rhythm
- A chest X-ray to look at heart size and the lungs
- Exercise testing to see what happens when the heart works harder
- Cardiac catheterization in selected cases when other findings are unclear

Treatment and management

Treatment is based on the severity of the narrowing, your symptoms, heart rhythm, and whether the heart or lungs are under strain.

If stenosis is mild and is not causing problems, regular follow-up and repeat echocardiograms may be all that is needed. The timing of follow-up is based on the test findings and any change in symptoms.

Medicines can reduce symptoms or lower the risk of complications, but they do not widen the valve. Depending on the situation, treatment may include medicines that:

Blood-thinning medicine may be needed when mitral stenosis occurs with atrial fibrillation, a previous clot or stroke, or a clot inside the heart. The choice of medicine requires individual assessment.

A valve procedure may be considered when narrowing is severe, symptoms are significant, or testing shows harmful pressure changes.

Percutaneous mitral balloon commissurotomy is a procedure performed through a blood vessel, usually in the groin. A balloon is guided to the valve and inflated to separate fused valve sections. It works best when the valve has a suitable shape, there is no clot in the left atrium, and the valve is not leaking significantly.

If a balloon procedure is unsuitable, surgery may be needed to repair or replace the valve. Replacement valves may be mechanical or made from biological tissue. Each type has different long-term benefits and drawbacks, including durability and the possible need for lifelong blood-thinning medicine.

Treatment decisions should also take pregnancy plans into account because pregnancy places extra demand on the heart.

- Help the body remove extra fluid
- Slow a fast heart rate
- Control atrial fibrillation
- Reduce the risk of blood clots and stroke

Complications

Mitral stenosis can lead to complications, particularly when it becomes severe or is not monitored.

Atrial fibrillation is common because pressure stretches the left atrium. AF can cause palpitations and allows blood to pool inside the heart, where a clot may form. A clot that travels to the brain can cause a stroke.

Long-term pressure in the lung circulation can cause pulmonary hypertension, meaning high blood pressure in the vessels between the heart and lungs. This may eventually strain the right

side of the heart and cause leg swelling, abdominal swelling, or worsening fatigue.

Other possible complications include:

Regular follow-up aims to identify these changes before they cause major limitations.

- Fluid buildup in the lungs
- Right-sided heart failure
- Coughing up blood
- Reduced ability to exercise
- Problems during pregnancy

Prevention

Not every case of mitral stenosis can be prevented. Congenital valve differences are present from birth, and there is no proven way to prevent age-related calcium from forming around the valve.

Rheumatic heart disease can sometimes be prevented. Prompt assessment and appropriate antibiotic treatment of confirmed group A strep throat lowers the risk of rheumatic fever. Most sore throats are not caused by these bacteria, so testing may be needed.

People who have had rheumatic fever may be offered long-term antibiotics like amoxicillin or doxycycline to prevent another episode. The schedule and duration are based on age, heart involvement, and local medical guidance.

General heart-healthy habits will not reverse valve narrowing, but avoiding smoking and managing blood pressure, diabetes, and cholesterol can protect the rest of the cardiovascular system.

Living with it and what to expect

Mitral stenosis often changes slowly over years. Mild narrowing may remain stable for a long time, while more advanced narrowing is more likely to cause symptoms and pressure changes. No single timeline applies to everyone.

Keeping follow-up appointments is important even if you feel well. Tell your healthcare team if your activity tolerance falls, you become breathless more easily, or you develop palpitations or swelling. These changes may mean that earlier reassessment is useful.

Regular activity is often possible, but the appropriate intensity is influenced by the severity of

the stenosis, lung pressure, heart rhythm, and symptoms. Severe narrowing may limit strenuous exercise until it has been treated.

If you are planning a pregnancy, seek a heart assessment beforehand. Some people with mild disease tolerate pregnancy well, while severe stenosis can place both the pregnant person and baby at risk. Planning allows treatment and monitoring to be arranged early.

Dental care is also important for general heart health. Mitral stenosis alone does not usually mean antibiotics are needed before dental work. Antibiotic prevention is reserved for specific high-risk heart conditions.

A successful balloon procedure or operation may greatly improve blood flow and symptoms. However, follow-up continues because narrowing can return, a repaired valve may later change, and replacement valves need lifelong monitoring.

When to get medical help

Arrange a routine medical appointment if you develop ongoing breathlessness, reduced exercise tolerance, repeated palpitations, or new ankle swelling. If you already have mitral stenosis, report symptoms that are new or becoming more frequent rather than waiting for the next planned review.

Seek urgent medical advice for a new fast or irregular heartbeat, breathlessness at rest, fainting, or coughing up blood.

Call emergency services for:

Do not drive yourself for emergency care.

- Sudden severe difficulty breathing
- Chest pain that is severe or does not settle
- Blue or grey lips, confusion, or collapse
- Stroke signs, such as facial drooping, arm weakness, or speech difficulty

Common questions

Is mitral stenosis the same as mitral regurgitation?

No. Stenosis means the valve opening is too narrow. Regurgitation means the valve does not close properly and allows blood to leak backward. A valve can sometimes have both problems.

Can mitral stenosis go away on its own?

Established valve narrowing does not usually reverse by itself. Medicines may ease symptoms, while a balloon procedure or surgery can improve blood flow through the valve.

How serious is mitral stenosis?

Mild narrowing may cause few problems and only require monitoring. Severe narrowing can affect the lungs, heart rhythm, and right side of the heart. Symptoms and echocardiogram findings give a clearer picture than the diagnosis alone.

Can I exercise with mitral stenosis?

Many people can remain active, especially when narrowing is mild and causes no symptoms. More intense exercise may be unsafe with severe stenosis, high lung pressure, or an abnormal rhythm. Activity advice should reflect your latest heart assessment.

Can I become pregnant with mitral stenosis?

Pregnancy may be possible, but it increases blood flow and heart rate, which can worsen symptoms. A specialist assessment before pregnancy is particularly important when narrowing is moderate or severe.

Will I need heart surgery?

Not everyone does. A procedure is more likely when stenosis is severe, symptoms interfere with daily life, or tests show strain on the heart or lungs. Some valves can be treated with a balloon procedure instead of open surgery.

Sources

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