CONDITION

Mitral valve regurgitation

Mitral valve regurgitation is backward blood flow through a leaking valve on the left side of the heart.

WHAT IT IS
Backward blood flow through the heart's mitral valve

BODY SYSTEM
Heart and circulation

MAIN SYMPTOMS
Breathlessness, tiredness, palpitations, swollen ankles

WHAT CAUSES IT
Valve damage or heart enlargement

HOW IT IS DIAGNOSED
Echocardiogram, supported by examination and other tests

MAIN TREATMENT
Monitoring, medicines, and valve repair or replacement

CAN IT BE CURED?
Sometimes - procedures can correct a severe leak

IS IT AN EMERGENCY?
Sometimes - sudden severe breathlessness needs emergency care

LONG-TERM OUTLOOK
Often stable when mild; severe leakage can damage heart

Overview

Mitral valve regurgitation means that the mitral valve does not close tightly. This lets some blood flow backward inside the heart each time the heart pumps. It is also called mitral regurgitation or mitral insufficiency.

The mitral valve sits between two chambers on the left side of the heart: the left atrium and left ventricle. Normally, it opens to let blood move forward and closes to stop blood from returning to the atrium.

A small leak may cause no symptoms or harm for many years. A larger leak makes the heart work harder to send enough blood around the body. Over time, this can enlarge or weaken the heart and raise pressure in the blood vessels of the lungs.

Mitral regurgitation may develop slowly or happen suddenly. Sudden, severe leakage is less common but can cause rapid breathing problems and needs emergency care.

Symptoms

Mild mitral regurgitation often causes no symptoms. It may be discovered when a healthcare professional hears a heart murmur or when an echocardiogram is done for another reason. A murmur is an extra sound caused by turbulent blood flow.

When symptoms occur, they may develop gradually and include:

Symptoms do not always match the size of the leak. Some people with severe regurgitation feel well for a time even while the heart is becoming enlarged. This is why planned monitoring matters even when symptoms are absent.

Sudden severe regurgitation can cause intense breathlessness, sweating, weakness, or coughing up pink, frothy fluid. This may happen after damage to the heart muscle or valve and is an emergency.

- Shortness of breath during activity or when lying flat
- Reduced stamina or unusual tiredness
- A fast, pounding, or irregular heartbeat
- Swelling in the ankles, feet, or lower legs
- Waking at night feeling short of breath

Causes and risk factors

Mitral regurgitation is often described as primary or secondary .

In primary mitral regurgitation, the problem begins in the valve itself. Mitral valve prolapse is a common cause. In prolapse, part of the valve bulges backward when the heart contracts. Age-related wear, torn supporting cords, calcium deposits, rheumatic heart disease, infection of the valve, and conditions present from birth can also damage the valve.

In secondary mitral regurgitation, the valve may be structurally normal. Instead, the left ventricle becomes enlarged or changes shape, pulling the valve apart so it cannot close properly. This can follow a heart attack or occur with heart failure or disease of the heart muscle.

Sudden regurgitation can result from a torn supporting cord, valve infection, chest injury, or

damage to a papillary muscle. Papillary muscles inside the ventricle help control the valve. Damage after a heart attack can make the valve suddenly unstable.

Factors associated with mitral regurgitation include older age, coronary artery disease, previous heart attack, high blood pressure, heart failure, and a history of rheumatic fever. Having one of these does not mean that you will develop a significant valve leak.

Diagnosis

An echocardiogram is the main test used to confirm mitral regurgitation. It uses sound waves to show the valve, the direction of blood flow, and how well the heart is pumping.

A standard echocardiogram is performed by moving a probe over the chest. A transoesophageal echocardiogram may be needed when more detail is required. For this test, a small ultrasound probe is passed into the food pipe after sedation and throat numbing. Because the food pipe lies close to the heart, the test can produce detailed valve images.

The assessment looks at more than the apparent size of the leaking jet. It also considers the valve structure, the amount of blood flowing backward, heart chamber size, pumping function, and pressure in the lung circulation.

Other tests may include:

Results are usually described as mild, moderate, or severe. Follow-up is based on the severity, cause, symptoms, and whether the heart is changing over time.

- An electrocardiogram, or ECG, to check heart rhythm
- A chest X-ray to look for heart enlargement or lung congestion
- Exercise testing to identify symptoms that appear with activity
- Cardiac MRI when an echocardiogram does not provide enough detail
- Coronary artery imaging before some valve procedures

Treatment and management

Treatment aims to protect the heart, control symptoms, and correct severe leakage when appropriate. Not everyone needs a procedure.

Mild regurgitation without heart changes may only require routine reviews and repeat echocardiograms. The timing of these checks is chosen according to the severity and whether results are stable.

Medicines do not usually repair a leaking mitral valve. They may still be important for treating related problems such as high blood pressure, fluid buildup, heart failure, coronary artery disease, or an irregular rhythm called atrial fibrillation. Some people with atrial fibrillation also need medicine to reduce the risk of blood clots.

A procedure may be considered when regurgitation is severe, causes symptoms, or begins to affect heart size, pumping function, lung pressure, or rhythm. Waiting until symptoms become advanced can allow permanent heart damage, so decisions are not based on symptoms alone.

Options include:

For secondary regurgitation, treatment usually begins with management of the underlying heart condition. Some people continue to have severe leakage despite this treatment and may benefit from a valve procedure.

Sudden severe regurgitation requires hospital treatment. Medicines may temporarily support breathing and circulation, but urgent valve surgery is sometimes needed.

