

*If you have any questions, ask your physician or nurse.*

## Cardiac Surgery: Atrial Fibrillation Surgery

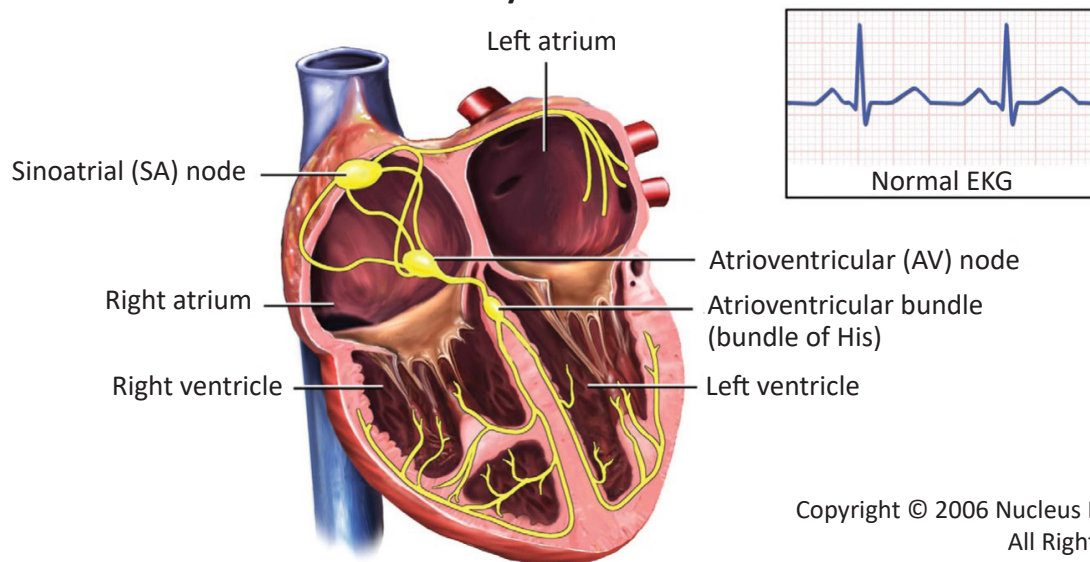
Your physician may have talked to you about the need for surgery to treat your atrial fibrillation (AFib). This brochure will explain what AFib is, and what to expect before, during and after surgery. To better understand AFib surgery, it is helpful to know how the heart works.

### The heart

The heart is a muscular pump. It sends blood to the lungs and all body tissues. It has 4 chambers: 2 upper chambers (the right and the left atrium) and 2 lower chambers (the right and the left ventricle). The right atrium gets blood from the body and pumps it to the right ventricle. The right ventricle then pumps the blood to the lungs, where it gets oxygen. The left atrium gets the oxygen-rich blood from the lungs and sends it to the left ventricle. The left ventricle pumps this blood to the rest of the body.

The heart also needs a “spark plug” or electrical signal to pump. This signal starts in the sinoatrial (SA) node in the right atrium. It travels through the upper chambers (atria) to the lower chambers (ventricles). It then creates an electrical circuit that makes the heart pump blood to all parts of the body (Figure 1). This cycle normally repeats 60 to 100 times per minute in a regular rate and rhythm. It is the most efficient heart rhythm. An example of this is in the normal EKG seen in Figure 1.

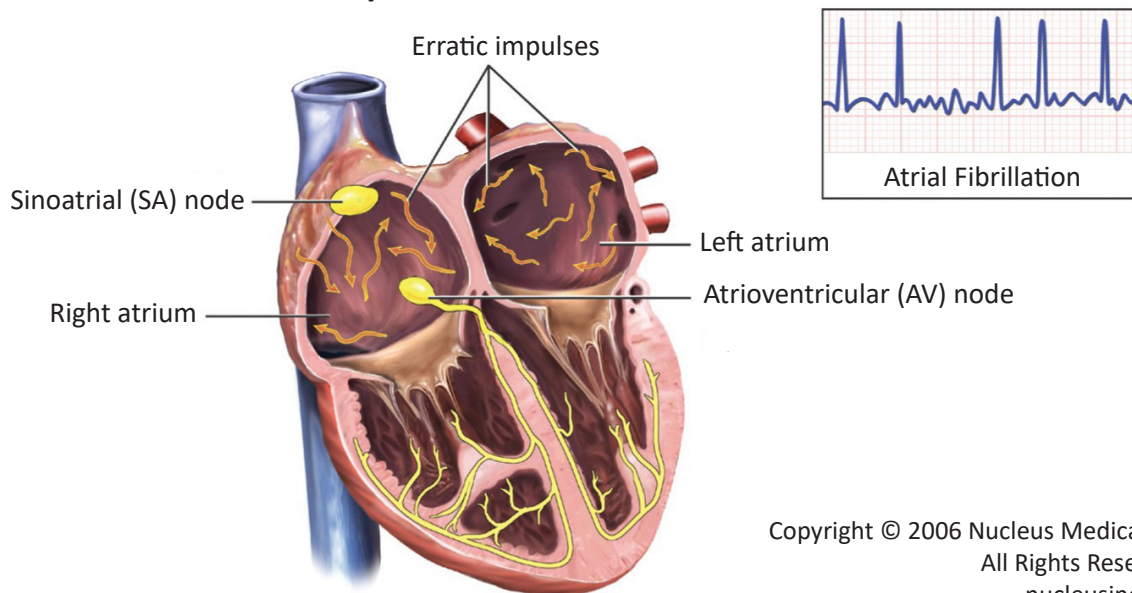
**Figure 1. Normal Heart Electrical Pathway**



