

Atrial Fibrillation Surgery



What is a Maze procedure?

The Maze procedure is a type of heart surgery used to treat atrial fibrillation.

The heart has 4 chambers. There are 2 upper chambers called atria and 2 lower chambers called ventricles. Normally, a specialized group of cells called the sinoatrial (SA) node in the upper right chamber of your heart, or the right atrium, provide the signal to start your heartbeat. With atrial fibrillation (AFib), the signal to start the heartbeat doesn't begin in the SA node the way it should. Instead, the signal begins somewhere else in the atria. This causes the atria to quiver or fibrillate. The atria can't contract normally to move blood to the ventricles. The disorganized signal spreads to the ventricles. This causes them to contract irregularly and sometimes more quickly than they normally would. The contraction of the atria and the ventricles is no longer coordinated. The ventricles may not be able to pump enough blood to the body.

In a traditional Maze procedure, the surgeon makes a number of small cuts in the atrium and then sews them back together. The heart's electrical signal isn't able to cross these cuts. The cut area now stops conducting the abnormal signals that caused the AFib. This allows the heart rhythm to return to normal. Traditionally, the Maze procedure is done as part of an open heart surgery assisted with a heart-lung machine (cardiopulmonary bypass).

Instead of making cuts, healthcare providers can also use radiofrequency energy or cryoablation (freezing of the tissue) to disrupt the abnormal signals. These methods may allow the surgeon to use smaller cuts (incisions) than would be needed for traditional open heart surgery. Sometimes the surgeon inserts a camera and tiny surgical tools to do the surgery.

Why might I need a Maze procedure?

Some people have unpleasant symptoms from AFib, like shortness of breath. AFib also greatly increases the risk for stroke. Blood-thinners used for preventing stroke pose their own risks. And some medicines require extra blood tests for monitoring.

Many people with AFib take medicines to help control their heart rate or their heart rhythm. Some people respond well to these medicines. But others don't. A Maze procedure isn't guaranteed to stop your AFib for good. But it may be an option for you.

There are other surgical procedures as well as less invasive procedures, such as ablation, that are also options to control AFib. Depending on your health history, you may be a better fit for a particular procedure over another. Your healthcare provider can review what options are best for you. They may recommend the Maze procedure if you have AFib and already need open heart surgery to correct another problem, such as coronary artery disease or a heart valve problem.

Some people may be able to stop taking blood-thinner medicine after the Maze procedure. Ask your healthcare provider about the pros and cons of the procedure in your situation.

What are the risks of a Maze procedure?

Complications are uncommon with a Maze procedure. But they do sometimes happen. In rare cases, some of these may be fatal. You may have certain risks based on your health conditions. You're more likely to have complications if you're older or if you have other health and heart conditions. Discuss all your concerns with your healthcare provider before your surgery. Risks can include:

- Bleeding
- Infection
- Blood clots, which might lead to a stroke or heart attack
- Other abnormal heart rhythms
- Kidney failure

- Complications from anesthesia
- Death

How do I get ready for a Maze procedure?

Your healthcare provider will talk with you about how to get ready for your upcoming surgery. Remember the following:

- Follow any directions you're given for not eating or drinking before surgery.
- Try to stop smoking before your procedure. Ask your healthcare provider about ways that can help you stop smoking.
- You may need to stop taking certain medicines such as warfarin before your surgery. Follow your provider's instructions about which medicines should be stopped and when.

You may need some routine tests before the procedure to assess your health before surgery. These may include:

- Chest X-ray
- Electrocardiogram (ECG), to assess the heart rhythm
- Blood tests
- Echocardiogram (echo), to assess heart structure and function

If needed, someone may shave your skin above the area of the surgery. About 1 hour before the procedure, someone may give you medicines to help you relax.

What happens during a Maze procedure?

Talk with your healthcare provider about what to expect about your Maze procedure. Below is a general description of the traditional Maze surgery. But your healthcare provider may plan a less invasive procedure. Because the Maze procedure is often done in people needing heart surgery for another reason, the surgical process may be different. During a typical open-heart Maze procedure:

- A healthcare provider will give you anesthesia before the surgery starts. This will cause you to sleep deeply and painlessly during the operation. Afterward, you won't remember the operation.
- The surgery will take several hours. Your surgeon will make an incision down the middle of your chest and separate your breastbone.
- The surgery team will connect you to a heart-lung machine. This machine will act as your heart and lungs during the procedure.
- Your surgeon will make several cuts through the atria and then sew them back together. Or your surgeon might use radiofrequency energy or another energy source to destroy small areas of tissue.
- Once complete, the surgery team will remove the heart-lung machine.
- The team will connect your breastbone back together.
- The team will then close the incision on your skin using stitches or staples.

What happens after a Maze procedure?

In the hospital

- When you wake up, you might feel confused at first. You might wake up a couple of hours after the surgery, or a little later.
- The team will carefully watch your vital signs, such as your heart rate. You'll be hooked up to several machines so that you're continuously monitored.
- You may have a tube in your throat to help you breathe. This may be uncomfortable, and you won't be able to talk. It will usually be removed within 24 hours when you are stronger and can breathe on your own.
- You may have a chest tube to drain excess fluid from your chest.
- You'll likely feel some soreness, but you shouldn't feel severe pain. If you need it, you can ask for pain medicine.
- Soon after surgery, you'll likely be encouraged to get up and sit in a chair. In 1 or 2 days, you should be able to walk with help.
- You may do breathing therapy to help remove fluids that can collect in your lungs during and after surgery.
- You'll likely be able to drink liquids once the breathing tube is removed, often the day after surgery. You can have regular foods as soon as you can tolerate them.
- You'll likely need to stay in the hospital for a few days. It might be less than that if you had less invasive surgery.

At home

- Make sure you have someone to drive you home from the hospital. For a while, you'll also need some help at home.
- You may tire easily after the surgery. But you will slowly start to regain your strength. It may be a few weeks before you fully recover.
- Ask your healthcare provider about when it's safe for you to drive.
- Don't lift anything heavy for a few weeks. Ask your healthcare provider about when it's safe to lift heavy objects.
- Keep all follow-up appointments. You'll likely have your stitches or staples removed at a follow-up appointment in 7 to 10 days.
- Follow all the instructions your healthcare provider gives you for medicines, exercise, diet, and wound care.

Next steps

Before you agree to the test or the procedure make sure you know:

- The name of the test or procedure
- The reason you are having the test or procedure
- What results to expect and what they mean
- The risks and benefits of the test or procedure
- What the possible side effects or complications are
- When and where you are to have the test or procedure
- Who will do the test or procedure and what that person's qualifications are

- What would happen if you did not have the test or procedure
- Any alternative tests or procedures to think about
- When and how you will get the results
- Who to call after the test or procedure if you have questions or problems
- How much you will have to pay for the test or procedure

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