

Interventional Radiology: Inferior Vena Cava (IVC) Filter Placement or Removal

How to prepare and what to expect

This handout explains what an inferior vena cava filter is and what to expect when you have one placed or removed.

What is an IVC filter?

The *inferior vena cava* (IVC) is a large vein in the middle of the abdomen. The IVC returns blood from your lower body to your heart.

IVC filters are like a basket or umbrella made of many wires. The filter can be inserted into the IVC through a small hole in a vein in the neck or the groin.

The procedures to place or remove the filter can be done while you are an *outpatient*. This means you will not need to stay overnight in the hospital.



An IVC filter

Why do I need an IVC filter?

An IVC filter traps blood clots that break loose from veins in your leg or pelvis. It prevents a large blood clot from reaching your lungs. A blood clot in the lung (a *pulmonary embolism*) can be life-threatening.

You are at greater risk of having a pulmonary embolism if you:

- Already have blood clots in the veins in your legs or pelvis.
- Recently had a pulmonary embolism.
- Have a health issue that makes you more likely to get blood clots in your leg veins. These issues include a family history of clotting, a recent surgery, having leg vein clots before, or needing to be in bed for long periods and cannot exercise.

Usually, people with these health issues are treated with a blood-thinning medicine. This medicine is given either *intravenously* (directly into

a tube in your vein), as an injection under the skin, or as a pill. Some blood thinners that are often used are heparin, Lovenox, Coumadin (warfarin), and Xarelto (rivaroxaban).

Your doctor may have advised an IVC filter for you for one of these reasons:

- They believe that blood-thinning medicines will not be safe for you, or will not work.
- You have tried blood-thinning medicines and they do not prevent more clots from forming.
- You had a major problem while taking a blood-thinning medicine.
- You are preparing for a procedure and need to stop taking blood thinners for days or weeks.

Your doctor will talk with you about the specific reasons an IVC filter may be a good option for you. Be sure to ask any questions that you have. You may want to know why an IVC filter might work for you, or how the procedure is done.

Is the filter safe?

The procedure to place an IVC filter is very safe. The most common problem is minor bleeding where the device is inserted.

It is very rare to have major problems after the filter is placed. These problems occur less than 1% of the time (for fewer than 1 person in 100). These problems can occur if the filter:

- **Fills with blood clots.** Most people do not have any symptoms if the filter becomes filled with clots. But, some people have leg swelling and discomfort that can become serious.
- **Moves (*migrates*) or breaks.** If the filter moves a little, it is usually not a problem. **Very rarely**, the filter *migrates* (moves) or pieces break off and move to a place where it could cause problems, such as the heart.

Your doctor will talk with you about these risks. Please make sure to talk about all of your questions and concerns with your doctor.

Can the filter be removed if I no longer need it?

Most times, the IVC filter can be removed if this is done within several months after it is placed. Removal can be done about 80% of the time (for 80 out of 100 people) if the filter is not left in place for too long.

Before the filter is removed, you may need to start taking blood thinners to prevent pulmonary embolism. It is very important to take these medicines exactly as prescribed. Some people do not need to take these medicines.

Removing the filter is usually simple and can be done as an outpatient procedure. But the longer the filter stays in place, the harder it can be to remove.

The most common reasons that the filter cannot be removed are:

- It gets stuck to the wall of the IVC.
- It becomes filled with large blood clots.
- You are not getting the right dose of blood thinner.

If the filter cannot be removed, it will stay in your body for the rest of your life. This rarely causes any problems.

Before Your Procedure

Arrival Time

If you are an *outpatient* (not already staying in the hospital), a nurse will call you the afternoon before your procedure. If your procedure is on a Monday, the nurse will call you the Friday before. The nurse will:

- Tell you when to arrive at the hospital
- Remind you what to do on the morning of your procedure
- Answer any questions you have

Interpreter Services

If you do not understand English well enough to understand these instructions or the details of the procedure, tell us **right away**. We will arrange for a hospital interpreter to help you. This service is free. **A family member or friend may not interpret for you.**

Allergies

If you have had an allergy or bad reaction to *contrast* (X-ray dye) in the past, please call our nurse coordinator (see numbers on the last page). You may need medicine for this allergy before the procedure.

Medicine to Protect Your Kidneys

If we need to give you contrast for the procedure and your kidneys are not working normally, we may prescribe a medicine for you to take before and after your procedure. This medicine will help protect your kidneys.

Blood Test

You most likely will need a blood test done within the 14 days before your procedure. Sometimes, we do this when you arrive for your procedure. We will tell you if we need to draw blood before that day.

