What AFib Patients Need to Know About the Maze Procedure

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What to Know About This Common Surgical Treatment for AFib

AFib is an electrical disorder, not a structural problem. Symptoms come when the automatic signals that tell your heart when to beat, and how hard to beat, aren't working well. During an AFib episode, too many electrical signals bounce back and forth between the chambers, which causes the common thumping or fluttering feeling, and puts your heart at risk for pooling and clots.

A maze procedure (also known as surgical ablation) is one of the most direct ways to correct that faulty electrical communication in the heart. By changing the surface of the heart muscle in very specific ways, a heart surgeon can stop the extra electrical signals, and allow the important ones to travel along the appropriate pathway.

Surgical ablation could cure your AFib for good, although it may not be the right choice for every patient. Here's what you should know if you and your doctor are considering a maze procedure for AFib.

How the Maze Procedure Works

A maze procedure can be done in a few different ways, but it will always involve three important aspects:

Incision

Compared to other operations, a maze procedure can be relatively simple and straightforward. A minimally invasive maze procedure (or mini maze) begins with keyhole incisions between the ribs, through which the surgeon guides a tiny camera and precise instruments to create spots of scar tissue on the heart. The heart is not stopped during the procedure.

However, 90% of maze procedures are conducted when the chest is already open for another heart operation. In the case of an open heart maze procedure, the surgeon will go through the breast bone to make a few small incisions on the left and right atrium. This procedure is more invasive, and your heart may be stopped for the course of the operation.

Scar Tissue

Your normal heart tissue conducts electricity well, but scar tissue does not. So, the purpose of the maze procedure is to create patches of scar tissue on the heart to stop electrical signals from passing through, which can be done with small incisions in open heart procedures, or microwave energy, ultrasound energy, or cryo-freezing when a mini maze procedure is used.

As these small wounds begin to heal, scar tissue develops, and electrical signals can no longer cross at those points. Instead, the blocked pathways force electrical signals to go down only one avenue from the SA node to the AV node, which will normalize the heart rhythm.

Rerouting

It's not enough to simply scar some tissue in the heart — your surgeon must create very precise points of scarring to reroute the electrical signal to where it needs to go. The carefully scarred tissue forms a pathway that snakes down into the lower heart chambers, essentially leading the signal through a "maze" of tissue (which explains the name).

This method is remarkably effective for minimizing or curing AFib — 90% to 95% of patients will return to a normal heart rhythm within a year after the surgery. Recurrence is possible, but for many people, the results are permanent.

Next page: when the maze procedure is recommended, risks and complications, and the recovery process.

When is the Maze Procedure Recommended?

If your heart problems call for an open-heart surgery, your surgeon may take the opportunity to perform the maze procedure. Most commonly, patients who undergo surgery for valve replacement, coronary artery bypass, or another major heart disorder are good candidates for the open heart maze procedure.

However, you don't necessarily have to wait for heart complications to have surgical ablation. You may want to discuss the maze option with your doctor if:

- Your AFib medication isn't controlling your symptoms
- You cannot take AFib medication or anticoagulants
- You want a higher success rate with more permanent results

If you don't have any underlying heart disease, a mini maze procedure will likely be the best option for you. There's less risk involved, and usually less recovery time. But before either method of surgical ablation can be performed, you'll need to have a range of tests to ensure you can handle the operation well, including blood tests, electrocardiogram (ECG), stress test, a complete physical, and perhaps a CT scan.

Risks and Complications to Keep in Mind

As with any surgery, the maze procedure does bring some risks. Complications are few and far between, but consider these potential problems before you decide to proceed with a surgical ablation:

- **Arrhythmia.** In about 30% of cases, a cardiac arrhythmia will begin right after surgery, which can be particularly disconcerting. Luckily, this is generally a short-lived side effect, and it should begin to resolve as your heart starts to heal. In the meantime, medications may be used to control the symptoms.
- **Pacemaker requirement.** There's a chance that the surgery could cause an injury to the heart, or uncover a heart problem that the AFib may have been masking. Studies suggest that between 8% and 20% of patients will need pacemakers after their maze procedure, though a lot depends on the type of energy source your surgeon uses, and their level of experience.
- **Organ failure.** When the open heart maze procedure is used, you may be connected to a heart-lung machine to suspend your cardiovascular function while the surgeon performs the operation. Although your chances of complications are low, there is a risk of stroke, kidney failure, and other organ failure when using this machine.

The mortality rate for the maze procedure is low — about 3%. You're at a greater risk if you're over 65, but even the it is very low. Invasive surgery always brings the possibility of infection, but good care during your recovery period can reduce your risk significantly.

The Recovery Process

In general, it will take longer to recover from an open heart procedure than from a mini maze, but in both cases, you'll remain in the hospital's intensive care unit for one or two days after your surgery. You'll be hooked up to an array of monitors and tubes immediately following the procedure, but within a few days you'll be feeling stronger and more comfortable.

If all goes well, your stay in the hospital could be less than a week. During this time, you'll start your rehabilitation and recovery. It's not uncommon to feel sore in the chest and ribs for a while; some patients deal with this discomfort for several days, but medication will help to manage it.

The most important part of recovery is strengthening and maintaining your heart health, which calls for a light exercise regimen and healthy diet as soon as you can manage it. Sitting up, eating regularly, walking around, and chest physiotherapy will get your body on track and help you enjoy your AFib-free life to the fullest.