## Understanding AFib

AFib is a fast rhythm that starts in the upper chambers of the heart. The normal electrical signals become irregular and erratic (unpredictable) (Figure 2).

**Figure 2. AFib erratic heart rhythm**



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These impulses start in different parts of the heart and move along different paths. The atria cannot fill and empty properly. This causes the heart to pump poorly.

When the heart does not pump well, blood clots may form inside the heart. Often, these happen in the left atrial appendage, a small pocket of tissue. If the blood clot breaks free, it can travel to the brain and cause a stroke.

AFib is common and may cause:

- An increased risk of stroke and heart failure.
- A need to take blood thinning medications.
- A fast, irregular heartbeat (sometimes over 200 times per minute).

### ***Symptoms of AFib***

AFib may lead to:

- Palpitations (racing heart)
- Shortness of breath
- Tiring easily with activity
- Swelling in the ankles and feet
- Feeling dizzy or faint

Sometimes there are no symptoms at all.

## ***Causes of AFib***

These factors may cause AFib:

- Unhealthy lifestyle (alcohol use, obesity)
- Lung disease
- Recent heart surgery
- High blood pressure (hypertension)
- Slow heartbeat due to SA node problems
- Heart problems, such as valve disease or coronary artery disease
- Sleep apnea
- Other diseases, such as thyroid problems
- Family history of AFib

## **Pre-surgery testing**

Before surgery, your physician will do a physical exam and review your health history. Based on this, you may need to have tests that include:

- **Electrocardiogram (ECG).** This records your heart rate and rhythm. It finds abnormal changes.
- **Holter monitor.** This records your heart rate and rhythm over 24 to 48 hours. You will wear a portable monitor. We will ask you to keep a diary of your activities and how you are feeling.
- **Echocardiogram.** This test uses high-frequency sound waves (ultrasound) to look at how the different parts of the heart work. The images show the size, shape and movement of the heart chambers and valves.

You may need more tests to look at the blood flow to your heart and brain. Your physician or nurse can give you more details about these tests.

## **Surgery for AFib**

Your physician may recommend surgery for AFib when:

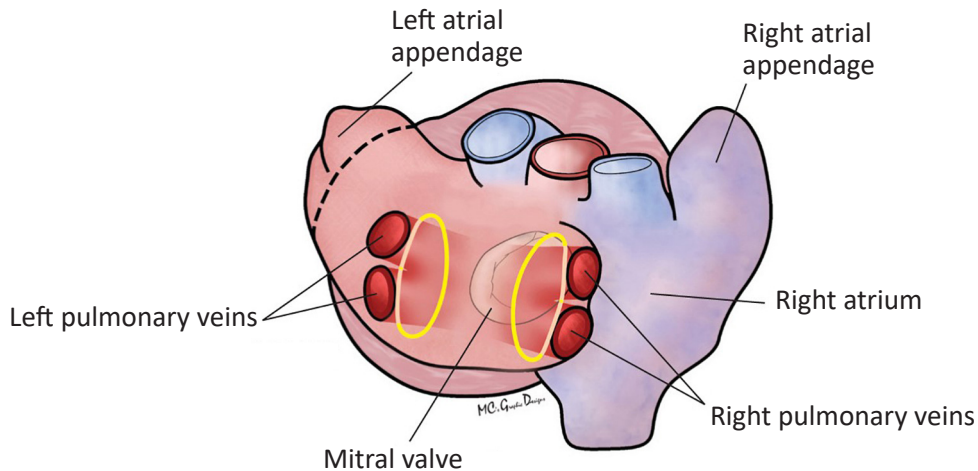
- Other AFib treatments did not work
- Your AFib symptoms are severe
- You need other heart surgery, as well

Your surgeon will talk to you about the type of surgery that is right for you.

For AFib surgery, the surgeon will make an incision (cut) in the middle of the chest. Once inside the heart, the surgeon will create a line of scar tissue using cooling and heating energy sources, small incisions or a combination of these methods. The scar tissue blocks the abnormal electrical signals that cause AFib. This helps direct the signals to move along a normal path. This may fix the heart rhythm so the heart can pump normally.

