

da Vinci® Mitral Valve Repair Questions and Answers

Q: What is mitral valve repair?

A: Mitral valve repair is an open-heart procedure performed by cardiothoracic surgeons to treat stenosis (narrowing) or regurgitation (leakage) of the mitral valve. The mitral valve is the “inflow valve” for the left side of the heart. Blood flows from the lungs, where it picks up oxygen, and into the heart through the mitral valve. When it opens, the mitral valve allows blood to flow into the heart’s main pumping chamber called the left ventricle. It then closes to keep blood from leaking back into the lungs when the ventricle contracts (squeezes) to push blood out to the body. It has two flaps, or leaflets.

Q: Why is surgery necessary?

A: The mitral valve is the inflow valve into the left side of the heart. It closes during systole (when the ventricle contracts or squeezes blood out into the aorta and rest of the body). When the mitral valve leaks, blood flows backwards into the lungs. The ventricle must therefore pump more blood with each contraction to produce the same forward output of blood throughout the body. This resulting condition is called a volume overload. The heart can compensate for this volume overload for many months or years (provided the leakage came on slowly and progressively), but it eventually begins to fail producing symptoms of shortness of breath or fatigue.

Q: When is surgery necessary?

A: Recent evidence suggests that earlier surgical intervention, particularly if repair is possible, may prevent irreversible damage to the heart.

Severe mitral regurgitation in the presence of symptoms of congestive heart failure is usually an indication for surgery. Severe regurgitation diagnosed by echocardiography, even without symptoms, may be sufficient to warrant repair. Enlargement of the left atrium, particularly in the setting of the recent onset of an irregular heartbeat (atrial fibrillation, premature atrial contractions, paroxysmal atrial tachycardia, etc.) is considered by many doctors also to be an indication for surgery.

Q: What are the results of mitral valve repair?

A: If repair is possible, the likelihood of long-term success is good, particularly for degenerative valve disease. Depending upon the underlying abnormality, there may be an 85% to 95% chance of needing nothing further done to the valve over the next 10 years. If a more complex repair was required for degenerative disease, the chances of long-term freedom from reintervention (further surgery) may be less. If a valve was damaged by rheumatic fever, the disease may progress even after the repair, making the chances of the repair holding up in the long run less. Some surgeons are, therefore, reluctant to repair rheumatic valves. The results of repair of mitral regurgitation associated with coronary artery disease are the most difficult of all to predict.

Q: Why does the da Vinci Surgical System work well for a mitral valve repair?

A: The patented *InSite*® Vision System gives the surgeon a 3D, 10 times magnified view of the operating field, which provides an excellent view of delicate tissue and organs.

The *da Vinci* Surgical System is “intuitive.” When the surgeon moves the controls to the right, the *da Vinci* System’s *EndoWrist*® instruments move to the right, giving the surgeon natural hand-eye coordination.

The *da Vinci* Surgical System's exclusive *EndoWrist* instruments are designed to be able to mimic the movements of the surgeon's hands and wrists, giving him/her excellent flexibility and control when operating on delicate tissue.

“This technology allowed me to tie knots and reshape the valve with greater precision than I have experience with conventional minimally invasive cardiac surgery. I believe the *da Vinci*[®] Surgical System will enable us to perform a better procedure due to the increased visualization and enhanced precision.”

**- Dr. W. Randolph Chitwood, Jr., East Carolina University,
- Brody School of Medicine**

*While clinical studies support the use of the *da Vinci*[®] System as an effective tool for minimally invasive surgery, individual results may vary. Always ask your doctor about the risks and benefits of all available treatment options.*

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