

Atrial Septal Defect (ASD) Closure

The Heart

An ASD closure is done to seal off or close an opening between the upper right and left chambers of the heart. To understand the procedure, it is helpful to know how the heart works.

An ASD is an abnormal opening between the upper left and right chambers of the heart.

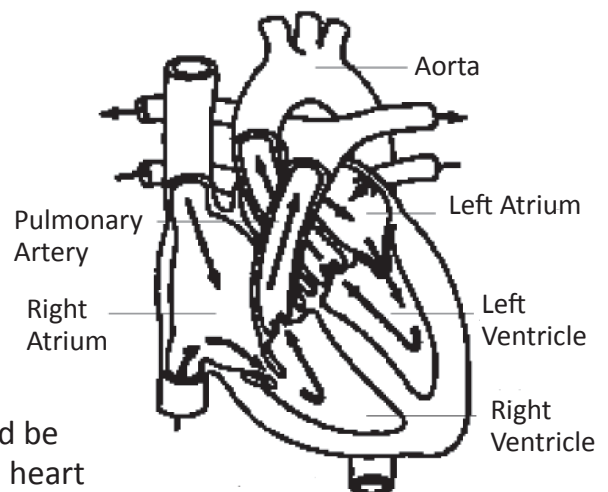
The heart is about the size of a closed fist. It delivers blood to the lungs and to all body tissues. The heart has 4 chambers. The right atrium receives blood from the body and pumps it to the right ventricle. The right ventricle then pumps blood to the lungs, where it picks up oxygen. The left atrium receives oxygen-rich blood from the lungs and sends it to the left ventricle. From there, it pumps blood to the body (see Figure 1).

About the Procedure

An ASD is an abnormal opening between the upper left and right chambers (atria) of the heart. This opening allows blood to leak between the 2 atria. An ASD is present at birth, but may not be found until later in life.

In the past, an ASD could be closed only during open heart surgery. An ASD closure done in the Cardiac Catheterization Laboratory (Cath Lab) offers a less invasive option.

Figure 1



During this procedure, a thin catheter (tube) is threaded to the heart from the blood vessels in the groin area.

The catheter, guided by X-ray, allows a special device to be put in place to close the ASD. The procedure lasts about 1 to 2 hours. An overnight hospital stay may be needed.

Before the Procedure

At Home

The Cardiac Cath Lab nurse will contact you several days before the exam. The nurse will answer your questions and review pre-cath guidelines. Please tell the nurse about any allergies or if you have ever had an unusual reaction to iodine or a test using contrast media (dye).

Stop taking Coumadin® at least 3 days before the procedure. If you are not taking aspirin, you will be asked to start taking a soluble aspirin, 325 mg daily, before the procedure.

If you are a diabetic taking metformin (Glucophage®, Glucophage XR®, Glucovance®), talk with the doctor who manages your diabetes. The contrast given during the procedure may affect the way metformin works. You may not take metformin for at least 48 hours after the procedure. Contact your doctor to develop a short-term plan for controlling your blood sugar (diet, other medicines or checking blood sugar levels).

The night before the procedure, do not eat or drink anything after midnight.

Day of the Procedure

On the day of the procedure, take only the medicine the nurse has instructed you to take. Medicine should be taken with small sips of water. Do not take metformin (Glucophage®, Glucophage XR®, Glucovance®) on the morning of your procedure.

Check in at the Cardiac Cath Laboratory reception desk, Galter Pavilion, 675 North Saint Clair Street, 8th floor, between 6:00 a.m. and 6:30 a.m. unless told otherwise.

Parking is available for patients and visitors in the garage at 222 E. Huron, across from the Feinberg and Galter pavilions. For discounted rates, please bring your parking ticket with you. Tickets can be validated at the Customer Services Desks on the 1st, 2nd, and 8th floors of the Feinberg and Galter pavilions; 1st floor of Prentice (including the Prentice 24-hour desk near the Superior entrance).

On the day of the test, be sure to bring:

- Your doctor's written order for the test.
- A list of allergies.
- A list of all your current medications (prescription, over-the-counter, and herbals).
- Photo ID.
- Medical insurance information.
- Medicare card (Medicare patients only).

Plan to have a responsible adult available to take you home.

For their own safety, children under the age of 16 may not visit in the testing area. They may stay in the Waiting Room with a responsible adult.

You will be assigned a room for both your pre- and post-procedure care. After you change into a hospital gown, the nurse reviews your health history and takes your blood pressure and pulse. Blood tests, including a blood creatinine test, are done as needed. An IV (into the vein) line is inserted into your arm or hand. The IV is used for fluids and needed medicine during the exam. Your groin area is cleaned and shaved. The femoral vein in the groin is used for the procedure.

The doctor will discuss the procedure with you. After the doctor has answered your questions, you will be asked to give your written consent.

You may wear your watch, glasses, dentures (or bridgework), jewelry and hairpieces. You are asked to empty your bladder just before going into the Cardiac Cath Lab.

During the Procedure

Once in the Cardiac Cath Lab, you will be assisted onto a firm, X-ray table. The room has a camera and several TV monitors. Medicine to relax you is given into the IV line. You may feel drowsy, but usually you will be awake and comfortable during the procedure.

The area around the puncture site is cleaned with a special soap that may feel cold. An anesthetic (numbing medicine) is injected into the area. A needle is inserted into the femoral vein. This is not usually painful. You may feel pressure and mild discomfort at the puncture site. If needed, more numbing medicine is given.

