

AORTIC VALVE REGURGITATION

■ WHAT IS AORTIC VALVE REGURGITATION?

The aortic valve lies between the main pumping chamber of the heart (left ventricle) and the aorta, the big blood vessel that carries blood to all the tissues of the body. The aortic valve has 3 flexible leaflets called cusps. The valve's purpose is to prevent the backflow (regurgitation) of blood pumped from the heart.

Valve regurgitation occurs when the valve leaflets fail to close properly during the heart's relaxation phase. This allows blood from the aorta to leak back into the left ventricle. The heart then needs to repump the regurgitated blood into the aorta with the next heartbeat. Overtime, this extra workload on the left ventricle can cause the heart to enlarge and may lead to heart failure.

There are two types of aortic valve regurgitation: acute and chronic. The acute type is a sudden event that may lead to death in a few hours. The chronic type progresses slowly but steadily until it begins to cause symptoms

■ HOW DOES IT OCCUR?

Bacterial or fungal infections of the valve may cause perforations (holes) in the cusps. Holes in valve leaflets most often cause acute valve regurgitation. Aortic dissection, caused by bleeding into the wall of the aorta, can expand the aortic valve and cause it to leak. A chest injury can also cause the aortic valve to leak.

Chronic valve regurgitation is most often caused when the aorta near the valve slowly expands. The most common cause is high blood pressure. Other causes include Marfan syndrome, some rheumatoid diseases, rheumatic fever, and abnormalities of the valve that you were born with.

■ WHAT ARE THE SYMPTOMS?

In acute regurgitation the heart is unable to keep up with the demand for blood. Fluids often collect in the lungs and other body tissues, making breathing difficult. People with this condition may quickly become very ill and need urgent surgery.

Chronic regurgitation rarely causes symptoms unless the amount of regurgitation is severe. Over several years, the added workload on the heart causes the left ventricle to enlarge and weaken. This causes shortness of breath with exertion, discomfort when lying flat, and waking up at night very sort of breath. Occasionally, there may be chest pain when you exert yourself.

■ HOW IS IT DIAGNOSED?

Your doctor may see signs of heart enlargement during a physical exam. He or she will be able to heart a certain heart murmur through a stethoscope. There are also changes in the sounds heard while checking

blood pressure. Your doctor may also check your pulse in your neck and groin, and look at your fingernails for clues to the diagnosis.

Chest x-rays and electrocardiograms may show heart enlargement or heart muscle thickening. The best lab test is the echocardiogram, which uses ultrasound waves to record images of the heart. This test measures the heart chamber size and muscle thickness accurately. If the size of your left ventricle is increasing, you may need surgery. A special part of the ultrasound test, called the Doppler exam, measures how severe the regurgitation is.

■ HOW IS IT TREATED?

You should take antibiotics before dental procedures such as teeth cleaning. You will also need to take them before any tests or treatments that involve insertion of tubes or instruments into your body. The antibiotics prevent heart valve infection.

If you have few symptoms and mild enlargement of your heart, you may be treated with:

- Diuretics, which are drugs that help rid your body of excess fluid
- Vasodilator drugs, which reduce blood pressure slightly and decrease the work of the heart

The acute form of aortic valve regurgitation must be treated quickly, usually with valve replacement surgery. The risks of the operation are higher because it is an emergency. Fortunately, acute aortic valve regurgitation is far less common than the chronic variety.

If you have chronic aortic regurgitation, you may have no symptoms for a long time. When signs or symptoms of declining heart function appear, valve replacement surgery is the treatment of choice. Chronic aortic regurgitation can weaken the heart muscle. If tests such as the echocardiogram show that the muscle is starting to weaken, your doctor may recommend that you have surgery even if you don't have symptoms. Vasodilator medicines may delay the need for surgery.

■ WHAT ARE THE RISKS AND BENEFITS OF SURGERY?

Surgery to replace the leaking valve, and sometimes to repair the aorta, can lead to longer life with fewer symptoms for some people with aortic regurgitation. The risk of death from the surgery is 2% to 8%.

Two types of artificial heart valves are available: mechanical and bioprosthetic.

Mechanical valve replacements work well, but require lifelong blood-thinner medicine to keep blood clots from forming in the bloodstream. These drugs cause a small increase in the risk of bleeding. This is most serious when it causes bleeding in the brain. Follow-up care requires frequent visits to a doctor.

Bioprosthetic valves are either specially treated pig valves or valves made from other body tissue. They do not require long-term blood thinners but do not last as long as a mechanical valve, often necessitating more surgery.

Surgery to replace the aortic valve at the proper time can improve both the quality and the length of life.