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Diseases and Conditions

Mitral valve prolapse

By Mayo Clinic Staff

Mitral valve prolapse (MVP) occurs when the valve between your heart's left upper chamber (left atrium) and the left lower chamber (left ventricle) doesn't close properly.

During mitral valve prolapse, the leaflets of the mitral valve bulge (prolapse) upward or back into the left atrium as the heart contracts.

Mitral (MY-trul) valve prolapse sometimes leads to blood leaking backward into the left atrium, a condition called mitral valve regurgitation.

In most people, mitral valve prolapse isn't life-threatening and doesn't require treatment or changes in lifestyle. Some people with mitral valve prolapse, however, require treatment.

Although mitral valve prolapse is usually a lifelong disorder, many people with this condition never have symptoms. When diagnosed, people may be surprised to learn that they have a heart condition.

When signs and symptoms do occur, it may be because blood is leaking backward through the valve (regurgitation). Mitral valve prolapse symptoms can vary widely from one person to another. They tend to be mild and develop gradually. Symptoms may include:

- A racing or irregular heartbeat (arrhythmia)
- Dizziness or lightheadedness
- Difficulty breathing or shortness of breath, often when lying flat or during physical activity
- Fatigue
- Chest pain that's not caused by a heart attack or coronary artery disease

When to see a doctor

If you think you have any of the above symptoms, make an appointment with your doctor.

Many other conditions cause the same symptoms as mitral valve prolapse, so only a visit to

your doctor can determine the cause of your symptoms. If you're having chest pain and you're unsure if it could be a heart attack, seek emergency medical care immediately.

If you've already been diagnosed with mitral valve prolapse, see your doctor if your symptoms worsen.

When your heart is working properly, the mitral valve closes completely during contraction of the left ventricle and prevents blood from flowing back into your heart's upper left chamber (left atrium).

But in some people with mitral valve prolapse, one or both of the mitral valve's flaps (leaflets) have extra tissue bulging (prolapsing) like a parachute into the left atrium each time the heart contracts.

The bulging may keep the valve from closing tightly. When blood leaks backward through the valve, it's called mitral valve regurgitation.

This may not cause problems if only a small amount of blood leaks back into the atrium. More severe mitral valve regurgitation can cause symptoms such as shortness of breath, fatigue or lightheadedness.

Another name for mitral valve prolapse is click-murmur syndrome. When a doctor listens to your heart using a stethoscope, he or she may hear a clicking sound as the valve's leaflets billow out, followed by a murmur resulting from blood flowing back into the atrium. Other names to describe mitral valve prolapse include:

- Barlow's syndrome
- Floppy valve syndrome
- Balloon mitral valve
- Billowing mitral valve
- Myxomatous mitral valve
- Prolapsing mitral valve syndrome

Mitral valve prolapse can develop in any person at any age.

Serious symptoms of mitral valve prolapse tend to occur most often in men older than 50.

Mitral valve prolapse can run in families and may be linked to several other conditions, such as:

- Marfan syndrome
- Ehlers-Danlos syndrome
- Ebstein's anomaly
- Muscular dystrophy
- Graves' disease
- Scoliosis

Although most people with mitral valve prolapse never have problems, complications can occur. They may include:

- **Mitral valve regurgitation.** The most common complication is a condition in which the valve leaks blood back into the left atrium (mitral valve regurgitation).

  Being male or having high blood pressure increases your risk of mitral valve regurgitation. If the regurgitation is severe, you may need surgery to repair or replace the valve in order to prevent the development of complications, such as stroke.

- **Heart rhythm problems (arrhythmias).** Irregular heart rhythms can occur in people with mitral valve prolapse. These most commonly occur in the upper chambers of the heart, and while they may be bothersome, they aren't usually life-threatening.

  People with severe mitral valve regurgitation or severe deformity of their mitral valve are most at risk of having serious rhythm problems, which affect blood flow through the heart.

- **Heart valve infection (endocarditis)**. The inside of your heart contains four chambers and four valves lined by a thin membrane called the endocardium. Endocarditis is an infection of this inner lining.

  An abnormal mitral valve increases your chance of getting endocarditis from bacteria, which can further damage the mitral valve. The risk is higher in older men.

  Doctors used to recommend that some people with mitral valve prolapse take antibiotics before certain dental or medical procedures to prevent endocarditis but not anymore.

  The American Heart Association advises that antibiotics aren't necessary in most cases for someone with mitral valve regurgitation or mitral valve prolapse.

If you think you have mitral valve prolapse, make an appointment to see your doctor.

Because appointments can be brief, and because there's often a lot to discuss, it's a good idea to be prepared for your appointment. Here's some information to help you get ready for your appointment and know what to expect from your doctor.