Blood-thinning Medicines

Do **not** stop taking any prescribed blood-thinning medicines, including Coumadin (warfarin), Lovenox (enoxaparin), Fragmin (dalteparin), or Plavix (clopidogrel). We will do a blood test on the day of the procedure to make sure your blood is not too thin to safely insert the IVC filter.

Diabetes Medicines

If you have diabetes and take insulin or metformin (Glucophage), we will give you instructions about holding or adjusting your dose for the day of your procedure.

Sedation

Before your procedure, you will be given a *sedative* (medicine to make you relax) through an *intravenous line* (IV) in one of your arm veins. You will stay awake, but feel sleepy. This is called *moderate sedation*. You will still feel sleepy for a while after the procedure.

For some people, using moderate sedation is not safe. If this is true for you, you will need general *anesthesia* (medicine to make you sleep during the procedure).

Let us know **right away** if you:

- Have needed anesthesia for basic procedures in the past
- Have *sleep apnea* or chronic breathing problems (you might use a CPAP or BiPAP device while sleeping)
- Use high doses of opioid pain medicine
- Have severe heart, lung, or kidney disease
- Cannot lie flat for about 1 hour because of back or breathing problems
- Have a hard time lying still during medical procedures
- Weigh more than 300 pounds (136 kilograms)

If you have any of these health issues, we may need to give you different medicines. Instead of a sedative, you might receive:

- Only a local anesthetic (numbing medicine), such as lidocaine.
- A *local anesthetic* and a single pain or anxiety medicine. This is called *minimal sedation*.
- *General anesthesia* (medicine to make you sleep). This medicine is given by an anesthesia provider.

Day Before Your Procedure

- Drink lots of fluids the day before your procedure. You may eat as usual.
- If you are an *outpatient* (not staying in the hospital):
 - Plan for a responsible adult to drive you home after your procedure. **You may NOT drive yourself home or take a bus, taxi, or shuttle by yourself.** You may take a bus, taxi, or shuttle **if** you have a responsible adult to ride with you.
IMPORTANT: Your procedure will be rescheduled if you do not have a responsible adult to drive you home or ride with you on a bus, taxi, or shuttle.
 - Plan for a responsible adult to stay with you overnight.

Procedure Day

At Home

- Take your usual medicines on the day of the procedure, unless the doctor or a nurse tells you to hold them.
- Do **not** take vitamins or other supplements. They can upset an empty stomach.
- Starting **6 hours** before your procedure, **stop eating solid foods.** You may have only *clear liquids* (liquid you can see through), such as water, broth, cranberry juice, or weak tea.
- Starting **2 hours** before your procedure, take **nothing** at all by mouth.
- If you must take medicines, take them with **only** a sip of water.
- Bring with you a list of all the medicines you take.
- Plan to spend most of the day in the hospital.

At the Hospital

- You may have been told to go to Outpatient Lab for a blood draw. Do this before you check in. The lab is on the 3rd floor of the hospital, next to Outpatient Pharmacy, near the Cascade elevators.
- Unless you are told otherwise, check in at Admitting on the 2nd floor, next to Radiology. Take the Pacific Elevator to the 2nd floor. Admitting is on the right side of Radiology Department.
- After checking in, you will be told to go to the Radiology Reception Desk.
- If there is a delay in starting your procedure, it is usually because we need to treat other people with unexpected and urgent problems. Thank you for your patience if this occurs.

- When we are ready to start your procedure, a staff member will:
 - Take you to a pre-procedure area
 - Give you a hospital gown to put on
 - Give you a bag for your belongings
- While you are in the pre-procedure area:
 - Your family or a friend can be with you.
 - A nurse will ask you some health questions, take your vital signs (such as heart rate), place an *intravenous* (IV) tube in your arm, and go over what to expect.
 - If you are scheduled to have general anesthesia, the anesthesia care provider will meet you and go over your health history.
 - A radiologist or physician assistant will talk with you about the risk and benefits of the procedure. They will ask you to sign a consent form, if you have not already signed one.
 - You will be able to ask any questions you have.
 - The nurse will take you to the procedure room. This nurse will give you medicine to make you sleep.
- The nurse will take you to the Radiology suite. This nurse will be with you for the entire procedure.

What happens during the procedure?

