

Facing Mitral Valve Surgery?

Learn why **da Vinci**[®] may be your best treatment option for mitral valve prolapse.



da Vinci  **Surgery**

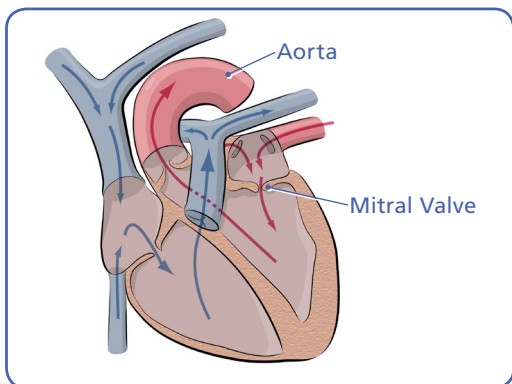
The Condition:

Mitral Valve Prolapse

The mitral valve consists of two flaps that control blood flow. When it opens, it allows blood to flow into the heart's main pumping chamber. When this chamber contracts to push blood out of the heart, the mitral valve closes to prevent blood from flowing backwards.

If the mitral valve flaps do not work properly, some blood flows backwards. This is called regurgitation or prolapse. It makes the heart work harder and increases the risk of heart failure.

Sometimes the mitral valve is abnormal at birth. It can also be damaged by infection or heart disease. Mitral valve prolapse can occur at any age in both men and women. Many people have no symptoms at all. Among those who do, symptoms include rapid heartbeat, chest pain, fatigue, difficulty breathing after activity, or shortness of breath.¹



The Heart: Arrows show direction of blood flow in and out of the heart.

The Treatment:

Mitral Valve Surgery

Surgery to repair or replace the valve is usually the recommended treatment for severe mitral valve prolapse. The goal is to reduce symptoms and the risk for heart failure.

If your valve needs to be replaced, one of two types may be used. A mechanical valve is man-made from titanium or ceramic. It lasts long but patients must take blood-thinning medication for life because of the risk of blood clots.³ A biological valve comes from animal or human tissue. It lasts 10-12 years, after which you will need another operation to replace the valve. Lifelong blood thinning medication is often unnecessary.³

Repairing the valve is generally preferred to replacing it since repair has been shown to

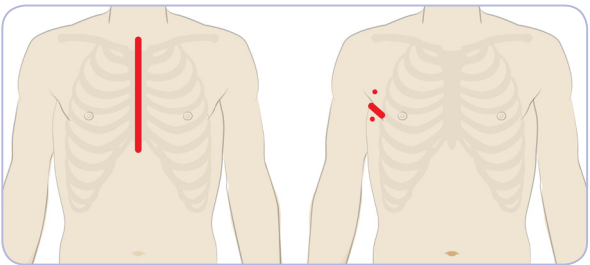


While clinical studies support the use of the *da Vinci*[®] Surgical System as an effective tool for minimally invasive surgery, there is still a risk of major complications. Before you decide on surgery, discuss treatment options with your doctor. Under no circumstances should the *da Vinci* Surgical System be used for any procedure unless otherwise noted. The *da Vinci* Surgical System may not be appropriate for every individual; it may not be applicable to your condition. Please consult your doctor to determine whether *da Vinci* Surgery is appropriate for your situation. All people depicted unless otherwise noted are models. *Si*, *Single-Site*, *InSite*, *TilePro* and *EndoWrist* are trademarks or registered trademarks of Intuitive Surgical. All other trademarks are the property of their respective owners.

improve survival rates,² and eliminates the need for blood-thinning medicines.³

Two common options for mitral valve surgery are traditional open surgery and minimally invasive surgery. Open surgery requires a sternotomy. This means surgeons must make a long incision and spread the ribs to access the heart.