What you can do

- **Be aware of any pre-appointment restrictions.** At the time you make the appointment, be sure to ask if there's anything you need to do in advance.
- **Write down any symptoms you're experiencing,** including any that may seem unrelated to mitral valve prolapse.
- **Write down key personal information,** including a family history of heart disease, heart defects, genetic disorders, stroke, high blood pressure or diabetes, and any major stresses or recent life changes.
- **Make a list of all medications,** vitamins or supplements that you're taking.
- **Take a family member or friend along,** if possible. Sometimes it can be difficult to

remember all the information provided to you during an appointment. Someone who accompanies you may remember something that you missed or forgot.

- **Be prepared to discuss** your diet and exercise habits. If you don't already follow a diet or exercise routine, be ready to talk to your doctor about any challenges you might face in getting started.
- **Write down questions to ask** your doctor.

Your time with your doctor is limited, so preparing a list of questions will help you make the most of your time together. List your questions from most important to least important in case time runs out. For mitral valve prolapse, some basic questions to ask your doctor include:

- What is likely causing my symptoms or condition?
- What are other possible causes for my symptoms or condition?
- What kinds of tests will I need?
- Do I need treatment? What kind?
- What are the alternatives to the primary approach that you're suggesting?
- I have other health conditions. How can I best manage them together?
- Are there any restrictions that I need to follow?
- Should I see a specialist?
- If I need surgery, which surgeon do you recommend for mitral valve repair?
- Is there a generic alternative to the medicine you're prescribing for me?
- Are there any brochures or other printed material that I can take home with me? What websites do you recommend visiting?

In addition to the questions that you've prepared to ask your doctor, don't hesitate to ask questions during your appointment at any time that you don't understand something.

What to expect from your doctor

Your doctor is likely to ask you a number of questions. Being ready to answer them may reserve time to go over any points you want to spend more time on. Your doctor may ask:

- When did you first begin experiencing symptoms?
- Have your symptoms been continuous or occasional?
- How severe are your symptoms?
- What, if anything, seems to improve your symptoms?
- What, if anything, appears to worsen your symptoms?

Doctors may diagnose mitral valve prolapse at any age. Your doctor is most likely to diagnose mitral valve prolapse during a physical examination.

To detect mitral valve prolapse, your doctor will listen to your heart using a stethoscope. If you

have mitral valve prolapse, your doctor may hear clicking sounds, which are common in mitral valve prolapse. Your doctor may also hear a heart murmur if you have blood leaking backward through your mitral valve (mitral valve regurgitation).

Other tests to diagnose mitral valve prolapse may include:

- **Echocardiogram.** An echocardiogram is usually done to confirm the diagnosis. An echocardiogram is a noninvasive ultrasound evaluation of your heart.

  This test uses high-frequency sound waves to create images of your heart and its structures, including the mitral valve itself, and the flow of blood through it.

  You may have a transesophageal echocardiogram. In this test, your doctor inserts a flexible tube with a small device (transducer) attached into your throat and down into your esophagus — the tube that connects the back of your mouth to your stomach.

  Because your esophagus is directly behind your heart, a transesophageal echocardiogram can create clear, detailed ultrasound images of your heart and mitral valve. Doctors may also use this test to examine the mitral valve prior to surgery.

  During an echocardiogram, doctors perform a Doppler ultrasound to evaluate blood flow and measure the amount of blood leakage (regurgitation). This test helps doctors determine the severity of your condition.

- **Chest X-ray.** A chest X-ray shows a picture of your heart, lungs and blood vessels and can help your doctor make a diagnosis. It can help show if your heart is enlarged.
- **Electrocardiogram (ECG).** In this noninvasive test, a technician will place probes on your chest that record the electrical impulses that make your heart beat.

  An ECG records these electrical signals and can help your doctor detect irregularities in your heart's rhythm and structure, including mitral valve prolapse.

- **Stress test.** Your doctor may order a stress test to see if mitral valve regurgitation limits your ability to exercise. In a stress test, you exercise or take certain medications to increase your heart rate and make your heart work harder.

  You may also have a stress test if your doctor is trying to determine if you have another condition such as coronary artery disease.

- **Coronary angiogram and cardiac catheterization.** A coronary angiogram and cardiac catheterization aren't generally used to diagnose mitral valve prolapse. However, mitral valve prolapse may be found during cardiac catheterization for another condition.

  Also, if other tests show conflicting results regarding the severity of mitral valve regurgitation, your doctor may recommend a coronary angiogram and cardiac catheterization to determine the severity of your condition. You may also have cardiac catheterization if your doctor determines you'll need heart valve surgery.

  During cardiac catheterization, a doctor inserts a long, thin, flexible plastic tube (catheter)

into your groin and guides it to your heart using X-ray imaging. Doctors then inject dye into the blood vessels of your heart to make them visible under X-ray imaging (coronary angiogram). Doctors also look for signs of coronary artery disease before heart valve surgery.

