PROCEDURE

Mitral valve surgery - open

Open mitral valve surgery repairs or replaces the heart's mitral valve through a chest incision.

PURPOSE
Repair or replace a diseased mitral valve

PROCEDURE TYPE
Therapeutic surgery through an open chest incision

WHERE IT IS DONE
Operating theatre

ANAESTHESIA
General

HOW LONG IT TAKES
About 3 to 6 hours

PREPARATION
Fasting and medication adjustments, including blood thinners

RECOVERY
Several hospital days; no driving until surgeon clears

MAIN RISKS
Bleeding, infection, stroke, abnormal heart rhythms

RESULTS
Valve function checked before leaving theatre

Overview

The mitral valve controls blood flow between the two chambers on the left side of your heart. Open mitral valve surgery is used to repair this valve or replace it with an artificial valve.

The operation is usually performed through an incision down the centre of the chest. The surgeon divides the breastbone, called the sternum, to reach the heart. A heart-lung machine temporarily circulates and adds oxygen to your blood while the valve is treated.

Repair keeps your own valve. Replacement uses either a mechanical valve or a valve made from animal tissue, called a biological or tissue valve. Your surgical team will discuss which approach is most likely to work well for you.

Why the procedure is performed

Surgery may be offered when mitral valve disease is severe, is affecting your health, or is beginning to damage the heart.

Reasons include:

The aim may be to improve blood flow, reduce breathlessness or fatigue, prevent further heart damage, and improve long-term health. Surgery is sometimes advised before severe symptoms develop if tests show that the heart is being affected.

- Mitral regurgitation, when blood leaks backward through the valve
- Mitral stenosis, when the valve is too narrow
- Valve infection, called infective endocarditis
- Damage caused by rheumatic heart disease, a heart attack, or another condition
- A previous repair or replacement that is no longer working properly

Who should and should not have it

Open surgery may be appropriate if the valve problem is severe and a durable repair or replacement is expected to provide more benefit than risk. Your symptoms, heart function, valve anatomy, age, general health, and preferences all matter.

It may not be the right choice when the valve disease is mild, stable, or unlikely to improve with surgery. A less invasive procedure may be safer if you have a high risk from open-heart surgery.

Planned surgery may be delayed to treat an active infection, improve poorly controlled medical conditions, address significant dental infection, or review medicines that increase bleeding risk. Emergency valve problems may need treatment before all usual preparation is possible.

A specialist heart team should explain why surgery is being recommended and whether repair is likely. You can ask for a second opinion before planned surgery.

How to prepare

Your treating facility's own instructions take priority because fasting times, medication plans, and admission arrangements differ.

Before surgery, you may have blood tests, an electrocardiogram, chest imaging, and an

echocardiogram, which is an ultrasound scan of the heart. Coronary angiography may be needed to examine the heart's arteries. Dental assessment may be recommended because bacteria from an untreated dental infection can infect a heart valve.

Tell the team about all prescription medicines, over-the-counter products, supplements, allergies, and previous reactions to anaesthesia. Ask specifically what to do with blood thinners like warfarin or apixaban , antiplatelet medicines, and diabetes medicines. Do not stop them on your own.

Follow the facility's instructions about:

If you smoke, stopping before surgery can support breathing and wound healing.

- When to stop eating and drinking
- Which medicines to take on surgery day
- Washing or skin preparation
- What to bring to hospital
- Arranging help during early recovery

What happens during the procedure

You receive general anaesthesia, so you are unconscious and do not feel the operation. A breathing tube and monitoring lines are placed after anaesthesia begins.

The surgeon usually makes an incision over the breastbone and opens the chest. You are connected to a heart-lung machine, and the heart is temporarily stopped so the surgeon can work precisely.

During a repair, the surgeon may reshape valve tissue, support the valve with a ring, or repair the cords that help it open and close. If repair is not suitable, the valve is removed and replaced.

Mechanical valves are durable but usually require lifelong blood-thinning medicine. Tissue valves generally do not require lifelong anticoagulation solely because of the valve, but they can wear out over time.

The surgeon checks the result, restarts the heart, and closes the breastbone with wires. Temporary drainage tubes and pacing wires may be left in place.

Recovery and what to expect afterward

Pain and soreness are expected around the chest incision. Medicine can help, and the

discomfort should gradually improve. Holding a pillow against your chest may make coughing more comfortable.

