



What is superficial venous reflux?

Superficial venous reflux is a condition that develops when the valves that usually keep blood flowing out of your legs become damaged or diseased. This causes blood to pool in your legs. Common symptoms of superficial venous reflux include pain, swelling, leg heaviness and fatigue, as well as varicose veins in your legs.

What is the Closure[®] procedure?

The Closure procedure is a minimally invasive treatment for superficial venous reflux. A thin catheter is inserted into the vein through a small opening. The catheter delivers radiofrequency (RF) energy to the vein wall, causing it to heat, collapse, and seal shut.

How does the Closure procedure work to treat superficial venous reflux?

Since valves can't be repaired, the only alternative is to re-route blood flow through healthy veins. Traditionally, this has been done by surgically removing (stripping) the troublesome vein from your leg. The Closure procedure provides a less invasive alternative to vein stripping by simply closing the problem vein instead. Once the diseased vein is closed, other healthy veins take over and empty blood from your legs.

How long does the Closure procedure take?

The Closure[®] procedure takes approximately 2 minutes, though patients normally spend 60-90 minutes at the medical facility due to normal pre- and post-treatment procedures.

Is the Closure procedure painful?

Patients report feeling little, if any, pain during the Closure[®] procedure. We use a local or regional anesthetic to numb the treatment area.

Why do you treat only one zone at a time?

There are two important reasons. First, we are limited to an anesthetic dose of 7mg/Kg of body weight. In general it would require too much anesthesia if we were to attempt to treat more than one region. Second, there are concerns with maintaining surgical sterility if sterile equipment is transferred to a second zone as this would require changing position and re-prepping the second treatment area. If more than one vein requires treatment in the zone this will be addressed at the same visit. For example we may treat two or three veins in the same thigh at one visit.

Will the procedure require any anesthesia?

The Closure[®] procedure can be performed under local, regional, or general anesthesia.

How quickly after treatment can I return to normal activities?

Many patients can resume normal activities immediately. For a few weeks following the treatment, we recommend a regular walking regimen and suggest you refrain from very strenuous activities (for example, heavy lifting) or prolonged periods of standing.

How soon after treatment will my symptoms improve?

Most patients report a noticeable improvement in their symptoms within 1-2 weeks following the procedure.

How soon after treatment will my veins look better?

Closure is not performed for cosmetic reasons. However, bulging veins may fade or protrude less after the pressure is reduced by closing off the damaged source vein. Maximal cosmetic improvements take at least 6 weeks to appear. If veins are still problematic cosmetically, we can perform cosmetic Sclerotherapy to help clear them. We ask that patients wait at least six weeks before deciding to have cosmetic Sclerotherapy as this may not be necessary. Cosmetic Sclerotherapy is not covered by insurance.

Are there any potential risks and complications associated with the Closure[®] procedure?

As with any medical intervention, potential risks and complications exist with the Closure procedure. All patients should consult their doctors to determine if their conditions present any special risks. Your physician will review potential complications of the Closure procedure at the consultation, and can be reviewed in the safety summary. Potential complications can include: vessel perforation, thrombosis, pulmonary embolism, phlebitis, hematoma, infection, paresthesia (numbness or tingling) and/or skin burn.



Is there any scarring, bruising, or swelling after the Closure® procedure?

Patients report minimal to no scarring, bruising, or swelling following the Closure® procedure.

How is the Closure® procedure different from vein stripping?

During a stripping procedure, the surgeon makes an incision in your groin and ties off the vein, after which a stripper tool is threaded through the saphenous vein and used to pull the vein out of your leg through a second incision just above your calf.

