



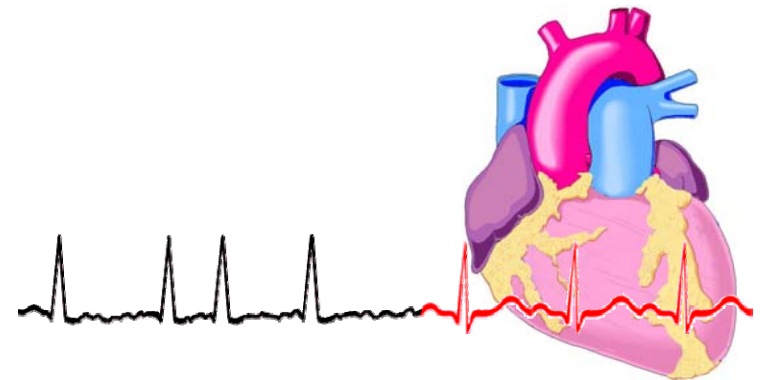
calgary health region

This information is of a general nature and may vary according to your special circumstances. If you have specific questions, please contact your physician or appropriate health care professional.

**CARDIAC ARRHYTHMIA CLINIC
FOOTHILLS HOSPITAL**

RADIOFREQUENCY ABLATION

(Pulmonary Vein Isolation)



A booklet prepared to answer some of the most common questions about Pulmonary Vein Ablation

PATIENT INFORMATION PAMPHLET

This booklet was designed to give you information about the procedure known as **Pulmonary Vein Radiofrequency Ablation**. It will help explain what Atrial Fibrillation is, why Radiofrequency Ablation has been recommended for you and what this procedure involves.

Please read this booklet carefully and ask us any questions that remain unanswered.

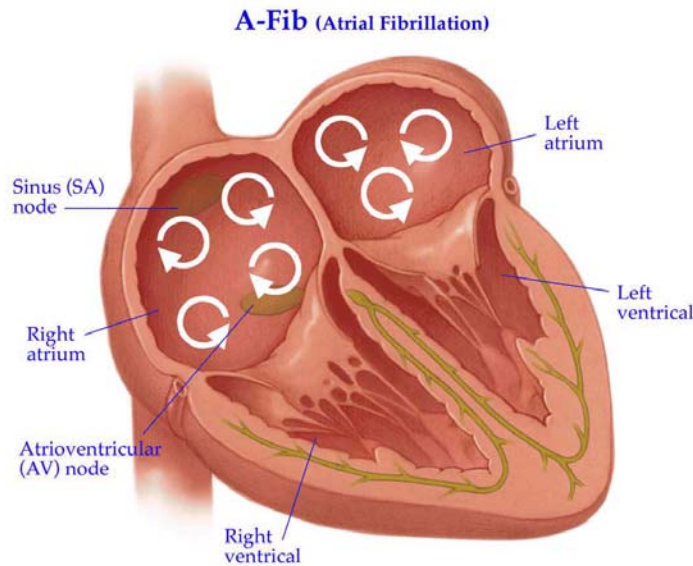
Acknowledgments:

Written by Peggy Cassidy, BN, Calgary, AB
Edited by D. George Wyse, MD, Calgary, AB
Graphic Design by Cheryl Lepard, Calgary, AB

ATRIAL FIBRILLATION

For a variety of reasons, the atria do not always beat normally. One of the most common abnormal beating patterns is called **“atrial fibrillation”**. Atrial fibrillation means that the regular rhythm is suddenly replaced by a multitude of tiny electrical circuits throughout the atria that cause them to “quiver” or fibrillate erratically instead of contracting regularly and forcefully. Since the ventricles are the larger, more powerful pumps and the atria only “prime the pumps”, the overall pumping action of the heart is usually not dramatically affected by atrial fibrillation. However, a multitude of electrical pulses will be passed to the ventricles causing them to also beat erratically and rapidly. The combination of the loss of coordinated beating of the atria and ventricles and rapid and irregular beating of the ventricles produce the symptoms of atrial fibrillation.

ATRIAL FIBRILLATION



POST-PROCEDURE INSTRUCTIONS

You will stay in the hospital for approximately 2-3 days following the ablation.

You should avoid prolonged sitting, straining and heavy lifting for a week to ten days following the ablation to allow the puncture site to heal.

Your physician will advise you to avoid dental work for three months following the ablation. If dental work is necessary, please discuss this with your physician as you may require antibiotics prior to your dental appointment.

Check your groin area daily for the first week for any redness, swelling or pain. If you observe any of these, notify your doctor as soon as possible (a small amount of bruising and discomfort is to be expected).

You will be asked to continue taking your antiarrhythmic medications and Coumadin (blood thinner) for 3 months after the procedure. A repeat MRI scan and a Holter monitor (24 hour recording of your heart beats) will be done approximately 3-6 months after the procedure. You will then see the electrophysiologist after these tests have been completed.

Pulmonary vein stenosis is a potential complication. It is a condition in which the blood flow from the veins into the heart may be restricted as a result of ablation in this area. The risk of this occurring is approximately 1-2%.

