

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

Radiofrequency Ablation for Atrial Fibrillation

A radiofrequency (RF) ablation is a non-surgical procedure used to treat atrial fibrillation (AF) which:

- Locates abnormal pathways in the heart that cause AF
- Uses high-frequency electrical energy to destroy these pathways

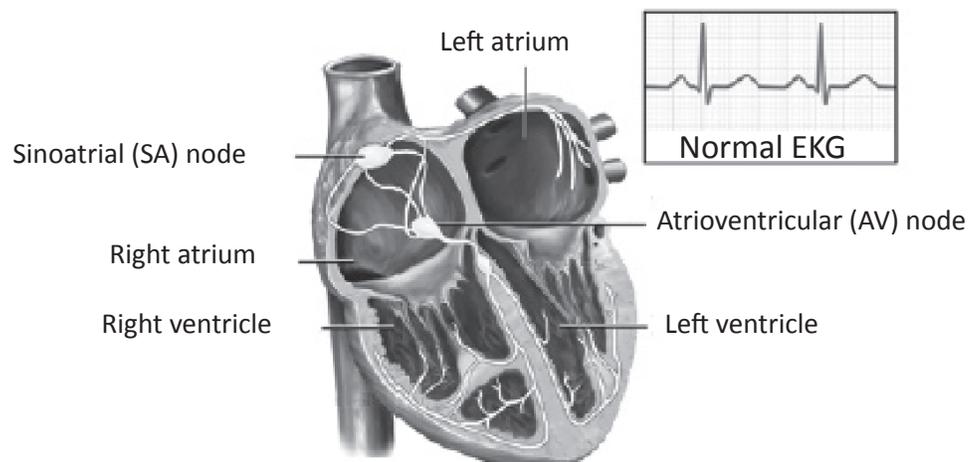
This information will help you understand:

- Conduction system of the heart
- Atrial fibrillation
- Radiofrequency ablation
- What to expect before, during and after the procedure

The conduction system

With each heartbeat, the heart pumps oxygen-rich blood through the body. It needs a “spark plug” or electrical impulse to start a heartbeat. The heart receives this electrical signal from the sinus node in the upper chamber or right atrium (see Figure 1). This signal or spark starts the electrical activity along its path or circuit. The signal then travels through the upper chambers (atria) along a path to the lower chambers or ventricles. This electrical circuit makes the heart contract and pump blood throughout the body. When the circuit follows this normal path, it is called “normal sinus rhythm.”

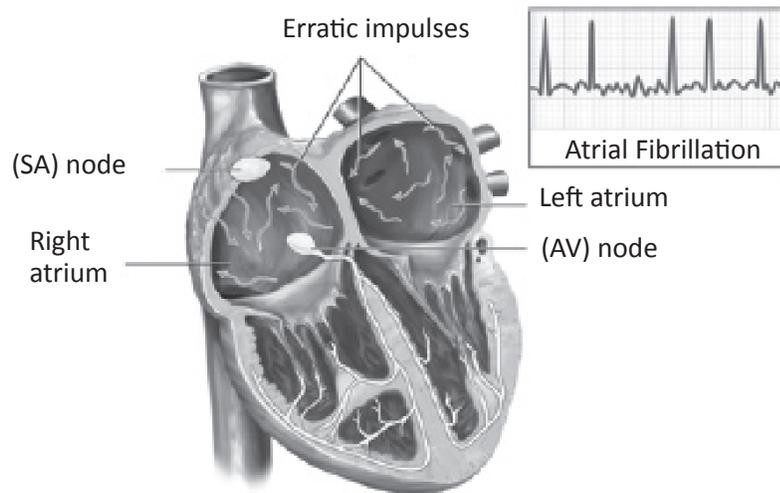
Figure 1. Heart Conduction System



Atrial fibrillation

In AF, the sinoatrial (SA) node is no longer the pacemaker for the heart. Instead, rapid extra impulses in the left atrium cause the atria to quiver (see Figure 2). This also causes the ventricles to contract in an irregular way and affects the way the heart pumps blood to the body.

Figure 2. Atrial Fibrillation



When the body does not obtain the blood it needs, the heart works harder. Over time, a fast heart rate can weaken the heart's ventricles. This can cause more health problems. Blood clots can form in the heart and can lead to stroke.

Symptoms of AF

Sometimes there are no symptoms of AF, or they may come and go. Common signs include:

- Palpitations (feeling that the heart is fluttering)
- Tiring easily with activity
- Swelling in the ankles and feet
- Anxiety
- Shortness of breath
- Feeling dizzy or faint

RF ablation

RF ablation may be done if other treatments for AF have not worked. It is a non-surgical procedure done in the Electrophysiology Laboratory (EP Lab). The procedure takes about 4 to 6 hours followed by an overnight hospital stay in the Cardiac Recovery Observation Unit.

