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Vein Center

# Vein Disorders and Treatment Options



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# 01

## Vein disorders and treatment options

This guide will explain some of the common vein disorders and treatments for each. Please read the section related to your condition. This information will answer many of your questions. Write down any other questions you may have. Then, plan to discuss them with your medical physician.

### Vein disorders include:

- › Varicose veins
- › Spider veins
- › Venous insufficiency
- › Pelvic venous disease

### Treatments include:

- › Endovenous laser ablation (EVLA)
- › Sclerotherapy
- › Vein ligation and stripping
- › Microphlebectomy
- › Embolization
- › VenaSeal™



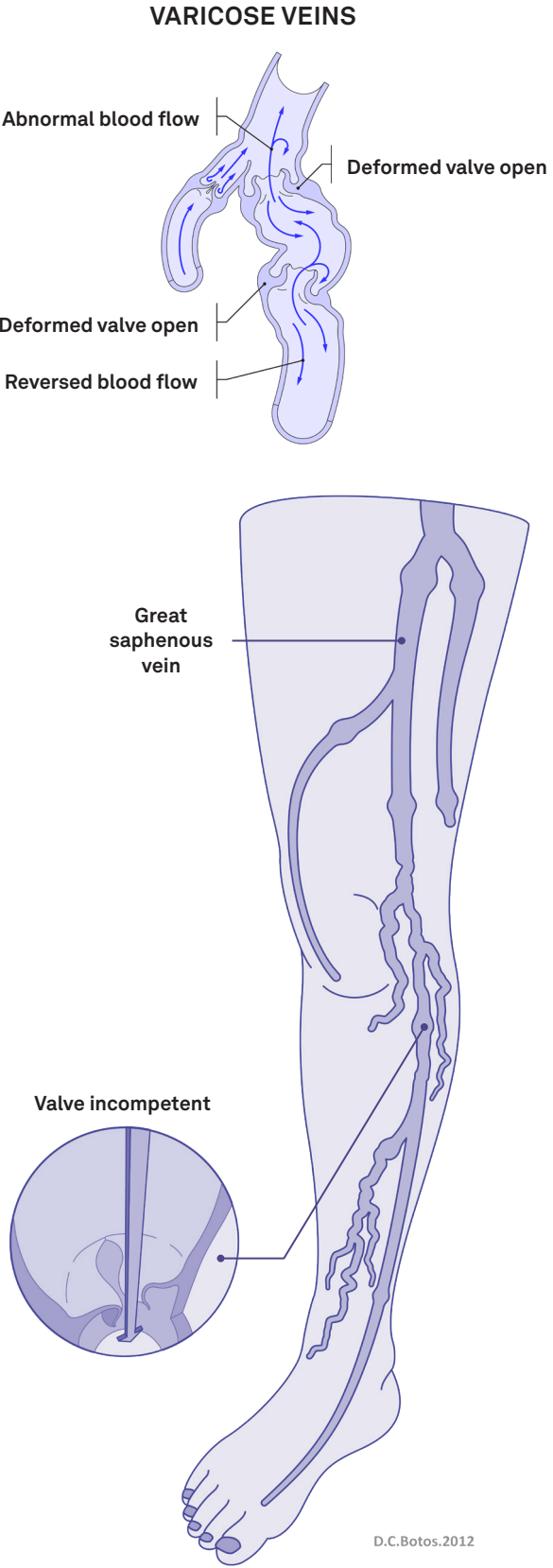
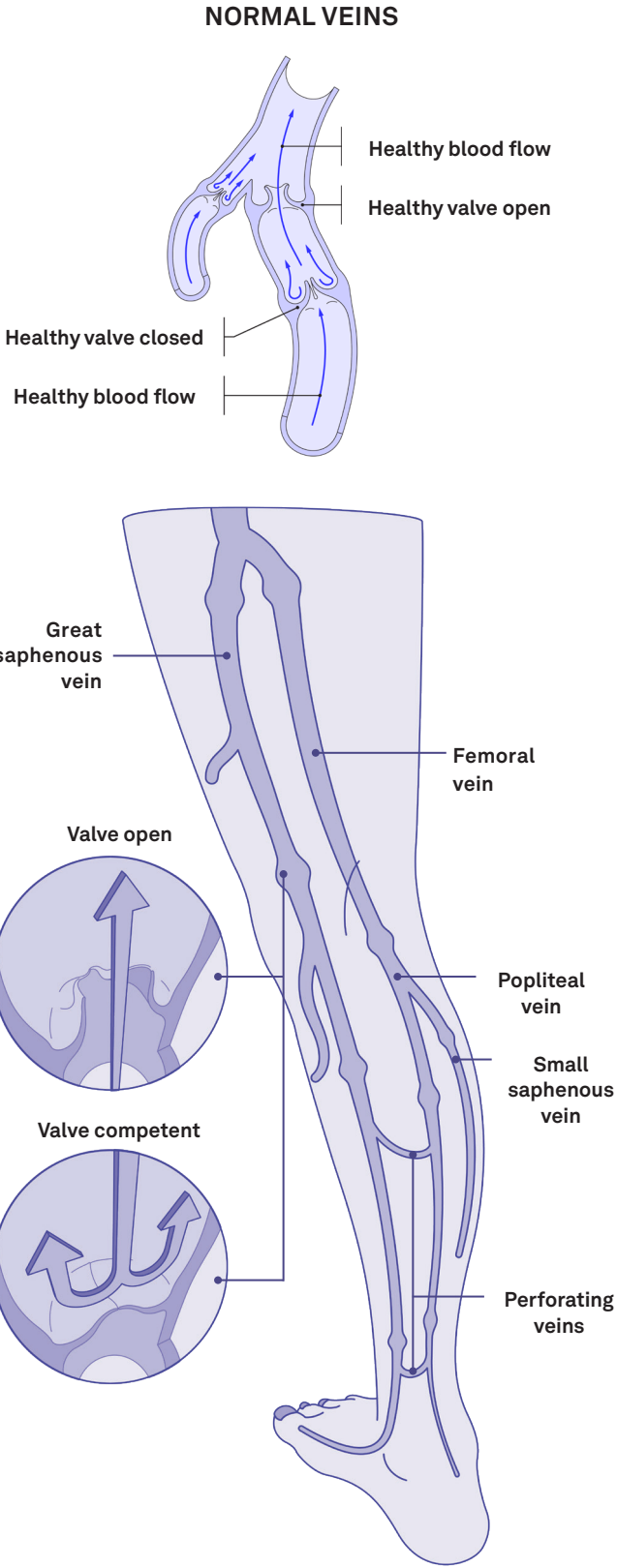
# 02