- Valve repair: The existing valve is reshaped or supported so it closes properly. Repair is often preferred for severe primary regurgitation when a durable result is likely.
- Valve replacement: The damaged valve is replaced with a mechanical or tissue valve when repair is not suitable.
- Transcatheter edge-to-edge repair: A device is delivered through a blood vessel to help the valve edges close. This may be suitable for selected people who have severe regurgitation and meet specific clinical and anatomical criteria.

Complications

Severe or worsening mitral regurgitation can place long-term strain on the heart. Possible complications include:

Valve infection, called infective endocarditis, can damage the mitral valve and worsen an existing leak. It usually causes symptoms such as persistent fever, chills, unusual tiredness, or unexplained weight loss and needs prompt medical assessment.

- Heart failure, when the heart cannot meet the body's needs effectively
- Enlargement and weakening of the left ventricle
- Atrial fibrillation, an irregular rhythm in the upper heart chambers
- Blood clots and stroke related to atrial fibrillation
- Pulmonary hypertension, meaning high pressure in the lung circulation

- Fluid buildup in the lungs

Prevention

Many causes of mitral regurgitation cannot be prevented. These include inherited valve differences, age-related degeneration, and some cases of mitral valve prolapse.

Looking after your heart may reduce the chance of secondary regurgitation or slow conditions that place extra strain on the heart. This includes managing high blood pressure, coronary artery disease, diabetes, and heart failure, and avoiding smoking.

Prompt medical assessment of possible heart attack symptoms can limit heart muscle damage. Appropriate treatment of streptococcal throat infections in settings where rheumatic fever is a concern can also help prevent rheumatic valve damage.

Good oral hygiene and regular dental care may reduce the chance of bacteria entering the bloodstream from unhealthy gums. Most people with mitral regurgitation do not need antibiotics like amoxicillin or doxycycline before dental work. Preventive antibiotics are reserved for certain people at particularly high risk of endocarditis.

Living with it and what to expect

Mild mitral regurgitation may remain stable for years and may never limit everyday life. Other cases gradually worsen as the valve or heart changes. It is not possible to predict the course from symptoms alone.

Routine follow-up usually includes discussion of exercise tolerance, breathing, swelling, heartbeat changes, and repeat echocardiograms. Keeping these appointments can identify changes before they become obvious in daily life.

Regular physical activity is often possible when regurgitation is mild or moderate and the heart is working well. More severe leakage, symptoms, abnormal rhythms, or reduced pumping function may affect which activities are appropriate. Competitive or very intense exercise may require specialist assessment.

After successful valve repair, many people have fewer symptoms and return to active lives. Ongoing checks are still needed because leakage can return or other heart problems can develop. Valve replacement also requires long-term follow-up. Mechanical valves require lifelong blood-thinning treatment, while tissue valves can wear out over time.

Pregnancy increases the amount of blood handled by the heart. Many people with mild or

moderate regurgitation tolerate pregnancy well, but severe leakage, symptoms, high lung pressure, or reduced heart function may raise the risk of complications. Assessment before pregnancy allows time to review the valve and medicines.

When to get medical help

Arrange a routine medical review if you develop gradually increasing breathlessness, reduced exercise ability, ankle swelling, new palpitations, or a need to sleep propped up because of breathing difficulty. If you already have mitral regurgitation, report a clear change rather than waiting for the next planned appointment.

Seek prompt medical advice for persistent fever or chills, especially if you have known valve disease, a replacement valve, or have recently had a medical or dental procedure.

Call emergency services if you have:

These symptoms have several possible causes. Emergency assessment is needed to identify the cause and begin treatment.

- Sudden or severe difficulty breathing
- Chest pressure or pain that does not quickly settle
- Fainting with breathlessness, chest pain, or a rapid heartbeat
- Pink, frothy sputum or a feeling of drowning when breathing
- Sudden facial drooping, arm weakness, speech difficulty, or other stroke signs

Common questions

Is mitral valve regurgitation serious?

It can be, but not every leak is dangerous. Mild regurgitation may have little effect on health. Severe regurgitation can enlarge or weaken the heart even before symptoms become prominent, which is why regular monitoring is important.

Can a leaking mitral valve heal by itself?

Structural damage to the valve usually does not heal on its own. A procedure can sometimes correct the leak. Secondary regurgitation may improve if treatment reduces heart enlargement or improves heart function.

Will I need surgery?

Many people with mild or stable regurgitation do not need surgery. A procedure is more likely

when the leak is severe, symptoms develop, or tests show that the heart or lung circulation is being affected. The type of procedure depends on the valve, overall health, and expected durability of repair.

Can medicine stop the valve from leaking?

Medicine usually cannot close a structurally damaged valve. It can reduce fluid buildup, lower strain on the heart, control blood pressure or rhythm, and treat an underlying heart condition. In secondary regurgitation, this may also reduce the amount of leakage.

Can I exercise with mitral regurgitation?

Many people can remain active, particularly when the leak is mild and heart function is normal. The safest level of activity is influenced by symptoms, leak severity, heart size, pumping function, lung pressure, and heart rhythm.

Does mitral regurgitation shorten life expectancy?

Mild regurgitation may not affect lifespan. Untreated severe regurgitation can lead to heart failure, abnormal rhythms, and other complications. Outlook is strongly influenced by the cause, heart function, other health conditions, and whether effective treatment is provided at the right time.

Sources

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