Most people with mitral valve prolapse, particularly people without symptoms, don't require treatment.

If you have mitral valve regurgitation but don't have symptoms, your doctor may suggest you return regularly for follow-up examinations to monitor your condition, depending on the severity of your condition.

However, if you have symptoms and if a significant amount of blood is leaking through the mitral valve, your doctor may recommend medications or surgery, depending on the severity of your condition.

Medications

If you develop symptoms, your doctor might prescribe certain medications to treat mitral valve prolapse-related chest pain, heart rhythm abnormalities or other complications. Some medications you might be prescribed include:

- **Beta blockers.** These drugs help prevent irregular heartbeats by making your heart beat more slowly and with less force, which reduces your blood pressure. Beta blockers also help blood vessels relax and open up to improve blood flow.
- **Diuretics.** Your doctor may prescribe water pills (diuretics) to drain fluid from your lungs.
- **Heart rhythm medications.** Your doctor may prescribe medications such as flecainide (Tambocor), procainamide (Procanbid), sotalol (Betapace) or amiodarone (Cordarone, Pacerone) to control your heart rhythm.
- **Aspirin.** If you have mitral valve prolapse and a history of strokes, your doctor might prescribe aspirin to reduce the risk of blood clots.
- **Prescription anticoagulants (blood thinners).** These medications — such as warfarin (Coumadin), heparin and dabigatran (Pradaxa) — prevent your blood from clotting if you have had irregular heart rhythms, such as atrial fibrillation.

  If you have atrial fibrillation, a history of heart failure or a history of strokes, your doctor may suggest these drugs. They can have dangerous side effects, however, and must be taken exactly as prescribed.

Surgery

Though most people with mitral valve prolapse don't need surgery, your doctor may suggest surgical treatment if you have severe mitral valve regurgitation with or without symptoms.

Severe mitral valve regurgitation can eventually cause heart failure, preventing your heart from effectively pumping blood. If regurgitation goes on too long, your heart may be too weak for

surgery.

If your doctor suggests surgery, your doctor may suggest repairing or replacing the mitral valve. Valve repair and replacement may be performed using open-heart surgery or minimally invasive surgery. Minimally invasive surgery involves smaller incisions and may have less blood loss and a quicker recovery time than open surgery.

- **Valve repair.** Mitral valve repair is a surgery that preserves your own valve. For most people with mitral valve prolapse, this is the preferred surgical treatment to correct the condition.

  Your mitral valve consists of two triangular-shaped flaps of tissue called leaflets. The leaflets of the mitral valve connect to the heart muscle through a ring called the annulus.

  The surgeon can modify the original valve (valvuloplasty) to eliminate backward blood flow. Surgeons can also repair the valve by reconnecting valve leaflets or by removing excess valve tissue so that the leaflets can close tightly.

  Sometimes repairing the valve includes tightening or replacing the annulus. This is called an annuloplasty. It is important to ensure that your surgeon is experienced in performing mitral valve repair.

- **Valve replacement.** Your surgeon may perform a valve replacement if valve repair isn't possible. In valve replacement surgery, the damaged mitral valve is replaced by an artificial (prosthetic) valve. Artificial valves are mechanical or tissue valves.

  Mechanical valves may last a long time. However, if you have a mechanical valve, you must use an anticoagulant medication, such as warfarin (Coumadin), for the rest of your life to prevent blood clots from forming on the valve. If a blood clot forms on the valve and breaks free, it could travel to your brain and cause a stroke.

  Tissue valves are made from animal tissue such as a pig or cow valve. These kinds of valves are called bioprostheses. They may wear out over time and need replacement. However, an advantage of the tissue valve is that you don't have to use long-term anticoagulant medication.

Research in new methods

Researchers are studying new techniques to repair or replace a valve using a tube (catheter) inserted in a blood vessel in your groin and guided to your heart.

Antibiotics seldom recommended

Doctors used to recommend that some people with mitral valve prolapse take antibiotics before certain dental or medical procedures to prevent endocarditis but not anymore.

According to the American Heart Association, antibiotics are no longer necessary in most cases for someone with mitral valve regurgitation or mitral valve prolapse.

Still, if you've been told to take antibiotics before any procedures in the past, check with your

doctor whether that's still necessary.

Most people with mitral valve prolapse lead normal, productive and symptom-free lives.

Doctors generally won't recommend restrictions on your lifestyle or any limitations on your personal exercise or dietary program. However, ask your doctor if he or she recommends any changes to your lifestyle. If you have severe mitral valve regurgitation, your doctor may recommend you avoid exercises that could worsen your condition, such as weightlifting.

Your doctor may recommend regular follow-up visits to evaluate your condition.

You can't prevent mitral valve prolapse. However, you can lower your chances of developing the complications associated with it by making sure you take your medications, if any, as directed.

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