As with any invasive procedure there is the remote possibility of death resulting from the complications mentioned above, or from a life-threatening rhythm that may be induced during the procedure. Keep in mind that the procedure is done under very controlled circumstances with medical personnel trained in emergency procedures in the room at all times. The risk of death related to this procedure is less than 1/1000.

With present technology some ablation procedures involve significant x-ray exposure. The long-term effects of this exposure are not known but have been predicted to increase the life-time risk of cancer by an additional 0.05%.

If radiofrequency ablation is not successful initially (60-70% initial success rate with an approx 50% chance of recurrence), another session may be arranged at a later date. The success rate improves up to 80-85% for the second or subsequent attempts.

If you are a female with childbearing potential you must ensure you are not pregnant at the time of the ablation procedure due to the risks of radiation to the developing fetus.

If you are concerned you may be pregnant, please contact your Electro-physiologist's office at 403-944-1248 prior to the date of your Radiofrequency Ablation procedure.

Although some people have no symptoms, others may feel weak, light-headed, dizzy or tired. Some people may experience palpitations in the chest or chest pain. Atrial fibrillation is not usually a life-threatening heart rhythm.

Atrial fibrillation often may originate from the left atrium where the blood enters the heart from the lungs through the pulmonary veins. In certain situations this area may be mainly responsible for atrial fibrillation.

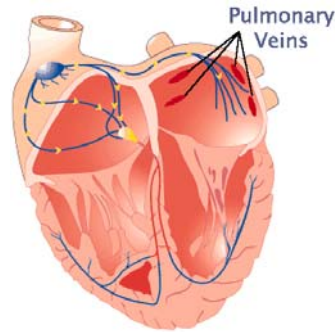
Atrial fibrillation can be associated with many conditions, such as high blood pressure, heart attack, and heart valve problems or lung disease. These conditions can cause stretching and scarring of the atria that interfere with the heart conduction. In many people, it develops as they get older for no known reason. People with atrial fibrillation may have symptoms of palpitations, fatigue, dizziness, shortness of breath, and chest discomfort.

When blood is not pumped out of the atria into the ventricles normally, the blood flow in the atria becomes slow and stagnant. This condition can cause clots to form inside the heart. These blood clots can break away from the heart and travel to other parts of the body, causing blockage of blood vessels that can lead to a stroke or other organ damage.

TREATMENT FOR ATRIAL FIBRILLATION

Most patients with atrial fibrillation take a blood thinning medication (anticoagulant). This medication is prescribed to reduce the risk of blood clots forming in the atria and dislodging, possibly causing a stroke or other organ damage.

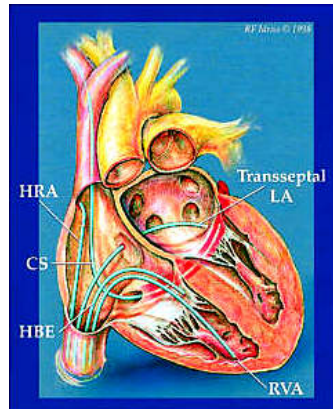
Atrial fibrillation is generally treated first with medications which are intended to keep the heartbeat slow and regular. However, medicine does not always correct atrial fibrillation either because it does not work or because it causes side effects. In some cases, particularly if there is not too much scarring of the atria, atrial fibrillation may be corrected by delivering a small amount of heat around selected areas of the openings of the *pulmonary veins* (or other veins entering the heart) called **Radiofrequency Ablation**.



RADIOFREQUENCY ABLATION

Radiofrequency ablation, or RFA, is a medical procedure in which a small portion of heart tissue that is part of an electrical pathway is destroyed using heat. A specially trained doctor called an electrophysiologist (a specialist in abnormalities of the heart rhythm) inserts catheters (tubes) into blood vessels, usually in both groins and the neck, and threads them under x-ray guidance into the heart.

Once the wires are in the vein, a drug called “heparin” is given to help prevent blood clots from forming on the wires. Heparin is usually given in addition to usual blood thinner and the ability of the blood to clot must be carefully monitored for this procedure. The wires are threaded through the veins into the right side of the heart. Two of the wires are then passed from the right side of the heart across to the left side by making a small hole in the wall between the two upper chambers.



RISKS

The main risks involved in this procedure include:

Bruising or tissue damage to the blood vessels caused by catheter insertion. Bed rest for a few hours following the ablation greatly reduces this risk.

Clots may form at the ablation site within your heart and/or around the catheters. If clots break free they may potentially cause damage to the lungs, or cause a stroke. The anticoagulant, Heparin, given during and after the procedure greatly reduces this risk.

Other risks include damage to heart muscle, rhythm disturbances requiring cardioversion, and infection post-procedure.

Rarely, puncture of internal organs by the needles or catheters used may occur. This may cause leakages requiring immediate air or fluid removal. This would be done by placing a needle to the appropriate site to drain the air or fluid, or it may require a surgical procedure.

