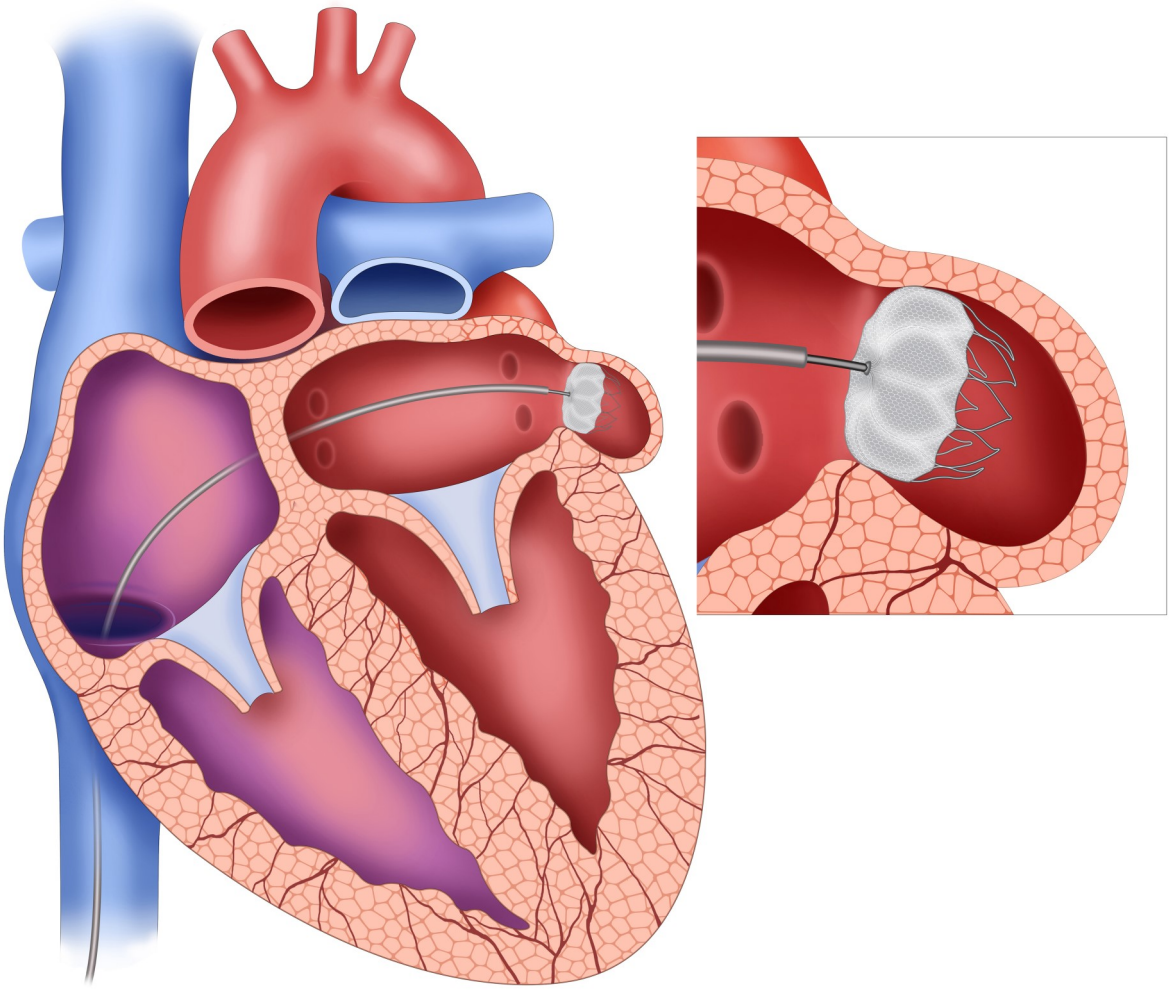

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Left Atrial Appendage (LAA) Closure

Information and Procedure Guide

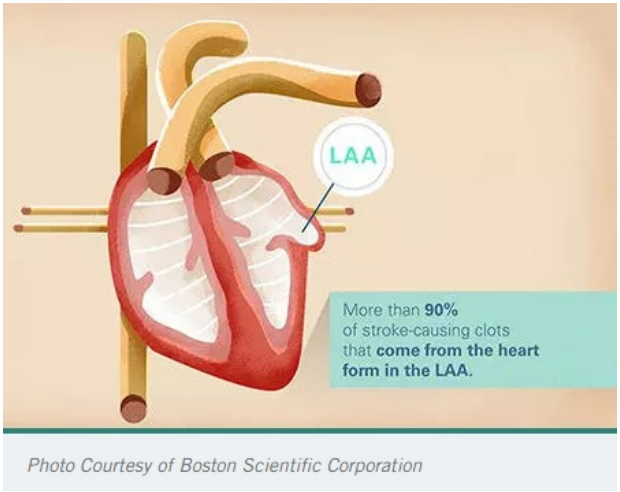
Saskatchewan
Health Authority

CS-PIER-0099-STN
MARCH 2024
Area: Saskatoon

The Heart and the Left Atrial Appendage

The heart has 4 chambers and 4 heart valves. The chambers squeeze and relax. The valves act as one-way gates allowing blood to move forward in one direction between the chambers. The top left chamber of the heart is called the left atrium.