This procedure involves inserting several small tubes called catheters through a vein or artery and into the heart. The physician uses special equipment to watch the catheters and locate the abnormal pathway. Once found, the pathway is destroyed with RF energy. This burning, or ablating, prevents the pathway from conducting electricity that causes the fast heart rate.

Before the procedure

Before the RF ablation, you may be scheduled for several tests. These may include:

- Blood tests
- Electrocardiogram (ECG)
- Transesophageal echocardiogram (TEE)
- 24-hour Holter monitor
- Magnetic resonance imaging (MRI)

These tests provide basic information about your heart function. Your nurse can tell you more about these tests.

Your physician will discuss the benefit and risks of the procedure in detail. Risks include:

- Bleeding
- Blood clots or stroke
- Damage to the blood vessels or heart

5 days before RF ablation

You may be asked to stop taking:

- Heart rhythm medicine
- “Blood thinning” medicine
- Diabetes medicine

Your physician will decide if you should stop taking any of your medications and will tell you before your procedure.

The night before the procedure

Do not eat or drink anything after midnight. You may take medicines ordered by your physician with small sips of water.

Day of the procedure

On the day of the procedure, you will come to the EP Lab on the 8th floor of the Galter Pavilion at 251 East Huron Street. Parking is available for patients and visitors in the garage at 222 East Huron Street, across from the Feinberg and Galter Pavilions. For discounted rates, please bring your parking ticket with you. Tickets can be validated at the Customer Service Desks on the 1st and 2nd floor of the Feinberg and Galter Pavilions.

You will be directed to the Cardiac Recovery Observation Unit to check in. Your family may wait in the 8th floor visitors’ waiting room. They will be called when you return to your room.

You will change into a hospital gown. Underwear and pajama bottoms must be removed. Glasses, dentures or hearing aids may be worn for the procedure. An IV (into the vein) line will be placed. Please do not bring any valuables with you to the lab. Either leave valuables at home or with a trusted family member or friend.

A physician from the Electrophysiology Department will explain the RF ablation and its benefits and risks. After the physician has answered your questions, you will be asked to sign a written consent. The physician will also review the method to be used to relax you and control discomfort during the ablation. For most patients, IV (into the vein) medicine will be used. In some cases, general anesthesia is used and you will be completely asleep for the procedure.

During the procedure

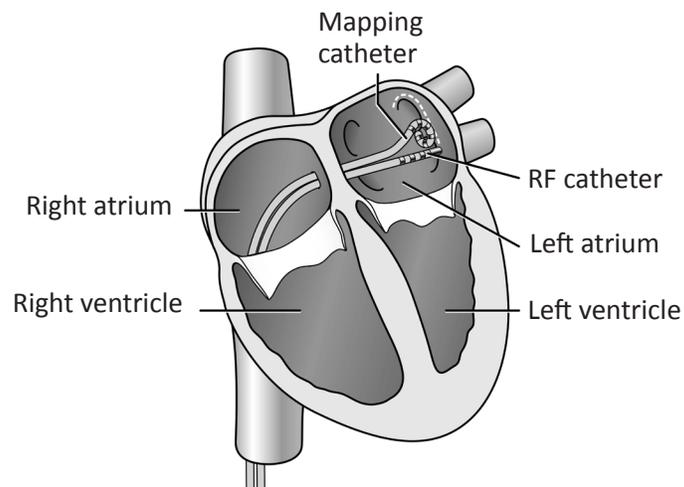
The RF ablation will be done in a room that has many heart monitors and machines. A specially trained team of physicians and nurses will be with you during the entire test. The EP nurses will connect you to several heart monitors. An IV (into the vein) line may be placed in your arm if you do not already have one. It will be used to give you any medicine you need during the test. You will also be given IV medicine to keep you relaxed and comfortable during the procedure.

The staff will monitor you during the test. If you are feeling any pain, please tell the staff and you will be given more medicine to make you comfortable.

Long thin tubes with wires (called mapping catheters) will be inserted into a vein in the groin and threaded to the left atrium of heart (see Figure 3).

The mapping catheters help the physician find the exact spot of the abnormal electrical impulses. Once the pathway is found, the ablation catheter will be placed on or very close to the abnormal tissue. High-frequency electrical energy will travel through the catheter to destroy (ablate) this tissue and the abnormal pathway. To make sure the AF circuit is destroyed, RF ablation energy will be used in a few areas along the pathway. The ablated areas will link together to break the AF electrical circuit. You may feel a slight burning sensation in your chest when the RF ablation energy is used.

Figure 3. Catheters in the Heart Chambers



After the procedure

Once the procedure is over, the catheters and tubes will be removed. When the tubes are removed, the physician will hold pressure at the site to prevent bleeding.