Damage to a heart valve caused by the insertion of the catheters is another very rare potential complication. In this event, surgical repair may be necessary.

The likelihood of any of these procedural complications is approximately 3 - 5%.

PROCEDURE

You will be given a sedative before the procedure to help you relax and make you sleepy. The doctor will then numb the site to be used with a local anaesthetic similar to what the dentist uses. You may feel a pressure sensation when the wires are first inserted. Once the wires are in the blood vessels, there is usually no discomfort. If at any time you feel any discomfort, please tell the doctor.

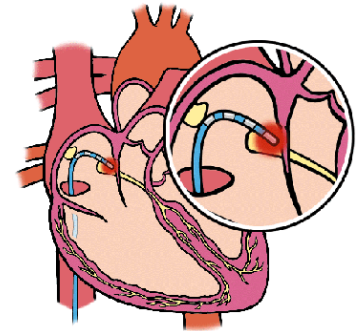
The catheters are removed immediately following the procedure. You will be asked to lie flat for three to four hours after the procedure to prevent bleeding from occurring at the puncture sites. A nurse will be checking the site(s) and your blood pressure and heart rate regularly for the first couple hours. The nurses will remind you not to sit up or bend the leg from which the wires were removed. This is to prevent any bleeding at the site.

There is usually no pain after the study. There may be a small bruise where the wires were put in. If you start having any discomfort or bleeding, be sure to tell the nurses immediately.

WHEN WILL I KNOW THE RESULTS OF THE PROCEDURE?

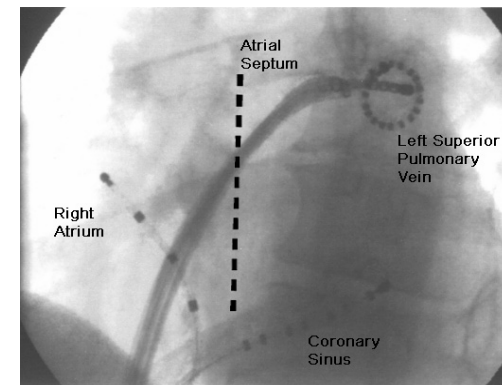
The doctor will usually talk to you about the initial results of the study the next day. He/she will outline what was found out from the study and the proposed course of further follow up. It will be necessary to resume treatment with your antiarrhythmic drugs and coumadin for a few months after the procedure during the healing phase. It is not until after the antiarrhythmic drugs are discontinued and a period of time has passed that the final result will be known. Sometimes it is necessary to have the procedure repeated (approx. 50% of cases) after that.

One catheter is then moved to the area of the heart to be ablated. A mild electrical current produced by high-frequency waves (radiofrequency waves) is passed from the tip of the catheter through to the target site (left atrium at entry site of the pulmonary veins). The energy from this catheter generates an increase in the temperature of the tissue surrounding the catheter and is usually applied for 30-60 seconds to an area about one quarter the size of a pencil eraser. *Heat application* is repeated many times to create overlapping lesions and create a line of electrical block that prevents abnormal impulses entering the atria from the pulmonary veins (and sometimes other veins).



This heat is sufficient to destroy the small but critical amount of heart tissue that subsequently heals into an electrically inert scar and results in little or no discomfort. The procedure is done under local anaesthetic with mild intravenous sedation and can take anywhere from two to six hours. The catheters are removed immediately following the procedure.

POSITION OF WIRES IN THE HEART



PREPARATION

Prior to the procedure an MRI of the heart is done to take pictures of the pulmonary veins structure because each person is unique and the anatomy in this area varies.

In some cases a special ultrasound test of the heart (Transesophageal Echocardiogram, TEE) will be done a few days before or on the day of the procedure. The purpose of the TEE is to check for blood clots in the heart. The doctor and technician doing the TEE will explain it in detail. Briefly, the TEE is a test in which, under sedation, a small probe is passed down inside the throat in order to see the heart from inside the gullet.

You will be admitted to the outpatient area (currently Unit 92) approximately 2 hours before the scheduled time of the procedure.

A blood test to measure the clotting ability of your blood will be done before the procedure. The morning of the test you will be asked to shave the groin area of both legs. An intravenous (IV) will be started. The intravenous allows medications to be given during the test. A drainage tube called a Foley Catheter may be placed in your bladder for the day. The drainage tube eliminates the necessity to sit up to urinate during this time. The tube will be removed as soon as you are mobile. You will not be allowed anything to eat or drink after midnight the day before the procedure.

If you are presently taking any medications ask your doctor if any of these need to be discontinued before the procedure. This is particularly important if you are taking warfarin (coumadin). Usually your last dose of coumadin is taken 2-3 days before the procedure.

Upon arrival to the cath lab you will be asked to move onto the X-ray table. Monitoring leads will be put on your chest for the duration of the study to watch your ECG. The nurses and doctors will be wearing gowns and gloves. The site(s) where the wires are to be inserted are washed with a cool antiseptic solution. Drapes will be used to cover you and keep the site(s) clean.