You will usually begin with drinks and light food, then return to a normal diet as nausea settles. A temporary poor appetite is common.

You will spend time in intensive care before moving to a hospital ward. Staff will help you sit, walk, cough, and breathe deeply. Hospital recovery commonly takes several days.

At home, increase walking gradually. Avoid heavy lifting and activities that strain the breastbone until it has healed and your team clears them. Cardiac rehabilitation provides supervised exercise and education.

Do not drive while taking medicines that impair alertness or until your surgeon confirms that driving is safe. This often takes several weeks after a breastbone incision. Return to work may take several weeks or longer, especially for physical jobs.

Risks and possible complications

Open mitral valve surgery is a major operation. Your personal risk is influenced by your heart function, age, other health conditions, and whether surgery is planned or urgent.

Possible complications include:

Mechanical valves can form dangerous blood clots without appropriate anticoagulation. Blood-thinning treatment also raises bleeding risk. Tissue valves may eventually need another procedure if they deteriorate.

- Bleeding or the need for another operation
- Wound, chest, or valve infection
- Stroke, blood clots, or organ injury
- Abnormal heart rhythms, including atrial fibrillation
- Breathing problems or pneumonia
- Kidney injury
- A need for a permanent pacemaker
- Valve leakage, narrowing, or failure over time
- Reaction to anaesthesia or, rarely, death

Results and follow up

An ultrasound probe is usually used during surgery to check valve function. You will also have an echocardiogram after the operation, either before discharge or during follow-up.

Your team will explain whether the valve was repaired or replaced and whether any leakage or narrowing remains. Follow-up visits assess the incision, heart rhythm, symptoms, and medicines.

Long-term heart care is still important after successful surgery. You may need regular echocardiograms. If you have a mechanical valve, careful monitoring of anticoagulation is essential. Ask whether you need antibiotics like amoxicillin or doxycycline before certain dental procedures and keep up regular dental care.

Alternatives

The realistic alternatives depend on the type and severity of your valve problem.

- Monitoring: Regular appointments and echocardiograms avoid an operation now, but the valve may worsen or damage the heart.
- Medicines: Diuretics and other heart medicines may ease symptoms, but they usually do not correct a severely leaking or narrowed valve.
- Transcatheter edge-to-edge repair: A catheter-delivered clip can reduce some forms of mitral regurgitation without open surgery. It may leave more leakage and is not suitable for every valve.
- Balloon mitral valvotomy: A balloon can open selected narrowed valves, especially some rheumatic valves. It is unsuitable if there is significant leakage, a clot, or unfavourable anatomy.
- Minimally invasive or robotic surgery: Smaller chest incisions may shorten some parts of recovery, but the operation is not available or appropriate in every case.
- Supportive care: Symptom-focused care may be chosen when procedural risks outweigh likely benefits.

When to call your healthcare team

For routine questions, contact your team about pain control, appetite, sleep, wound care, activity limits, medicines, or follow-up appointments.

Call promptly for increasing redness, swelling, drainage, or opening of the incision; a new fever;

worsening breathlessness; persistent palpitations; rapid weight gain; increasing leg swelling; or pain that is getting worse instead of better.

Seek emergency help for:

- Severe breathing difficulty or new chest pressure
- Fainting or loss of consciousness
- Sudden weakness, facial drooping, confusion, or trouble speaking
- Uncontrolled bleeding
- Coughing up a significant amount of blood

Common questions

Will I be asleep?

Yes. Open mitral valve surgery is performed under general anaesthesia. You will be unconscious and supported by a breathing machine during the operation.

Can I drive home?

No. You will remain in hospital for several days and need someone to take you home. Do not resume driving until your surgeon clears you.

How painful is it?

Chest and incision pain are expected, especially when coughing or moving. Pain medicine and gradual activity usually make it manageable, and it should improve over time.

When will I know if it worked?

The surgeon checks the valve during the operation. Your team can usually discuss the early result after surgery, with further information from postoperative echocardiograms.

Will my valve be repaired or replaced?

The intended plan is usually discussed beforehand, but the final decision may be made after the surgeon examines the valve. Repair is preferred when it is likely to be durable.

How long does full recovery take?

Recovery after open surgery often takes several weeks, and breastbone healing may take longer. Your health before surgery and the type of work you do affect the timing.

Sources

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