Minimally invasive surgery has many benefits including: less pain, blood loss, and risk of infection, as well as a faster recovery compared to open surgery patients.³



Open Surgery
Incision

da Vinci
Mitral Valve Repair
Incisions



da Vinci Surgery: A Highly Effective, Minimally Invasive Surgical Procedure

If you have been told you need surgery to treat mitral valve prolapse, ask your doctor about minimally invasive *da Vinci* Surgery.

da Vinci is a state-of-the-art surgical system that enables your doctor to operate with enhanced vision, precision, dexterity and control. *da Vinci's* 3D-HD vision system allows surgeons to see key anatomy with great clarity that is critical for operating on the heart.

Compared to open surgery, *da Vinci* provides the following potential benefits to patients:

- Less blood loss and need for blood transfusions⁴
- Less time in intensive care⁵
- Shorter hospital stay^{4,5,6,7,8}
- Faster recovery and return to normal daily activities⁵

Additional potential benefits include:

- High likelihood of valve being repaired vs. replaced⁹
- No large incision or rib spreading (sternotomy)⁹



¹ National Institutes of Health. Mitral Valve Prolapse. Available from: <http://www.nlm.nih.gov/medlineplus/ency/article/000180.htm> ² American Heart Association. Surgery for Valvular Heart Disease. Outcome of Mitral Valve Repair or Replacement: A Comparison by Propensity Score Analysis. Available from: <http://www.ahajournals.org/doi/pdf/10.1161/01.CIR.000.197.413> ³ National Institutes of Health. Mitral valve repair – minimally invasive. Available from: <http://www.nlm.nih.gov/medlineplus/ency/article/000180.htm> ⁴ Invasive mitral valve reconstruction yields less blood product transfusion and shorter length of stay. Surgery 2006;131(3):362-6. ⁵ Conventional mitral valve repair. Heart Lung Circ. 2010 Jul;19(7):413-8. Epub 2010 Mar 30. ⁶ Folliguet T, Vanhuyse L, et al. Minimally invasive mitral valve repair. Eur J Cardiothorac Surg. 2006 Mar;29(3):362-6. Epub 2006 Jan 19. ⁷ Mihaljevic T, Jarrett CM, Gillinov AM, Williams SJ, DeVilliers PA, Stewart DJ, et al. Minimally invasive mitral valve repair: potential realized. J Thorac Cardiovasc Surg. 2011 Jan;141(1):72-80.e1-4. Epub 2010 Nov 10. ⁸ Endoscopic approach. Ann Thorac Surg. 2001 Oct;72(4):1203-8; discussion 1208-9. ⁹ Murphy D, Smith JM, Siwek L, et al. Minimally invasive mitral valve repair approach using the *da Vinci* Surgical System. Innovations, 2007;2:56-61.

The Enabling Technology: *da Vinci* Surgical System

The *da Vinci* Surgical System is designed to provide surgeons with enhanced capabilities, including high-definition 3D vision and a magnified view. Your doctor controls the *da Vinci* System, which translates his or her hand movements into smaller, more precise movements of tiny instruments inside your body. Though it is often called a “robot,” *da Vinci* cannot act on its own. Instead, surgery is performed entirely by your doctor.



Together, *da Vinci* technology allows your doctor to perform complex procedures through just a few tiny openings. As a result, you may be able to get back to your life faster⁵ without the usual recovery following major surgery.

The *da Vinci* System has been used successfully worldwide in hundreds of thousands of procedures to date.

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www.nlm.nih.gov/medlineplus/ency/article/007411.htm⁴ Woo YJ, Nacke EA. Robotic minimally

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19. ⁸ Felger JE, Chitwood WR Jr, Nifong LW, Holbert D. Evolution of mitral valve surgery: toward a totally

Langford DA, Robinson JR, Reynolds B, Kreaden US and Engel A. Multicenter mitral valve study: a lateral

Your doctor is one of a growing number of surgeons offering *da Vinci*[®] Surgery for mitral valve repair.

All surgeries, including *da Vinci* Surgery, involve risk of major complications. Before you decide on surgery, discuss treatment options with your doctor. Understanding the risks of each treatment can help you make the best decision for your situation.

For more information and to find a *da Vinci* Surgeon near you, visit:
www.daVinciSurgery.com