The left atrial appendage (LAA) is a small sac of muscle wall located in your left atrium—the top left chamber of your heart. When the heart contracts with each heart beat, the blood from the left atrium and left atrial appendage is squeezed out of your left atrium into the left ventricle of your heart. From here, it moves through the aorta, giving blood and oxygen to the brain, organs, and all body tissues.



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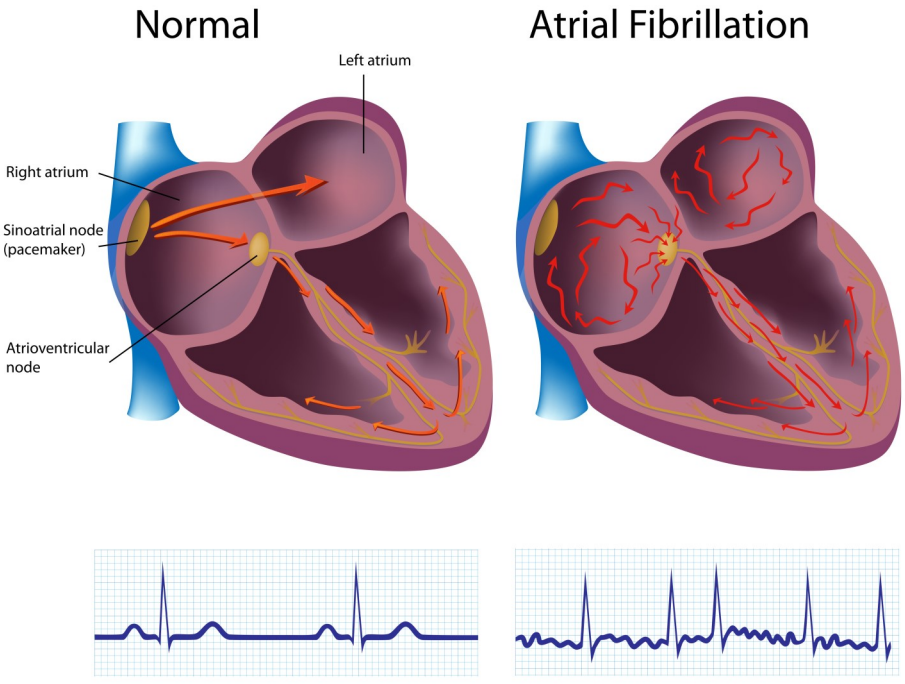
Normal Conduction of the Heart

The heart has an electrical system that controls the way the heart beats. Sinus rhythm is considered a normal heart rhythm. This means electrical impulses are being sent out properly from the heart. In normal sinus rhythm, the electrical impulses are determined by the sinus node. The sinus node (SA Node) creates an electrical pulse that travels through the heart muscle causing it to contract.



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Atrial Fibrillation

Atrial fibrillation, often called afib, is the most common cardiac arrhythmia (irregular heartbeat) affecting 1 to 2% of the general population. This heart rhythm happens when electrical signals start from several scattered areas in the upper chambers of the heart, also known as the atria. These scattered electrical signals cause the atria to beat irregularly and faster. This results in the heart not being able to pump blood properly and significantly increases the risk of having a stroke.

Atrial fibrillation becomes more common as people age and is more likely to occur in people with other conditions, such as high blood pressure, heart failure, diabetes, coronary artery disease and some types of heart valve disease.

Symptoms: Fatigue (tiredness), shortness of breath, chest pain, palpitations (fluttering sensation in chest) and/or dizziness.

Treatment: Includes medication to prevent the heart rate from becoming too fast or irregular, blood thinners, and sometimes special procedures, such as cardioversion and /or ablation, to attempt to put the heart back into the normal rhythm.

Stroke and Atrial Fibrillation

A stroke happens when the blood supply to brain tissue is cut off . There are two types of strokes:

- Ischemic stroke– a clot in a brain blood vessel blocks off blood supply to surrounding brain tissue.
- Hemorrhagic stroke– a sudden rupture of a brain blood vessel reduces blood supply to surrounding brain tissue.

A stroke can happen suddenly causing immediate debilitating effects such as; loss of body function, weakness, changes in vision, difficulty using or understanding speech or even death. Immediate medical treatment is required to minimize complications after a stroke.