Another important part of AFib surgery is treating the atrial appendage to help lower the risk of stroke. There are several ways to do this. Your surgeon will determine if it is possible to treat the appendage and which method is best for you. The dotted lines in Figure 3 below show where the surgeon will sew shut or remove the left atrial appendage. The yellow circles show one example of where the surgeon will create scar tissue to help restore the heart's normal rhythm.

**Figure 3. Atrial Appendage**



Patients scheduled for other types of open heart surgery may also have AFib treatment at the same time.

### **Risks**

Every surgery has some risk. Risk depends on factors like age and overall health. In some cases, you may need a pacemaker or other procedures before you go home. Your surgeon will talk about your individual risks with you.

### **After surgery**

Your care team will check your heart rate and rhythm while you are in the hospital. It is common to still have AFib in the first few months after surgery.

If you still have AFib after surgery, you may need a cardioversion procedure before you go home. This is not a surgical procedure. The cardiologist places paddles or patches on the chest to give you small amounts of electrical current. This puts your heart back into a normal rhythm.

If you have a slow heart rate after surgery, you may need a pacemaker.

Your care team will talk with you about these procedures if you need them.

## ***Medications***

The AFib surgery causes swelling in the heart that will go away as your body recovers. Until then it is important to take certain medications.

- Antiarrhythmics to treat AFib
- Diuretics to reduce extra fluid in your body
- Blood thinners to prevent blood clots

Over time, your physician may decide if you no longer need some of these medications. Always follow your physician's guidelines about medications.

If you are taking blood thinners such as warfarin (Coumadin®), you will need to have weekly blood tests after you go home. This needs to continue until you are on a stable dose of medication. Please refer to the warfarin booklet, which gives information about foods to avoid, other medications you should not take and when to call your physician.

## ***Follow-up***

After you go home, it is important that your cardiologist continues to monitor your heart rhythm. This will help them decide if they need to change or stop your medications.

**Please share the guidelines in Appendix A with your cardiologist.** If you have a pacemaker or defibrillator, your cardiologist should check to make sure it is set to find AFib. If your cardiologist finds AFib, they should try to restore it to a normal rhythm within 6 to 8 weeks after surgery. Our AFib nurses will also call you to review your medications and treatments.

**If you feel you have symptoms of AFib any time after you go home, call your cardiologist right away.**

Please be sure to read ***Heart Surgery: Care After Leaving the Hospital***. This gives detailed information about your recovery after you go home. It also gives detailed instructions for long-term follow-up care. Ask your nurse practitioner for a copy if you do not have one or if you have questions about the instructions.

## **Appendix A: Follow-Up Care After Surgery for Atrial Fibrillation (AFib)**

If you had surgery to treat AFib, this information will help you understand what to expect. Please follow these guidelines. They are an important part of your follow-up care and help ensure the best possible outcome.

### ***Phase I: After surgery***

You may be taking anticoagulant medication to prevent blood clots, and antiarrhythmic medication control your heart rate. But it is still common to have some AFib or atrial flutter over the first several weeks. This does not affect long-term success. As your heart heals, this happens less often and often stops. If you continue to have AFib, your cardiologist may recommend other treatments such as cardioversion.

### ***Phase II: 3 months and 6 months after surgery***

At 3 months and 6 months after surgery, you will need to have a physical exam, ECG and heart monitor test. The heart monitor (Zio<sup>®</sup> patch) will show if you are having AFib or atrial flutter. You will wear the small, mobile heart monitor for 7 days. If there is no sign of AFib at the 3-month visit, your cardiologist may choose to stop your antiarrhythmic medication. If there is no sign of AFib at 6 months, AND if the risk of stroke is low, your cardiologist may stop your anticoagulant medication. If AFib or flutter happens during or after this time, your cardiologist will prescribe more treatment.

### ***Phase III: 1 year, 2 years, 3 years, 5 years and 10 years after surgery***

At each of these times, you will wear another Zio patch heart monitor for 7 days.

These tests will help confirm that your heart rhythm is normal and regular.

### **Irregular heart rhythms**

If you have palpitations or other symptoms of an irregular heart rhythm, please tell your cardiologist. You will then wear a patient-activated heart event monitor like the Zio patch. This will compare your symptoms with your heart rhythm. This helps your cardiologist diagnose and treat your condition.

### **Implantable cardiac device**

If you have an implanted defibrillator, pacemaker or heart monitor, we will do a device interrogation. This periodic check takes the place of wearing a portable monitor.

If you have any questions, please talk with your cardiologist or call the Bluhm Cardiovascular Institute AFib nurse coordinator at 312.694.7989 (TTY: 711).