- If you need an interpreter, they will be in the room or will be able to talk with you and hear you through an intercom.
- You will lie flat on your back on an X-ray table.
- We will place wires on your body to help us monitor your heart rate.
- You will have a cuff around your arm. It will inflate from time to time to check your blood pressure.
- Prongs in your nose will give you oxygen. A probe on one of your fingers will show us how well you are breathing the oxygen.
- For your safety, the entire medical team will ask you to confirm your name, go over your allergies, and explain what we plan to do. We do this for every procedure and every patient.
- A radiology technologist will use a special soap to clean your skin around the puncture site. The technologist may need to shave some hair in the area where the doctor will be working.
- Tell the technologist if you have any allergies.

- The doctor will inject local anesthetic at the base of your neck or near your groin. You will feel a sting for about 10 to 15 seconds. After that, the area will be numb and you should feel pressure, but no sharp pain. Please tell us right away if you can feel pain. We can give you more anesthetic, if needed.
- A *catheter* (small plastic tube) will be inserted into your vein.
- Contrast is then injected into your vein. You **may** feel a warm or hot flush spread over your body when the contrast goes in.
- X-rays are taken of your abdomen while the contrast moves through your vein. These will show your doctor where to safely place the filter.
- A special catheter with the filter inside will then be used to place the filter. After this is done, the catheter will be removed. Pressure will be applied at the site for about 5 to 10 minutes.
- The placement procedure takes about 45 minutes.

Removing the IVC Filter

If you are having your IVC filter removed:

- A “snare” device is used to hook the top of the filter.
- A special catheter slides over the filter to close it.
- The filter is then removed from the vein.
- The removal procedure takes about 45 to 60 minutes.

What happens after the procedure?

- You will be watched for a short time in the Radiology department or recovery room if you have had general anesthesia.
- You will then be moved to a room on a short-stay unit in the hospital.
- Once you are settled in to your room:
 - Your family member or friend will be able to be with you.
 - For 2 to 4 hours, you will need to rest on a stretcher with your head elevated 30° to 45°.
 - You will be able to eat and drink.
- Before you get up to walk, we will assess you to make sure you can walk safely. A nurse or patient care technician (PCT) will help you get out of bed. Most times, we will place a gait belt around your waist for extra safety.
- You will be able to go home when:
 - You are fully awake
 - You can eat, drink, and use the restroom

- Your nausea and pain are under control
- Your vital signs are stable
- You can walk normally
- You have a responsible driver to take you home
- You have a responsible person to stay with you at home overnight

Self-care

For 24 Hours

The medicine that you were given to make you sleepy will stay in your body for several hours. It could affect your judgment. You may also be lightheaded or feel dizzy.

Because of this, for 24 hours:

- Do **not** drive a car.
- Do **not** use machinery or power tools.
- Do **not** drink alcohol.
- Do **not** take medicines such as tranquilizers or sleeping pills, unless your doctor prescribed them.
- Do **not** make important decisions or sign legal documents.
- Do **not** be responsible for children, pets, or an adult who needs care.

To help your recovery:

- Do only light activities and get plenty of rest.
- Keep the groin puncture site covered with the dressing for 24 hours. Make sure it stays clean and dry.
- Someone should stay with you overnight.
- Eat as usual.
- Drink lots of fluids.
- Resume taking your medicines as soon as you start to eat. Take **only** the medicines that your doctors prescribed or approved.

For 48 to 72 Hours

- Do **not** lift anything that weighs more than 5 to 10 pounds (a gallon of milk weighs almost 9 pounds).
- Keep your head above your heart.
- For 24 to 48 hours, avoid bending over at the waist.

Dressing Care

- After 24 hours, you may remove the bandage and shower.
- You may place a Band-Aid over the puncture site for a few days.

When to Call

Call one of the numbers listed below under “Who to Call” if you have any of these symptoms:

- Increased or severe bleeding.
- Dressing that is filled with blood
- Signs of infection at the puncture site: redness, warmth, tenderness, and discharge that smells bad
- Fever higher than 101°F (38.3°C)
- Chills
- New shortness of breath
- New chest pain
- Dizziness
- Vomiting

Urgent Care

Call 911 and go to the nearest emergency room if you have any of these symptoms:

- Chest pain
- Trouble breathing
- Slurred speech
- Balance problems or trouble using your arms or legs

Who to Call

- Weekdays from 8 a.m. to 4:30 p.m., call the Interventional Radiology Nurse Coordinator at 206.598.6209.
- After hours and on weekends or holidays, call 206.598.6190 and ask to page the Interventional Radiology Fellow on call.

Questions?

Your questions are important. Call your doctor or healthcare provider if you have questions or concerns.

UWMC Imaging Services:
206.598.6200