The average person with atrial fibrillation is **5 times more likely to suffer a stroke** than someone with a regular heartbeat. When the atria of the heart are not squeezing normally, blood can pool or become more static in these chambers which is the ideal environment for blood clots to form.

When atrial fibrillation is not caused by valve disease, these clots most commonly form in the left atrial appendage (LAA). Most strokes from atrial fibrillation are caused when a clot comes loose from this appendage in the heart. The clot travels through the aortic system and lodges in a small brain artery.

Atrial Fibrillation and Anticoagulants

Current treatment for atrial fibrillation includes medications called anticoagulants, also known as blood thinners. Anticoagulants are effective for preventing strokes in patients with atrial fibrillation by preventing clots from forming in the heart.

A major side effect of anticoagulants is they increase your risk of bleeding. Usually these bleeding events are minor, but sometimes they result in major bleeding that requires hospitalization, blood transfusions and can be life threatening or fatal.

Prior to being prescribed an anticoagulant, your doctor will assess your risk of having a stroke versus your risk of having a major bleeding event. Studies amongst individuals with atrial fibrillation show that the benefit of using anticoagulants for stroke prevention is greater than the risk of bleeding from the medication.

There are some individuals who have a very high risk of bleeding while on anticoagulants or may have suffered a serious bleeding event while on anticoagulants making it unsafe to take them.

Left Atrial Appendage (LAA) Closure

A minimally invasive procedure called a percutaneous left atrial appendage closure may be an option for individuals that cannot safely take anticoagulants. A LAA closure does not eliminate atrial fibrillation, but it does effectively reduce the chance of having a stroke.

The LAA closure device blocks off the opening to your left atrial appendage and acts as a barrier, preventing blood clots from traveling out of the appendage and into the blood stream. The device is placed into your heart through a large vein in your upper leg (groin).

LAA closure procedure is not for everyone and requires an assessment by a cardiologist that specializes in the procedure. A cardiologist sees you in clinic to assess and discuss your risk of bleeding and stroke, and the risks of the procedure. An echocardiogram will be ordered as well as a cardiac CT scan to get a detailed look at your left atrial appendage.

These tests will help your LAA cardiologist decide if percutaneous LAA closure is for you. Your results are then reviewed by the Structural Heart Team. If you are approved for the LAA closure procedure, you will be placed on the waitlist.

LAA Closure Procedure

What to Expect

You are given 1 to 2 weeks notice of your upcoming procedure date. You are mailed instructions about when to stop eating and drinking before the procedure. Generally, no solid food after midnight but you can continue to drink clear fluids like apple juice or water until 2 to 3 hours before your procedure. You are notified if there are any medications you need to stop taking before the procedure. Do not take any medication the morning of your procedure. Bring your medications with you to the hospital and a Registered Nurse on the Cardiac Short Stay Unit (CSSU) assists you in taking your morning medication.

When you arrive at the hospital the morning of your procedure, you are directed to the CSSU. Be sure to bring your provincial health card and all your medications in their original containers. Bring any medical devices you will need (i.e. CPAP, cane, etc.). You will be spending the night in hospital. Do not bring any valuables.

When you arrive to CSSU, the nurses take your vital signs, do an assessment and give you your morning medications from your medication supply. Blood work is done and an intravenous line is inserted.

When it is time for your procedure, you are taken to the cardiac catheterization laboratory. An anesthesiologist gives you medications to help you relax before administering a general anesthetic to put you to sleep. You will not feel any pain during the procedure. A breathing tube is inserted for the procedure and is usually removed immediately after. The procedure takes 1.5 to 2 hours. After the procedure, you are transferred to the Post Anesthesia Care Unit (PACU) until you recover from the general anesthetic. After you have recovered from the general anesthetic, you are transferred back to Cardiac Short Stay (CSSU).

LAA Closure Device partially in sheath

LAA Closure Device fully expanded.

After the Procedure

You are monitored closely for 4 to 6 hours on bedrest. When your bedrest is over, a registered nurse helps you sit at the edge of the bed. You are encouraged to start mobilizing slowly with the assistance of the nurses, and then by yourself. Most patients can walk short distances (i.e. to the washroom and back) that same night.

The next morning, a chest x-ray and transthoracic echocardiogram (ECHO) are done to reassess the function and position of your new LAA closure device. Registered nurses and your doctor review your lab work, ECG, chest x-ray, ECHO, and examine your groin incisions to make sure there are no concerns.

Going Home

Most patients go home the day after the procedure. You are able to resume gentle activities, like walking, before you go home. Gently increase your activity over the next 1 to 2 weeks. It is important not to push, pull, or lift anything over 5 kilograms (10 pounds) for the first 7 days to let the small incisions in your groin heal. However, exercise is important to help you recover and get back to your normal routine. Try to walk 20 to 30 minutes every day after you have healed.