## Blood flow in leg veins

To understand vein problems, it helps to know about blood flow. The blood flow in your legs consists of a network of blood vessels. Blood vessels are tube-like channels running throughout the body. They include arteries and veins. Arteries bring oxygen-rich blood to all parts of the body. Veins carry oxygen-poor blood back to the heart.

### The veins in the legs include:

- › **Deep veins.** These lie deep in the muscles of the legs and return most of the blood back to the heart.
- › **Superficial veins.** These lie close to the surface of the skin. They carry a smaller portion of blood back to the heart.
- › **Perforating veins.** These connect the deep and the superficial veins.





# Endovenous laser ablation

Your physician may recommend endovenous laser ablation (EVLA) therapy. EVLA treats a condition called venous insufficiency. This usually affects the saphenous vein, one of the larger superficial veins in your legs. This may also affect the branches of this vein.

In those with venous insufficiency, the veins allow blood to reflux (or go the wrong way) down towards the feet instead of up towards the heart. This causes blood to pool in the legs. This can lead to pain, swelling or heaviness, as well as varicose veins.

EVLA is a procedure to help fix this problem. During EVLA, the surgeon makes only a tiny nick in the skin to close the damaged vein. The vein is still intact. After a short recovery period, most people find their symptoms have improved.

Patients see the greatest benefits 6 to 8 weeks after EVLA. Occasionally, other treatments may be necessary for cosmetic reasons or if smaller veins still cause symptoms. Such treatments may include microphlebectomy or sclerotherapy. Additional treatments are covered later in this booklet.

## Risks

**Phlebitis:** The treated veins can become painful or tender if blood collects inside. This may cause skin redness. A physician can remove the blood with a needle to speed healing, but treatment may require several visits.

**Incomplete closure:** To help the veins heal and close properly, it is important to wear compression stockings as prescribed. Be sure to follow all post-procedure activity restrictions. Still, sometimes the veins may not close completely. If this happens, more treatments may be necessary. This may incur an extra expense to you and/or your insurance company.