In the Closure procedure, there is no need for open surgery. Instead, the vein remains in place and is closed using a special (Closure) catheter inserted through an I.V. This may eliminate the bruising and pain often associated with vein stripping (i.e., that may result from the tearing of side branch veins while the saphenous vein is pulled out). Vein stripping is usually performed in an operating room, under a general anesthetic, while the Closure procedure is performed on an outpatient basis, typically using local or regional anesthesia. Three randomized trials of the Closure® procedure vs. vein stripping, including the most recent multi-center comparative trial, show very similar results. In the multi-center comparative trial, the Closure procedure was superior to vein stripping in every statistically significant outcome. In the study, 80.5% of patients treated with the Closure procedure returned to normal activities within one day, versus 46.9% of patients who underwent vein stripping. Also, Closure patients returned to work 7.7 days sooner than surgical patients. Patients treated with the Closure procedure had less postoperative pain, less bruising, faster recovery and fewer overall adverse events.

Is the Closure® procedure suitable for everyone?

At your screening consultation we will tell you if the Closure® procedure is a viable option for your vein problem. 80-90% of patients with varicose veins have venous insufficiency based upon ultrasound.

What is Sclerotherapy?

This treatment involves the injection of a medication into the spider veins that acts to scar the vessel closed. This has the effect of making the malfunctioning veins disappear. The blood then re-routes into healthier vessels to restore the correct flow pattern.

How many treatments will I need?

Each patient is different and their response to treatment can vary based on a number of factors; therefore it is hard to provide a general estimate the number of treatments. Your Sclerotherapist will work with you to develop a treatment plan that works to achieve you desired results.

Is Sclerotherapy painful?

Most patients find Sclerotherapy to be quite tolerable. The needles that are used are relatively small and techniques are used to minimize discomfort during treatment. Some patients may feel a slight sting upon injection which dissipates in a few seconds.

Is Sclerotherapy covered by insurance?

Typically, Sclerotherapy is considered a cosmetic treatment and is not covered by insurance.

Do I have to wear stockings after treatment?

Yes, compression stockings should be worn during the day up to 1 week after treatment in order to promote the closing of the injected veins and minimize side effects.

Are there any activity restrictions after a Sclerotherapy treatment?

Walking is highly recommended after Sclerotherapy treatment. Heavy lifting, high impact exercise and core training should be avoided for 48 hours after treatment as to avoid unwanted pressure on the lower extremities.

Can I fly after treatment?

Flying and long car travel (over 2 hours) should be avoided for 72 hours after treatment. Compression Stockings should be always be worn when flying or long distance driving



If you have been diagnosed with symptomatic venous reflux disease, and if you meet medical eligibility criteria for treatment, we can schedule you for the Closure Procedure. If you suffer from reflux in several anatomic zones, we typically will schedule each zone on a separate day, for example left thigh, and then left calf. We do this for both anesthetic limitations and for sterility purposes.

The day of treatment: We ask you to maintain your normal routine. You may eat a light meal prior. It is important to be in a normal state of hydration, i.e., do not be dehydrated. The Closure Procedure takes approximately 15-20 minutes, though patients normally spend 60-90 minutes in our facility due to normal pre- and post-treatment procedures.

Feel free to bring a favorite DVD (In Columbia), Music or iPod to enjoy during treatment.

Follow up: You will have a follow-up ultrasound within the week following the procedure. Plan to be in the office for approximately 30 minutes. We will remove the bandage at that time. You will have another ultrasound at six weeks post treatment. If desired you may see a Sclerotherapist for a consultation at the six week ultrasound appointment, if you are interested in cosmetic Sclerotherapy. We ask that you wait at least six weeks before starting a course of Sclerotherapy as veins that are visible immediately after Closure may fade with time.

Is there discomfort? Patients report feeling little, if any pain during the Closure Procedure. We use a local anesthetic to numb the treatment area. We make sure our patients feel comfortable and relaxed throughout the entire experience. It is normal to have some achiness or some bruising after treatment. It is also normal to have no symptoms immediately after treatment and then notice some inflammatory symptoms as above a week or a month from treatment. Do not hesitate to contact one of our on call physicians for any questions in this regard.