You are told what medications to continue after the procedure. Generally, patients go home on all their previous medications, with the addition of low dose acetylsalicylic acid (ASA) (example: EC ASA 81mg; Aspirin®) and a medication called clopidogrel (Plavix®) for 3 to 6 months. ASA and clopidogrel are medications to help prevent blood clots from forming on the device while it is healing. Patients are seen in 9 to 12 weeks and again 1 year after their procedure. Another ECHO is done at that time and medications are reviewed.

Endocarditis can happen when bacteria (germs) gets into your blood, travels to you heart and causes an infection. To prevent or lower you risk of endocarditis, you will need to take antibiotics 30 minutes prior to any dental work that results in gum manipulation and bleeding such as routine cleanings, root canals, etc. for 6 months post ASD closure procedure. Your family doctor or dentist can prescribe this antibiotic when needed.

After Procedural Care

Personal Care:

- Remove the bandage on your groin 24 hours after your procedure. You may leave the site uncovered or apply a new bandage for comfort.
- Do not soak in a bathtub, hot tub or swim for 7 days following the procedure.
- You may shower as usual 24 hours after the procedure. Cleanse the site gently with mild soap and water. Do not scrub. Pat dry. Keeping the site dry will improve healing.
- It is normal to have a small lump, bruise, or tenderness at the puncture site. Sometimes the bruise will get bigger before it starts to go away. Bruising, lumps and tenderness should gradually improve over the next 2 to 4 weeks

Notify your healthcare provider if you notice any of the following:

- Redness, swelling, drainage (pus) or warmth at the incision site.
- Increased in pain around the puncture site.
- The lump at your puncture/incision site is growing in size, is firm, or is pulsating under your skin.
- You develop a chill and have a fever of greater than 38.5°C.

Go to Emergency Department or call 911 if you have:

- Persistent or significant bleeding from puncture site.
- Severe pain, numbness, loss of colour, and/or significant swelling in limb of puncture site.
- Chest pain or sudden shortness of breath.
- Symptoms of a Stroke:
    - One sided arm or leg weakness or facial drooping.
    - Slurred speech, difficulty speaking or understanding speech.
    - Changes in vision in one or both eyes.

If your puncture/incision site begins to bleed follow these steps:

- Lie down on a firm surface.
- Apply pressure yourself, or have someone help you. Press firmly with 2 to 3 fingers above the bleeding site for 15 minutes straight.
- If it continues to bleed, **call 911** or have someone drive you to the closest **Emergency Department**. Do not drive yourself.

After Procedural Care—Continued

Physical Activity

- You can go back to your normal activities gradually over 1 to 2 weeks. Try to do a bit more each day.
- Avoid strenuous activities like jogging, running, or lifting anything greater than 5 kilograms (10 pounds) for the next 7 days.

Driving and Travelling

- You are not be allowed to drive for 48 hours after your procedure.
- If you are driving a long distance, stop, get out of the car and walk around every 1 to 2 hours .
- If you drive a commercial vehicle, speak to your doctor about driving.
- If you are travelling by airplane, most people are able to fly on the second day after the procedure.
- If you are travelling out of the county, speak to your doctor. You may not be covered by travel insurance immediately after the procedure. Contact your insurance company for their policy.

Returning to work

- If you do office work where you are sitting most of the time, you can return to work 48 to 72 hours (2 to 3 days) after your procedure.
- If your work involves heavy lifting (more than 5 kilograms or 10 pounds), you can return to work after 7 days.
- If you have concerns about going back to work, speak to your family doctor.

LAA Closure Device Implant Card

After your procedure you will receive your temporary procedure card . A permanent card will be sent to you in the next several months. This card holds information about your device and should be shared with your healthcare providers including your dentist. It is important to share that you had a procedure before any invasive medical or dental procedures, including magnetic resonance imaging (MRIs).

Appointments after LAA Closure

You need follow-up bloodwork done 1 week after your procedure. You are provided with a lab requisition upon discharge from hospital.

See your **family doctor or nurse practitioner** 10 to 14 days after your procedure. You, or your family ,need to make this appointment.

Follow up clinic appointments with your **Structural Heart Doctor** are 9 to 12 weeks and 1 year after the procedure. An echocardiogram is scheduled about 9 to 12 weeks and 1 year after the procedure. You are notified of these appointments by mail or phone call.

NOTES:

Royal University Hospital

STRUCTURAL HEART PROGRAM

Saskatoon:

Phone: 306-655-1901

Email: SASKTAVIPROGRAM@SASKATOONHEALTHREGION.CA

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Healthy People, Healthy Saskatchewan

The Saskatchewan Health Authority works in the spirit of truth and reconciliation, acknowledging Saskatchewan as the traditional territory of First Nations and Métis People.

PIER—Patient Information and Education Resource

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