**Residual veins:** The goal of EVLA is to relieve your symptoms (leg swelling, pain, heaviness, sores). However, some veins may still be visible after EVLA. Cosmetic surgery can treat these veins, if you choose to do so. Your insurance may not cover the cost.

**Blood clots:** There is a slight risk of developing deep vein thrombosis (DVT). DVT is a blood clot in the deep veins of your leg. Although unlikely, you would need to treat this medically.

**Infection:** Infection is unlikely, but may occur at the incision site and would require treatment.

**Nerve problems:** Nerves may sometimes become irritated during EVLA. This may cause a brief twinge of pain or tingling. Sometimes it may last for several weeks or months. Though rare, there is a risk for permanent sensory (touch) or motor (movement) nerve damage.

**Allergic reactions:** Please let us know of any allergies you have. Though unlikely, an allergic reaction is possible. This may be a skin irritation from tape or skin cleanser. Or, you may have a general reaction to the medications or chemicals used. Tell a member of your care team if you have any trouble breathing, talking or swallowing or throat tightness while you are at the Vein Center.

**No relief of symptoms:** There are many causes of leg pain, swelling and skin changes. Therefore, there is no guarantee that EVLA will completely fix your symptoms.

## Insurance coverage

Most insurance companies will cover the cost to treat varicose veins and venous insufficiency if they cause problems. However, they may not cover cosmetic repairs. We will send documentation to them before treatment to see if they cover EVLA. Once we have verified coverage as non-cosmetic, we can schedule your procedure.

Insurance may only cover a percentage of such treatments. **Please check with your carrier to find out what you will have to pay.** Although we interact with your carrier, we cannot guarantee your coverage. You remain responsible for costs not covered by your insurance.

# Pre-procedure preparation

Please follow these instructions to be ready for your procedure:

- › Fill any medication prescriptions your care team gave you. This includes those you need to take both before and after EVLA.
- › Be sure to get your compression stockings as prescribed.
  - You can buy these in the Vein Center or at a medical supply store. Please plan ahead and get your stockings well ahead of your procedure. Often, they will need to order the correct size for you.
  - Try your stockings on as soon as you receive them to be sure they fit. They will be very snug. They should come to the very top of your leg (near your groin).

- › To reduce bruising, do not take vitamin E, aspirin, ibuprofen or other nonsteroidal anti-inflammatory drugs (NSAIDs)\* for 5 days before your EVLA. If a member of your care team prescribed these medications, contact them for permission to stop taking them.
- › If you are taking prescription blood-thinning medications, your care team may tell you to stop them 5 to 7 days before the procedure.

\* NSAIDs are over-the-counter pain medications. They include Motrin®, Aleve® and others. Check with your physician or pharmacist if unsure.

# The day of your procedure

- › Do not shave your legs or apply creams, oils or lotions to your legs.
- › You may eat, drink and take your routine medications before your procedure (except for those stated above). Drink plenty of fluids so you will be well hydrated. However, avoid caffeine.
- › Be sure to bring your compression stockings with you.
- › Please arrange for a responsible adult to take you home after the procedure. This is because the medications you get can affect your judgment or make you sleepy.

After you arrive at the Vein Center, you will have a chance to ask questions. Then you will need to sign a consent form.

## What to expect during the procedure

During the procedure, you will lie on a special table. A member of your care team will wash your leg with a cleansing solution and wrap it in sterile towels. The physician will numb your skin with a local anesthetic, then make a small (2 to 4 millimeter) incision in the skin. They will use an ultrasound machine to guide a very small catheter into the affected vein through this incision. Most people will not feel this.

The physician passes a laser fiber into the catheter until it reaches the desired place in the vein. At this time, your physician will numb the area around the entire length of the vein. They then activate and pull back the laser. This ablates, or treats, the vein through which the laser passes. Occasionally, a person may feel a short pinch or twinge of pain when the physician activates the laser, but most feel nothing. Be sure to let your nurse and physician know if you are uncomfortable or in pain during the procedure.

When finished, they will clean your leg again. Then they cover the incision and injection sites with dressings. Your compression stockings will be reapplied. You will now be able to walk out of the procedure room and go home. While each procedure is a little different, most take about 1 to 2 hours (including preparation and clean-up time).





