Intermountain® Healthcare

Valvuloplasty

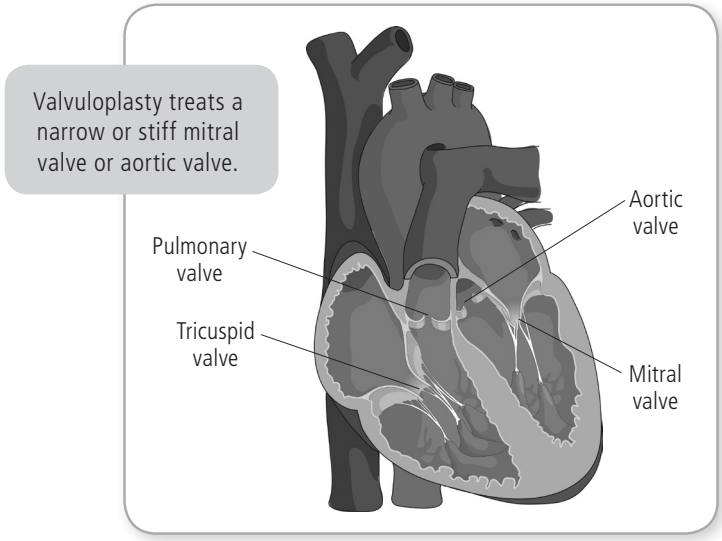
What is valvuloplasty?

Valvuloplasty is a cardiac cath lab procedure that treats a narrow or stiff heart valve. In valvuloplasty, your heart doctor threads a **catheter** (narrow tube) through a blood vessel into your heart. A small balloon at the end of the catheter inflates to stretch the valve so blood flows more easily through it.

Why do I need it?

Your heart's valves work like doors or gates to keep blood moving in one direction through the heart chambers. The valves also prevent oxygen-rich and oxygen-poor blood from mixing together.

A healthy heart valve has leaflets that open to let blood through and then close to keep it from flowing backward. Disease, birth defects, or the aging process can make heart valves narrow or stiff. When this happens, your heart must work harder to pump blood through the valve.



Valve problems can cause symptoms such as dizziness, chest pain, breathing problems, swollen ankles, or an abnormal heartbeat. Heart valves are often repaired or replaced in surgery, but in some cases they can be treated with valvuloplasty in the cardiac cath lab. Valvuloplasty can help your heart during the time gap before a valve replacement surgery is scheduled, or it can help you postpone open heart surgery or avoid surgery altogether.

Talking with your doctor

The table below lists the most common potential benefits, risks, and alternatives for valvuloplasty. Other benefits and risks may apply in your medical situation. Talking with your doctor is the most important part of learning about these risks and benefits. If you have questions, be sure to ask them.

Potential benefits	Risks and potential complications	Alternatives
• A valve that works more efficiently, which may relieve symptoms that were caused by a stiff or narrow heart valve • Avoiding or postponing open heart surgery	**Major complications are rare.** Risks and potential complications include: • Temporary leg numbness or weakness in the first few hours afterward (rare) • Continued valve stiffness or narrowness • Leakage in the valve treated • Damage to the heart muscle or heart valve that may require open heart surgery • Bleeding, infection, or blood vessel damage where the catheter(s) were inserted • Abnormal heart rhythm • Blood clots • Heart attack or stroke • Negative reaction to anesthetic or dye • Unforeseen complications	Alternatives to valvuloplasty include: • Heart valve repair surgery • Heart valve replacement surgery • Catheter-based valve replacement (now being investigated)

How do I prepare?

Here are some things you can do to make the procedure go more smoothly:

- **Follow your doctor's directions about medications.** You may need to stop taking blood thinners for several days before. You may need to adjust your medication if you have diabetes. Always check with your doctor before stopping medications.
- **Plan to spend the night.** You may or may not return home the day of your procedure. Bring items with you (such as a robe, slippers, and a toothbrush) that will make you more comfortable if you need to spend the night in the hospital.
- **Arrange for someone to drive you** to and from the hospital.
- **Fast the night before.** If directed by your doctor or nurse, don't eat or drink anything after midnight the night before the procedure.
- **Bring a list of all your current medications.** List everything, including over-the-counter medications, herbal supplements, and vitamins.
- **Tell your doctor or hospital staff if you:**
  - have a **cold, flu, or other illness** the day of the procedure
  - may be **pregnant**
  - have **allergies** to any medications or dyes

What happens before?

Here's what happens when you arrive:

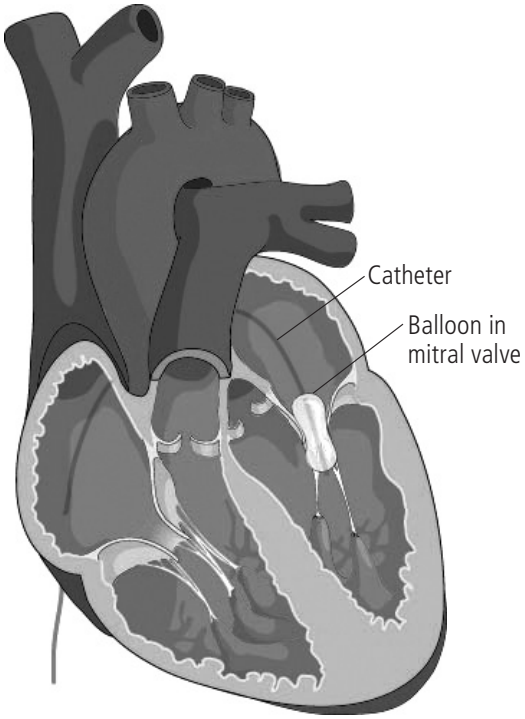
- You will check in for the procedure. You'll change into a hospital gown, and a healthcare provider may draw blood for lab work.
- An IV (intravenous) line will be placed in your arm or hand to give you fluids.
- You'll be moved to the cardiac cath lab, where you will lie on your back on an exam table. The room may feel cool, but you'll be covered with sterile draping, and you can also have a blanket.

