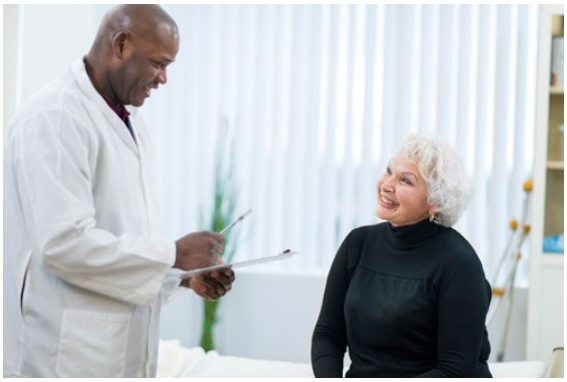
Varicose Vein Treatment (Endovenous Ablation of Varicose Veins)



Endovenous ablation uses energy to cauterize (burn) and close varicose veins. Doctors use it to help ease symptoms such as pain, swelling, and irritation. Ablation is safe, less invasive than surgery, and leaves virtually no scars.

Tell your doctor about any recent illnesses, medical conditions, and allergies. List the medications you take, including herbal supplements and aspirin. Your doctor may tell you to stop taking aspirin, nonsteroidal anti-inflammatory drugs (NSAIDs), or blood thinners before your procedure. Leave jewelry at home and wear loose, comfortable clothing. You may need to wear a gown. Plan to have someone drive you home afterward.

What is Varicose Vein Treatment (Endovenous Ablation of Varicose Veins)?

Varicose veins are abnormally large veins often seen in the legs. Normally, blood travels from the heart to the legs by arteries and back to the heart through veins. Veins have one-way valves that allow blood to return from the legs against gravity. If the valves leak, blood pools in the veins, and they can become enlarged or varicose (http://www.radiologyinfo.org) .

Endovenous ablation is an image-guided, minimally invasive (http://www.radiologyinfo.org) treatment. It uses radiofrequency or laser energy to cauterize (http://www.radiologyinfo.org) (burn) and close the abnormal veins that lead to varicose veins.

What are some common uses of the procedure?

Doctors may use this procedure for cosmetic purposes. However, it is more often used to help ease symptoms such as:

- aching or throbbing pain
- leg heaviness/fatigue
- swelling
- skin irritation or sores (ulcers (http://www.radiologyinfo.org))
- skin discoloration
- painful swelling of the veins (phlebitis (http://www.radiologyinfo.org))

How should I prepare?

Tell your doctor about all the medications you take, including herbal supplements. List any allergies, especially to local anesthetic (http://www.radiologyinfo.org) , general anesthesia (http://www.radiologyinfo.org) , or contrast materials (http://www.radiologyinfo.org) . Your doctor may tell you to stop taking aspirin, nonsteroidal anti-inflammatory drugs (NSAIDs (http://www.radiologyinfo.org)) or blood thinners before your procedure.

Wear comfortable, loose clothing. You will need to remove all clothing and jewelry in the area under examination.

Plan to have someone drive you home after your procedure.

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You may need to change into a gown for the procedure.

What does the equipment look like?

This procedure uses an ultrasound (http://www.radiologyinfo.org) machine, catheter (http://www.radiologyinfo.org) , radiofrequency electrode or laser fiber (http://www.radiologyinfo.org) , and console.

Ultrasound machines consist of a computer console, video monitor and an attached transducer (http://www.radiologyinfo.org) . The transducer is a small hand-held device that resembles a microphone. Some exams may use different transducers (with different capabilities) during a single exam. The transducer sends out inaudible, high-frequency sound waves into the body and listens for the returning echoes. The same principles apply to sonar used by boats and submarines.

The technologist applies a small amount of gel to the area under examination and places the transducer there. The gel allows sound waves to travel back and forth between the transducer and the area under examination. The ultrasound image is immediately visible on a video monitor. The computer creates the image based on the loudness (amplitude), pitch (frequency), and time it takes for the ultrasound signal to return to the transducer. It also considers what type of body structure and/or tissue the sound is traveling through.

A catheter is a long, thin plastic tube that is considerably smaller than a "pencil lead." It is about 1/8 inch in diameter.

Laser fibers and radiofrequency electrodes are long thin wires that carry energy from power generators into the body.

How does the procedure work?

The doctor uses ultrasound to visualize the vein. A fiber or electrode is moved to the desired location within the vein through a small incision. Local anesthesia is injected into the tissues around the vein to collapse the vein around the fiber or electrode and act as insulation for the energy's heat. The energy heats the vessel and causes it to close. Following the procedure, the faulty vein will shrink and "scar down."

How is the procedure performed?

A specially trained interventional radiologist (http://www.radiologyinfo.org) performs image-guided, minimally invasive procedures such as ablation.