# Post-procedure care

In general, it is important to keep fairly active as you recover.

For the first 24 to 48 hours:

- › Rest and relax, but do not stay in bed all the time.
- › You may wish to keep your legs elevated when sitting. This can help lessen swelling and discomfort.

## Compression stockings

Keep these on continuously for 24 hours after EVLA. Then remove them to shower. After you have dried your leg completely, put the compression stockings back on.

**Week 1:** Wear the stockings continuously, even when asleep. Remove them only to shower.

**Week 2:** Wear the stockings all day and evening. Remove them only to sleep at night and to shower.

**Week 3:** Wear the stockings all day. Remove them in the evening if you will be inactive. If you will be active in the evening, keep them on until bedtime.

**REMEMBER:** You cannot wear the stockings too much. Wearing them too little may affect healing.

## Bathing

You may shower after 24 hours. Do not take tub baths, swim or soak in water for 2 weeks. This is to prevent infection.

## Dressing care

Leave all dressings on for 24 hours after EVLA. Then remove bulky white dressings to shower. You will not need any new dressings.

In some cases, Steri-Strips™ can secure the wound. Steri-Strips are thin white or brown strips that your care team places on the skin under the bulky white dressings. If you have Steri-Strips, **do not** pull them off. Leave them on until they fall off in 7 to 10 days.

## Activity

Carry on with your daily activities, with a few exceptions:

- › No heavy lifting (greater than 10 to 15 pounds) for 2 weeks. Keep in mind that items like grocery bags, trash, laundry baskewts and children can weigh more than this.
- › No air travel or long-distance car travel for 2 weeks. If you must travel during this time, please discuss first with the physician who performed your EVLA.
- › Walking is highly encouraged, but avoid other forms of exercise (like core exercises) for at least 2 weeks.
- › If you exercise regularly, please ask the physician who performed your EVLA when you can resume these activities.

# Follow-up

Please be sure to return for your follow-up appointment 1 week after your procedure. You will then have an ultrasound test. Contact the Vein Center sooner if you have problems or concerns.

Your follow-up visit is important, even if you are feeling great, and especially if you are not. Though it is uncommon, some patients will still have pain. We can usually resolve this problem.

## What to expect during recovery

Most people have an easy recovery with only mild pain. However, the following may occur:

**Bruising.** Bruising is very common in the treated leg. It may be mild, moderate or extensive. It will usually last for 1 to 2 weeks, but may be seen for months.

**Color changes.** You may see brown stains from bruising. Iron in the blood left after bruising causes these stains. Stains are usually light in color and often go away in a few months. Occasionally, darker stains may last for several months to a couple of years. In rare cases, these brown stains never completely fade.

**Scars.** You may see scars at the incision sites. Though rare, these scars may appear lighter or darker than the surrounding skin when completely healed.

**Drainage.** You may see clear to pink or red liquid oozing from the injection sites. This is some of the numbing medication your physician used. It should stop oozing in about a day.

**Discomfort.** About a week after the EVLA, you may feel tightness or stiffness along the treated vein. This feeling is often called a “pulling” sensation. You may feel a “cord” (like a pencil) under the skin as well. It can feel tender and even look red. This is normal, as it is the treated vein. This tightness and pain usually peak at about 7 to 10 days after the EVLA and then improve. You can:

- › Apply warm compresses to the area twice a day
- › Elevate the leg when sitting
- › Take Tylenol® (acetaminophen) in addition to other pain medication your physician prescribed. However, do not take more than 4,000 milligrams (mg) of Tylenol in 24 hours. This is especially important if your other pain medications contain Tylenol or acetaminophen.

**Phlebitis.** Painful varicose sections may persist, especially if they were large and twisty before treatment. These veins may now feel tender and warm, and appear red. This is known as phlebitis and is treated using the same measures mentioned above (leg elevation, Tylenol and warm compresses).

## When to call the physician

The following may be signs of infection or other serious problems. Call the Vein Center if you have:

- › Temperature more than 100 degrees F or chills
- › Nausea or vomiting
- › Leg swelling or trouble walking
- › Pus draining from incision sites on the leg
- › Redness extending beyond the incision sites on the leg

**If you have any questions or concerns, call the Vein Center.**

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312.695.8346, 8 am to 5 pm  
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## Microphlebectomy

Microphlebectomy is a procedure to remove varicose veins from the legs. Varicose veins are thick, bulging, ropey veins. They often throb or ache, especially when standing for long periods.