What happens during?

Typically, valvuloplasty takes several hours. Here's what happens:

- **Preparation and sedation.** A nurse will prepare the skin where a catheter will be inserted. For treatment of the **aortic valve**, you'll have medication through the IV to make you feel relaxed and drowsy. For treatment of the **mitral valve**, an anesthesia provider will give you general anesthesia through the IV, so you sleep through the procedure.
- **Monitoring.** You will have monitoring devices attached to check your pulse, breathing, and other information.
- **Local anesthetic.** The doctor will inject numbing medication into the site where one or more catheters will be inserted, usually in one or both sides of your groin. The injection usually feels like a pinprick with some burning, and only lasts a few seconds.
- **Inserting the catheter.** Depending on which valve is being treated, here's what will happen:
  - For an **aortic valve**, the doctor will insert a sheath (a short plastic tube) into a blood vessel. You'll feel some pressure at first. A catheter will be put into the sheath. The doctor will slowly advance the catheter through the sheath, into the aorta, and across the aortic valve. You won't feel this. The doctor will use x-ray imaging to provide guidance.
  - For a **mitral valve**, two sheaths will be inserted, one in each side of your groin. The catheters will be inserted into the sheaths and move to your heart. The first catheter is fitted with a balloon, and reaches the mitral valve by moving through the wall between the heart's upper chambers. The second catheter is placed in the aorta, and used as a monitor. For guidance in placing the catheters, the doctor will use a transesophageal echocardiogram (TEE test). In a TEE test, a probe is passed down your esophagus, and high-frequency sound waves create an image of your heart.
- **Checking the problem.** The doctor will evaluate the valve to see how much the problem affects the flow of blood through your heart. This is done by measuring the blood pressure in various areas of your heart.

- **Stretching the valve.** The balloon on the catheter will be inflated and deflated several times to stretch the valve leaflets apart.
  - If your **aortic valve** is being treated, a pacing catheter may be used to increase your heart rate during this process. This helps to stabilize the balloon catheter in the valve.
- **Removing the catheter and closing the site.** When the valve is stretched enough, the balloon catheter will be removed. The site where the sheath was inserted might be closed with a stitch or other closure device. A doctor or nurse will apply pressure to the site to prevent bleeding.



The balloon is inflated to stretch the valve. This example shows treatment of a mitral valve. The process looks very similar when treating an aortic valve.

What happens after?

After the procedure, you'll move to a **recovery unit** until you're ready to go home.

- We'll monitor your pulse and other vital signs, check the circulation in your arm or leg, and watch for bleeding. Tests will be used to measure your heart's activity.
- You will need to lie flat for several hours to prevent bleeding. A sandbag might be used to apply pressure to the wound.
- Drink plenty of liquids to flush the contrast dye out of your system.
- In case you have temporary numbness or weakness in your leg, special steps will be taken to make sure you're safe when you first get up. If you need to urinate and your leg is numb, it may not be safe to walk to the bathroom. You will use a urinal or bedpan instead.
- Some patients can go home at the end of the day, while other patients may need to stay overnight. Your doctor will decide when you are ready to leave the hospital. You'll need to have someone drive you home.

What happens when I go home?

- **The first 48 hours.** You'll need to take care of yourself and watch for symptoms.
  - **Watch for** swelling or bleeding at the catheter site, shortness of breath, or swallowing problems. Also, tell your doctor if you feel fatigue or chest discomfort that is severe or that continues beyond the first few days. See the last page for more information on when to call your doctor.
  - **You might feel** sore from several hours of lying flat — this will go away in a day or so. The catheter site will be bruised, but this should go away in a week or so.
  - **Take short walks** of 5 to 10 minutes, several times a day.
  - **Avoid** bending or squatting. Avoid intense activity such as climbing stairs, running, or lifting anything over 10 pounds.
  - **Use a stool softener** if you need relief from constipation.
- **Care for the catheter site.** Avoid hot baths, hot tubs, or swimming pools for the first 5 days or until the wound is closed. Showers are okay after 24 hours, but don't let the spray hit the site. If the site is sealed with a special closure device, ask your doctor about the device and what you should watch for.
- **Returning to work.** When you go back to work depends on your physical condition and the nature of your job. Many people can go back to work within a week. Check with your doctor.

When should I contact the doctor?

Call your doctor if you experience any of these:

- A fever over 101° F.
- Redness, swelling, or drainage near the catheter site
- Bleeding or severe pain near the catheter site
- Coldness or numbness in your arm or leg
- Shortness of breath
- Cough (especially when lying down)
- Excessive urination
- Swelling in your hands or ankles

Call 911 if you have chest discomfort that is severe or is not relieved by medication for chest pain.