Insurance coverage: The Closure Procedure is usually covered 80-100% by most insurance. Most insurance companies determine coverage for all treatments, including the Closure Procedure, based on medical necessity. Most insurance companies require a period of conservative treatment attempts, including a history of compression stocking use. Be sure not to omit this information on your medical history form. We will provide all these documents and obtain authorization prior to treatment, if necessary. While our preauthorization staff will assist in checking your insurance benefit, it is the responsibility of the patient to determine their personal benefit information. Plan deductibles and coinsurance are not covered by the physician. Once authorization has been obtained by the physician's office, the patient is then required to determine any out-of-pocket costs by calling their benefits department located on the back of the insurance card.

Will my legs look better after Closure? The Closure Procedure addresses the underlying medical cause of your varicose veins. While many people do notice visual improvements after treatment, be advised that Closure is not done for cosmetic benefit. You may need or desire adjunctive treatments to Closure to clear varicosities and spider veins that still may be visible after Closure. At MVP we can treat these veins with Sclerotherapy. If you are interested in Sclerotherapy we can schedule a consultation with one of our Sclerotherapists at 6 weeks from Closure. Note that adjunctive treatments which are considered cosmetic are not covered by medical insurance. The Closure Procedure is not a panacea and while dramatic cosmetic improvements can and do occur with Closure, individual results vary. If there are specific questions regarding cosmetic expectations please discuss these with Dr. Calure.

Driving: We recommend having someone drive you home the day of the procedure due to expected numbness in the treated leg. Safety is our priority and we will help arrange transportation if needed.

Do's and don'ts after the Procedure: Do return to your normal activities following the procedure. We encourage aerobic exercise such as walking, treadmill with low resistance and low incline, stationary bike, or elliptical with low resistance. Limit lifting to less than 10-15 lbs. Refrain from any strenuous activities such as resistance weight training and high impact aerobic activity such as



running for thirty days following treatment. Avoid prolonged periods (more than 90 minutes continuously) of standing or sitting. You may shower the morning following treatment, but avoid swimming or baths for 3 days following treatment.

Medications: Tylenol or Acetaminophen may be used per label instructions for any discomfort following the treatment. We ask that you refrain from anti-inflammatory medications such as Ibuprofen (a.k.a. Motrin or Advil) and aspirin for 2 days prior and for 10 days following the treatment. Please direct any other questions about medications to your doctor. Be sure to discuss blood thinner medication such as Coumadin or Plavix with your surgeon. If you have an artificial joint or other hardware in your body be sure to discuss this with your surgeon.

Important Information about your Compression Stockings

Following the Closure procedure we will fit you in Venous Compression Stockings (20-30 mmHg compression). We ask that you wear stockings for a minimum of 14 days following Closure. Your physician may request a longer period depending on the severity of your existing vein disease. These are premium quality, surgical grade compression stockings and can be purchased in our office on the day of the procedure. The cost is \$89.00 if you purchase them here. (This is a substantial discount from pharmacies and medical supply merchants.) The stockings are closed toed and waist high. Your physician may request that you wear the stockings both day and night for the first three days following treatment. If you notice significant discomfort or numbness in the feet or toes take the stockings off and notify our office immediately. We highly recommend that you wear your support stockings for any air travel or prolonged sitting car or train trips for 6 months following treatment.

Care of the Stockings

Hand or machine-wash with warm water and mild soap or detergent. No chlorine bleach. Warm water rinse. Hang or lay flat to air-dry. You may dry in a dryer with air but no heat, or delicate setting. We suggest that you place your stockings in a mesh laundry bag in order to help protect them during the wash cycle.

Helpful Hints

- Skin should be dry
- Applying a thin layer of cornstarch or powder will help the stockings slide over your skin
- Remove rings and jewelry that can damage your garment
- Wear rubber or vinyl gloves to prevent fingernails from damaging the fabric
- The gloves also help provide grip to distribute the fabric more easily
- Avoid rolling, gathering or bunching the fabric, as this will only increase the pressure- similar to creating a super rubber band-like effect.
- Apply moisturizer to your legs or arm in the evening rather than just before putting on your stocking

After Hour Questions: You may speak with physician after normal business by dialing one of our numbers, 410-964-VEIN (8346), 301-654-VEIN, or toll free at 877-7-MDVEIN, and press 0 (zero) to be connected to a physician.