After the procedure, you will be taken back to your room, where your heart rhythm, vital signs and pulse will be checked frequently. You will be on bedrest for 4 to 6 hours. It is important to keep your leg straight and motionless to prevent bleeding. You will be able to eat regular meals and raise the head of the bed 30 degrees. Tell your nurse right away if you:

- Feel numbness or tingling in your leg
- Notice bleeding from the groin site
- Have groin pain or pain at the catheter insertion site

As the numbing medicine wears off, you may feel minor discomfort at the tube sites. If this occurs, inform the nurse and a pain reliever can be given. After the period of bedrest is finished, your nurse will assist you out of bed and to walk in the hallway.

To prevent blood clots, you will begin taking Coumadin® or Pradaxa® by mouth and Lovenox® or Fragmin® injections after the procedure.

At home

Diet

You may resume your regular diet at discharge. Do not drink alcoholic beverages for 24 hours.

Activity

It can take up to 14 days for the artery to heal completely. During this time, bleeding or swelling can occur if the abdominal or groin muscles are strained.

- On the day of discharge, limit your activities and get plenty of rest.
- Do not drive for 24 hours.
- You may resume your usual daily activities the day after discharge. This includes normal social activities.
- Do not do physical exercise or heavy lifting (greater than 10 pounds) for 1 week. Consult your own physician or the EP Lab physician before resuming strenuous physical activity or your regular exercise program.
- Care should be taken to limit muscle strain when sexual activity is resumed.

Wound healing

The healing puncture site should remain soft and dry. A small bruise or tiny nodules may be present. Please call your physician or the EP Lab physician if you notice any of the following:

- Increased bruising extending to the thigh, over the buttock and/or groin
- Pain at the groin site that is getting worse

- Fever over 101.5 degrees F for more than 1 day
- Drainage from the site
- Redness or red streaks on the skin around the wound
- Numbness or tingling in the foot, thigh or leg
- Swelling of the ankle and/or foot
- Color change and/or coolness of the leg or foot
- Calf tenderness or pain

When to call the physician

Please call your physician **right away** if you have:

- Chest discomfort or pain that radiates to your neck, jaw or arm
- Severe persistent nausea, vomiting or profuse sweating
- Shortness of breath with exertion
- An irregular heartbeat
- Lightheadedness or dizziness that makes you lie down
- A fainting spell

If you cannot reach your physician, call 911 or go to the nearest emergency room.

Bleeding

If you notice a small amount of bleeding or oozing from the puncture site, please do the following:

- Immediately lie flat.
- Apply firm pressure just above the puncture site for 15 minutes. You may use a clean cloth or tissue to apply pressure. If possible, have another person apply pressure.
- After 15 minutes, remove pressure. The wound should be dry and flat without bleeding. Cover the wound with a Band-Aid®. Call your physician right away.

If the bleeding does not stop, go to the nearest emergency room or call 911.

Arterial bleeding

Although rare, this is an emergency and needs immediate medical attention. The following signs could mean that the puncture in the artery has reopened and that there is bleeding.

- Quickly increasing swelling of the area around the wound which may be pulsating
- Continuous blood streaming from the wound
- A jet of blood pumping from the puncture wound

Immediately lie flat, apply hard pressure above the puncture site and call 911.

Contact information

If you have questions or concerns, do not hesitate to call us at the following numbers:

- Electrophysiology Cardiology Clinic at **312.695.4965** during business hours Monday to Friday 8 am to 4 pm.

- On nights and weekends, call 312.695.4965 and ask the operator to page the EP Lab fellow on-call.
- You may also call Northwestern Memorial Hospital at 312.926.6999 and ask the operator to page the EP Lab fellow on-call.

Follow-up care

It is important to keep all your follow-up appointments. This will include routine blood tests to check that the Coumadin dose is right for you. The first blood test is done 1 week after the procedure.

Ongoing Coumadin checks will be done by the Northwestern Coumadin Clinic or a clinic closer to home.

Northwestern Medicine – Health Information Resources

For more information, contact Northwestern Memorial Hospital's Alberto Culver Health Learning Center (HLC) at hlc@nm.org, or by calling 312.926.5465. Health information professionals can help you find the information you need and provide you with personal support at no charge.

For more information about Northwestern Medicine, please visit our website at nm.org.

Para asistencia en español, por favor llamar al Departamento de Representantes para Pacientes al 312.926.3112.

The entities that come together as Northwestern Medicine are committed to representing the communities we serve, fostering a culture of inclusion, delivering culturally competent care, providing access to treatment and programs in a nondiscriminatory manner and eliminating healthcare disparities. For questions, please call either Northwestern Memorial Hospital's Patient Representatives Department at 312.926.3112, TDD/TTY 312.926.6363 or the Northwestern Medical Group Patient Representatives Department at 312.695.1100, TDD/TTY 312.926.6363.

Developed by: NMH Electrophysiology Nursing Staff with Interventional Radiology