This procedure is often done on an outpatient basis. However, some patients may require admission following the procedure. Ask your doctor if you will need to be admitted.

Your radiologist may first apply a numbing cream to the area over the abnormal vein to reduce discomfort..

The doctor will clean, sterilize and cover the area with a surgical drape.

Your doctor will numb the area where the catheter enters the abnormal vein with a local anesthetic (http://www.radiologyinfo.org) . The doctor will use the ultrasound transducer to study the vein and track its path.

The doctor will make a very small skin incision at the site.

Using ultrasound guidance, the doctor inserts a catheter through the skin and positions it within the abnormal vein. The fiber or electrode is inserted through the catheter. The fiber or electrode tip is exposed by pulling the catheter back slightly.

Local anesthetic is injected around the abnormal vein with ultrasound guidance. Energy heats the vein as the catheter is slowly withdrawn.

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The doctor applies pressure to prevent any bleeding and covers the opening in the skin with a bandage. No sutures are necessary.

This procedure is usually complete within an hour.

What will I experience during the procedure?

You will need to wear protective glasses whenever lasers are in use.

The doctor will clean and numb the treatment area.

You will feel slight pinpricks as the local anesthetic is injected at the vein access site and along the length of the vein.

This area will become numb within a short time.

You may feel slight pressure when the doctor inserts the catheter (http://www.radiologyinfo.org) , but no serious discomfort.

Injection of local anesthetic around the vein is the most uncomfortable part of the procedure because it usually requires multiple injections along the vein. Actual closure of the vein with heat is usually not painful. Occasionally, some people report a smell or taste of something burning during the vein closure.

After treatment, you will need to wear a gradient compression stocking. This will help reduce bruising, tenderness, and minimize the rare possibility that blood clots may form.

You may resume your normal activity immediately, with the exception of air travel or prolonged sitting (such as a long car trip). Stay active and do not spend too much time in bed during the recovery period. Being idle may increase the chance of complications. However, you should avoid strenuous physical activity for some time following the procedure.

Who interprets the results and how do I get them?

A follow up ultrasound exam is necessary to assess the treated vein and to check for adverse outcomes. Within one week, the target vein should be successfully closed. Additional procedures (such as sclerotherapy (https://www.radiologyinfo.org/en/info/sclerotherapy) or phlebectomy (https://www.radiologyinfo.org/en/info/phlebectomy)) may be necessary to treat associated veins.

What are the benefits vs. risks?

Benefits

- No surgical incision is necessary—only a small nick in the skin that does not need stitches.
- When compared with traditional vein stripping (http://www.radiologyinfo.org) techniques, ablation is more effective, has fewer complications, and is associated with much less pain during recovery.
- Ablation is generally safe and free of complications.
- This procedure leaves virtually no scars because catheter placement requires very small skin openings, not large incisions.
- Ablation is less invasive than standard surgery.
- Most of the veins treated are effectively invisible even by ultrasound 12 months after the procedure.
- Most patients report symptom relief and are able to return to normal daily activities immediately, with little or no pain.

Risks

- Any procedure that penetrates the skin carries a risk of infection. The chance of infection requiring antibiotic treatment appears to be less than one in 1,000.

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- Any procedure that places a catheter inside a blood vessel carries certain risks. These risks include damage to the blood vessel, bruising or bleeding at the puncture site, and infection. The doctor will take precautions to mitigate these risks.
- Some post-procedure bruising and tenderness may occur. Wearing a compression stocking may ease these side effects.
- There are some reports of thermal (heat) damage to nerves. This is rare and generally goes away in a short time.
- Thrombophlebitis (http://www.radiologyinfo.org) (swelling of the vein) is not uncommon and may cause pain and redness over the treated area. It generally responds well to nonsteroidial anti-inflammatory drugs (NSAIDs) as well as ice over the area.
- Blood clots that formed in the veins can travel to the lungs (pulmonary embolism (http://www.radiologyinfo.org)); however, this is an extremely rare occurrence.

What are the limitations of Endovenous Ablation of Varicose Veins?

Ablation catheters cannot easily pass through a vessel with many turns and bends. As a result, doctors typically use ablation to treat superficial veins that lead to varicose veins. These may include the great saphenous vein (http://www.radiologyinfo.org) , which extends from the groin and inside of the thigh to the ankle. Doctors also commonly use ablation for other superficial veins, such as the small saphenous and accessory saphenous veins.

Ablation is successful at closing the abnormal target vein almost 100 percent of the time, but small, dilated branches that persist in the skin often require additional treatment. These treatments may include phlebectomy or sclerotherapy. Your doctor will usually schedule subsequent treatments after an ablation procedure, but phlebectomy can also be performed at the same time as endovenous ablation when appropriate.

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