Robotic-assisted mitral valve repair offers the least invasive approach for correction of mitral valve regurgitation.

This minimally invasive surgery employs the da Vinci® Surgical System, a state-of-the-art robotic surgical platform with 3D, high-definition vision and miniaturized, wristed instruments. The surgeon accesses the mitral valve by inserting these instruments through small incisions on the side of the patient’s chest. Controlled entirely by the doctor, the da Vinci System translates the surgeon’s hand movements outside the body into more precise movements of the miniaturized instruments inside the patient’s body.

Benefits of Robotic-Assisted Heart Surgery

In robotic-assisted surgery, small incisions—less than 2 inches—are used to access the heart. Benefits of robotic surgery include:

- Shorter hospital stay after surgery: the average stay is three to five days after robotic-assisted surgery, while the average stay for traditional heart surgery is one to two weeks
- Shorter recovery time and return to normal activities: The average recovery time after robotic-assisted surgery is about half the length of traditional open heart surgery
- Less blood loss and need for blood transfusion
- Less pain following surgery
- Low risk of infection and surgical complications

As with any surgical procedure, these benefits cannot be guaranteed. Successful outcomes always depend on a variety of factors.

Mitral Valve Repair: Surgical Comparison

Robotic-Assisted Heart Surgery (Closed Surgery)
< 2 inch incision and 4 robotic "ports"
3D-HD visualization of procedure

Right Thoracotomy
3-4 inch incision on side of chest

Median Sternotomy
(Open Surgery)
6-8 inch incision in middle of chest
Outcomes

A comparison of surgical outcomes for mitral valve repair published in *Journal of Thoracic Cardiovascular Surgery* concluded that “robotic repair of posterior mitral valve leaflet prolapse is as safe and effective as conventional approaches [complete sternotomy, partial sternotomy, right mini-anterolateral thoracotomy].” The article also noted that “technical complexity and longer operative times for robotic repair are compensated for by lesser invasiveness and a shorter hospital stay.”

The da Vinci System, the technology used to perform robotic-assisted mitral valve repair, has been used successfully worldwide in hundreds of thousands of procedures to date.

Candidates for Robotic-Assisted Mitral Valve Repair

Mitral valve prolapse can occur at any age in both men and women. Many people have no symptoms at all. For those who do, symptoms include fatigue, rapid heartbeat, chest pain, difficulty breathing after activity, or shortness of breath.

While robotic-assisted mitral valve repair is considered safe and effective, it may not be appropriate for every individual. Our surgeon works with physicians in local communities to help evaluate individuals with mitral valve regurgitation and determine the best procedure for their case. Individuals who undergo robotic-assisted mitral valve repair need to be healthy enough to go on a heart-lung bypass machine for a period of time during the 4- to 5-hour surgical procedure. Following the surgery, patients undergo a follow-up visit in San Francisco, then return to the care of their local cardiologist.

Our Team

Robotic-assisted heart surgery is performed at California Pacific Medical Center in San Francisco by Cardiothoracic Surgeon Sachin Shah, M.D., who is part of Sutter Health’s Palo Alto Medical Foundation. Dr. Shah completed a 14-month fellowship in robotic-assisted heart surgery at Cleveland Clinic, which has the world’s largest program in minimally invasive and robotic cardiac surgery. Dr. Shah works closely with a specialized team of surgeons, nurses and support staff at California Pacific.

For More Information

Sachin Shah, M.D.
Director, Robotic and Minimally Invasive Cardiac Surgery

Palo Alto Medical Foundation
California Pacific Medical Center
2340 Clay Street, Suite 114
San Francisco, CA 94115

Tel. 415-600-5780
Email. ShahS8@sutterhealth.org