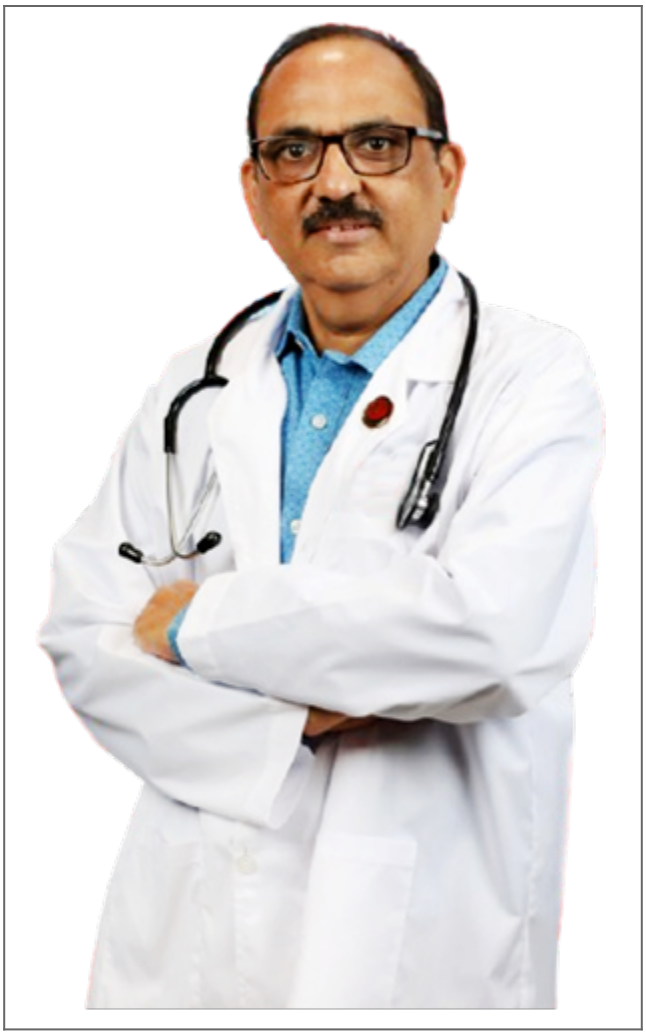
The Future of Heart Valve Surgery: Less Pain, Faster Healing

Category: Business
written by News Mall | September 18, 2025

Every year, thousands of people face the difficult decision of which heart valve surgery is right for them. Heart valve surgery plays a vital role in treating heart valve disease, which affects the aortic, mitral, tricuspid, and pulmonary valves that regulate blood flow through the heart. When these valves become narrowed (stenosis) or leaky (regurgitation), timely surgery is often essential to prevent heart failure and improve long-term survival.



Dr Rajendra Umbarkar, CVTS expert with 25+ yrs, 10k+ surgeries; HOD at Bombay Hospital, skilled in CABG, MICS, Cardiac and lung transplant team, Bombay Hospital

Traditional Open-Heart Surgery

For decades, open-heart surgery has been the gold standard. In this procedure, surgeons make a large incision in the chest and use a heart-lung machine to temporarily take over blood circulation.

This approach provides full access to the heart, making it especially useful for complex repairs or multiple valve problems, often combined with other cardiac issues such as coronary artery disease.

While effective, open-heart surgery involves longer hospital stays, more recovery time, and carries higher risks of complications like infection, bleeding, or stroke –

particularly in older or medically fragile patients.

Minimally Invasive Valve Surgery

A modern alternative is minimally invasive valve surgery. Instead of opening the chest fully, surgeons make smaller cuts between the ribs or perform a partial sternotomy, using special instruments and cameras to repair or replace valves.

The benefits are clear: less pain after surgery, a lower risk of infection, shorter hospital stays, faster recovery, and smaller scars.

However, not every patient is a candidate. Suitability depends on the specific valve condition and anatomy, and this approach requires highly skilled surgeons and advanced infrastructure.

Robotic-Assisted Valve Surgery

Robotic-assisted valve surgery represents the next leap in precision. From a console, surgeons control robotic instruments guided by 3D imaging for enhanced visibility.

This is particularly effective for mitral valve repairs, allowing surgeons to work with extreme accuracy while minimizing trauma to surrounding tissues. Patients often experience quicker recovery and fewer complications.

That said, robotic surgery is only available at select centers, and it may not be suitable for everyone.

Transcatheter Valve Procedures (TAVR and More)

One of the biggest breakthroughs has been **Transcatheter Aortic Valve Replacement (TAVR)**. Instead of opening the chest, doctors insert a catheter-usually through the femoral artery in the leg-to place a new valve inside the diseased one.

Originally developed for patients considered too high-risk for open surgery, TAVR is now being used for many low- and

intermediate-risk patients with excellent results.

Recovery is often rapid, with patients discharged in just a few days. However, questions about long-term durability and suitability for younger patients remain important considerations.

Expert Insight

Dr. Rajendra Umbarker, renowned cardiac surgeon, explains, *"Advances in heart valve surgery have dramatically improved patient outcomes. From traditional open-heart operations to minimally invasive and transcatheter techniques, our goal remains to restore valve function safely, reduce recovery time, and enhance quality of life. Each patient's care must be individualized, considering age, overall health, and valve complexity."*

Choosing the Right Approach

Selecting the best treatment is never a one-size-fits-all decision. A multidisciplinary heart team-including cardiologists, cardiac surgeons, and imaging specialists – reviews each patient's case to determine the safest and most effective option.

New hybrid approaches are also emerging, combining surgical and catheter-based methods to create tailored solutions.

At the heart of every choice lies one clear goal: **to restore normal heart function, improve well-being, and extend life**.