A catheter (with a tiny ultrasound at the tip) will be inserted through the femoral vein. A device delivery catheter also will be inserted through the femoral vein. Using X-ray and IV contrast (dye), the catheters will be guided to the heart.

A properly sized closure device is selected. It is placed on a special delivery catheter and advanced across the ASD. Ultrasound images guide the exact placement and size of the device. Once the position is confirmed, the device is released and implanted in your heart.

After the Procedure

You will be on bedrest for at least 4 to 8 hours to allow the vein to seal. It is important to keep the affected leg(s) straight at all times. The nurses will be in often to check your:

- Blood pressure.
- Heart rate.
- Groin site(s) for bleeding or swelling.

Once bedrest is over, the nurses will assist you to sit up and walk. You may be able to leave the hospital at the end of the day or possibly the following morning. A chest X-ray and/or an echocardiogram may be done prior to leaving the hospital (discharge).

Discharge Instructions

At home, follow these guidelines to assist your recovery.

Medicines and Device ID

After your procedure, you will need to take:

- Aspirin 325 mg (soluble) once a day for 6 months.
- Plavix® 75 mg once a day for 3 months.

Both are “blood thinners” (anticoagulants) to help prevent blood clots. Your cardiologist will decide if any anticoagulants are needed beyond 6 months.

A closure device ID card will be mailed to your home after your procedure. Carry it with you at all times. It is important that all health care providers are aware of this device.

For 6 months after an ASD closure, you will need to take antibiotics before medical or dental procedures. This helps prevent the risk of infection to the device. Always inform your other health care providers that you have this device before having medical or dental procedures.

Diabetics

If you are taking metformin, the nurse will give you an order for a blood creatinine test. This blood test should be done at least 48 hours after your procedure. Do not take metformin until the doctor or cath lab nurse tells you to resume. Most patients may begin metformin 48 hours after this procedure. Follow your doctor’s advice about caring for your diabetes (diet, other medicines and monitoring your blood sugar levels). Contact the doctor who manages your diabetes if there are any changes in your diabetes control.

Activity

While the wound is healing, bleeding or swelling can occur as a result of stress or strain to the groin and abdominal muscles. Carefully follow these guidelines:

- On the day of discharge, limit your activities.
- Do not drive for 24 hours.
- You may shower after 24 hours, but do not take baths for 1 week.
- Climb stairs (as needed) with a slow, steady pace until 2 days after the procedure.

You may resume your usual activities the day after discharge, including normal social activities, except:

- No lifting of objects greater than 10 lbs. for the next 3 days.
- No strenuous physical exercise for 1 week (i.e., tennis, running, swimming, golfing, weightlifting or bicycling).
- No sexual activity for 1 week.
- No contact sports for 4 weeks.

Wound Care

After the procedure, a small dressing is applied to the wound site. You may remove the dressing the day after the procedure. Do not reapply a new dressing or Band-Aid®. Avoid lotions, ointments or powders at the wound site for 1 week.

Wound Healing

The healing wound should remain soft and dry. A bruise (black and blue) or a marble-size lump may be present. Please notify your doctor or the Cardiac Cath Laboratory doctor if any of the following signs appear:

- Redness around the skin wound.
- Drainage from the wound.
- A lump at the puncture site that enlarges or is larger than marble size.
- Pain at the puncture site that makes walking difficult.
- Numbness or tingling in the thigh or leg.
- Calf tenderness or pain.
- Swelling of the ankle or foot.
- Increased area of the bruising with discoloration extending into the thigh, over the buttock or into the groin.
- Discoloration or coolness of the leg or foot.

Oozing/Bleeding

If you notice bleeding from the puncture wound, please do the following:

- Immediately lie flat.
- Apply firm pressure just above the puncture site and hold firm pressure for 15 minutes. You may use a clean cloth or tissue to apply pressure. If possible, have another person apply the pressure.
- After 15 minutes, remove pressure. The wound should be dry and flat, without bleeding. You should continue to lie flat for about 1 hour before getting up and walking. Cover the wound with a Band-Aid®.
- Notify your doctor.

If bleeding persists for more than 15 minutes or swelling occurs and appears to be increasing, you should be taken to the nearest emergency room for evaluation of the groin site.

Notify the doctor right away if you have any chest pain or shortness of breath.

If a problem occurs or if you have any questions, do not hesitate to call the Cardiac Cath Lab at 312-926-5135.

Follow-up Care

You should arrange for follow-up appointments as instructed by your cardiologist. You will need to have a chest X-ray and an outpatient transthoracic echocardiogram (TTE) tests 1 week, 1 month, 6 months, and 1 year after an ASD closure. Please talk with your doctor to schedule these exams.

Health Information Resources

For more information, visit Northwestern Memorial Hospital's Alberto Culver Health Learning Center. This state-of-the-art health library is located on the 3rd floor of the Galter Pavilion. Health information professionals are available to help you find the information you need and provide you with personalized support at no charge. You may contact the Health Learning Center by calling 312-926-LINK (5465) or by sending an e-mail to hlc@nmh.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 312-944-2358 and/or the Northwestern Medical Group Patient Representatives Department at 312-926-1920, TDD/TTY 312-695-3661.

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For additional information about Northwestern Memorial Hospital, please visit our website at www.nmh.org.
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