

Mitral Stenosis

A plain-English guide for you and your family

WHAT IS HAPPENING

Your mitral valve sits between the top left chamber (left atrium) and the bottom left chamber (left ventricle) of your heart. Normally, when your heart relaxes between beats, this valve opens wide like a door—about the size of a dime—to let blood flow smoothly from the top chamber down into the bottom pumping chamber. In mitral narrowing (stenosis), old scarring from rheumatic fever (an immune attack that can follow untreated strep throat) glues the valve flaps together and makes them thick and stiff, so the opening shrinks to the size of a pinhole. Now blood can't flow through easily. The top chamber (left atrium) has to push harder, and pressure builds up behind the valve like water behind a dam. That pressure backs up into your lungs, making you short of breath—especially when you exercise or lie flat. The stretched top chamber also starts firing chaotic electrical signals, causing an irregular, rapid heartbeat called atrial fibrillation (an irregular, quivering heartbeat). Blood swirls slowly in that quivering chamber and can clot; if a clot breaks off and travels to your brain, it causes a stroke. Meanwhile, the high pressure in your lungs stiffens the blood vessels there, forcing the right side of your heart to pump harder and harder until it weakens and fails. Every symptom—shortness of breath, racing heart, leg swelling, stroke—traces back to that one narrowed valve. Treatment focuses on opening the valve (with a balloon or surgery) and preventing clots (with blood thinners) to stop the domino chain before permanent damage sets in.

What you might feel

- A low, rumbling sound (murmur) happens in the middle of the heart's relaxation phase, best heard at the apex (the pointy tip of the heart at the lower left of your chest)
- An opening snap (a sharp extra click right after the second heart sound)
- The first heart sound (S1) is very loud
- Shortness of breath, especially with activity or when lying flat
- Irregular, fast heartbeat (often atrial fibrillation (an irregular, quivering heartbeat))
- Coughing, sometimes with pink, frothy spit or blood-tinged mucus (hemoptysis)
- A flushed, purplish color on the cheeks (malar flush)

- Swelling in the legs, ankles, or belly (edema and fluid buildup in the belly (ascites))

Call the doctor right away if...

- New or sudden severe shortness of breath at rest (may mean the valve has gotten much tighter or fluid is flooding the lungs)
- Chest pain, one-sided weakness, trouble speaking, or sudden vision loss (may mean a blood clot from the heart has traveled to the brain or another organ)
- Coughing up blood or pink frothy spit (means pressure in the lungs is dangerously high)
- Swelling in the legs or belly that is new or getting worse fast (means the right side of the heart is starting to fail)

What the care team will do

- Monitor continuous cardiac rhythm on telemetry and immediately report new irregular heartbeat or heart rate above 110 beats per minute
- Keep the patient in high Fowler position (sitting upright at 60 to 90 degrees) and give oxygen to maintain saturation above 92 percent
- Administer diuretics like furosemide exactly as ordered and track intake and output every hour, reporting urine less than 30 milliliters per hour
- Give beta-blockers like metoprolol or calcium-channel blockers as prescribed to keep resting heart rate between 60 and 80 beats per minute
- Check INR (international normalized ratio, a blood-clotting measure) results daily if the patient takes warfarin and hold the dose if INR is above 3.5 or below 2.0, notifying the provider immediately
- Assess lung sounds every 4 hours, listening for crackles at the bases, and report new or worsening crackles immediately
- Limit physical activity and cluster care to allow rest periods, keeping the patient on strict bedrest if symptoms happen at rest
- Monitor for signs of systemic a traveling clot lodging in a vessel (embolism) including sudden confusion, one-sided weakness, cold pale extremities, or severe abdominal pain, and activate rapid response if any occur

Medicines you may be given — and why

Warfarin

Warfarin blocks vitamin K in the liver so the liver can't make several clotting proteins. This keeps the blood thin enough that clots don't form easily in the heart chambers. In mitral

narrowing (stenosis), blood pools in the left atrium (the upper left chamber of the heart) because the narrow valve slows the flow, and pooled blood can clot. Clots that break off can cause a stroke. Warfarin lowers that risk.

Beta-blocker (metoprolol, atenolol, or carvedilol)

Beta-blockers attach to special docking sites (beta receptors) on heart muscle cells and block adrenaline and noradrenaline from landing there. This slows the heart rate and gives the left ventricle more time to fill with blood through the narrow mitral valve. A slower, steadier heartbeat improves how much blood moves forward with each beat and reduces backup into the lungs.

Diuretic (furosemide or bumetanide)

Loop diuretics tell the kidneys to dump much more salt and water into the urine. This shrinks the total volume of fluid in the bloodstream and tissues. In mitral narrowing (stenosis), the narrow valve causes blood to back up into the lungs, leaking fluid into the air sacs and causing shortness of breath and swelling. Removing extra fluid relieves that congestion.

Digoxin

Digoxin has two jobs in mitral narrowing (stenosis). First, it slows the electrical signals traveling through the AV node (the heart's gatekeeper between upper and lower chambers), which controls the heart rate—especially important if atrial fibrillation (an irregular, quivering heartbeat) develops. Second, it makes each heartbeat squeeze a bit harder by boosting calcium inside heart muscle cells. The main use here is rate control, not strengthening the squeeze.

Penicillin G benzathine (monthly injection) or oral penicillin V or amoxicillin (daily)

Penicillin kills Group A Streptococcus bacteria, the germ that causes strep throat and rheumatic fever. In people who have already had rheumatic fever (the cause of most mitral narrowing (stenosis)), another strep infection can trigger another attack of rheumatic fever and worsen valve damage. Long-term penicillin prevents new strep infections, stopping repeat valve injury.

Where this information comes from

- AHA/ACC 2020 Guideline for the Management of Patients with Valvular Heart Disease
- ESC/EACTS 2021 Guidelines for the Management of Valvular Heart Disease
- UpToDate (Wolters Kluwer)
- American College of Cardiology (ACC)

Last reviewed: 2026-07-07