People with varicose veins may also have venous insufficiency. Those with venous insufficiency have veins that allow blood to reflux (or go the wrong way) down towards the feet instead of up towards the heart. This causes blood to pool in the legs. Smaller vessels enlarge, causing varicose veins.

Vein stripping or ablation (see EVLA, page 6) may treat this. However, varicose veins sometimes do not go away. Microphlebectomy can be a safe and effective way to remove these remaining veins.



Risks

**Phlebitis:** The treated vein(s) can become painful and/or tender if blood collects inside. This may cause skin to redden. Your physician can remove the blood with a needle to speed healing, but this may require several visits.

**Residual veins:** The goal is to relieve your symptoms (leg swelling, pain, heaviness, sores). However, there may still be some veins you can see after this procedure. Cosmetic surgery can treat these, if you choose to do so. Your insurance may not cover the cost.

**Blood clots:** There is a slight risk of developing a deep vein thrombosis (DVT). DVT is a blood clot in the deep veins of your leg. Although unlikely, you would need to treat this medically.

**Infection:** Infection is unlikely, but may occur at the incision site(s). You would need to treat an infection medically.

**Nerve problems:** Nerves may sometimes become irritated. This may cause a brief twinge of pain or tingling. Sometimes it may last for several weeks or months. Though rare, there is a risk for permanent sensory (touch) or motor (movement) nerve damage.

**Allergic reactions:** Please let us know of any allergies you have. Though unlikely, it is possible to have an allergic reaction. This may be a skin irritation from tape or skin cleanser. Or, you may have a general reaction to the medications or chemicals used. **Notify a member of your care team if you have any trouble breathing, talking or swallowing or throat tightness while you are at the Vein Center.**

**No relief of symptoms:** There are many causes of leg pain, swelling and skin changes. Therefore, there is no guarantee that this will completely fix your symptoms.

Insurance coverage

Most insurance companies will cover the cost to treat varicose veins and venous insufficiency if they cause problems. However, they may not cover cosmetic repairs. It is possible your insurance company considers this a cosmetic procedure. Therefore, we will send documentation to them before treatment to see if they will cover it. Once we have verified coverage as non-cosmetic, we can schedule your procedure.

Insurance may only cover a percentage of such treatments. **Please check with your carrier to find out what you will have to pay.** Although we interact with your carrier, we cannot guarantee your coverage. You remain responsible for costs not covered by your insurance.

Pre-procedure preparations

Please follow these instructions to be ready for your procedure:

- › Be sure to get your compression stockings as prescribed.
- You can buy these in the Vein Center or at a medical supply store. Please plan ahead and get your stockings well ahead of your procedure. Often, they will need to order the correct size for you.
- Try your stockings on as soon as you receive them to be sure they fit. They will be very snug. They should come to the very top of your leg (near your groin).

- To reduce bruising, do not take vitamin E, aspirin, ibuprofen or other nonsteroidal anti-inflammatory drugs (NSAIDs)\* for 5 days before your EVLA. If a member of your care team prescribed these medications, contact them for permission to stop taking them.
- › If you are taking prescription blood-thinning medications, your care team may tell you to stop them 5 to 7 days before the procedure.

\* NSAIDs are over-the-counter pain medications. They include Motrin®, Aleve® and others. Check with your physician or pharmacist if unsure.

The day of your procedure

- › Do not shave your legs or apply creams, oils or lotions to your legs.
- › You may eat, drink and take your routine medications before your procedure (except for those stated above). Drink plenty of fluids so you will be well hydrated. However, **avoid caffeine.**
- › Be sure to bring your compression stockings with you.
- › Please arrange for a responsible adult to take you home after the procedure. This is because the medications you get can affect your judgment or make you sleepy.

After you arrive at the Vein Center, you will have a chance to ask questions. Then you will need to sign a consent form.

Procedure time varies, but on average it takes about 1 hour.

What to expect during the procedure

First, your physician will mark the skin over the varicose veins while you are standing. Standing makes the veins more visible. Then you will lie down and your leg will be washed with a cleansing solution. Your physician will completely numb the areas around the veins and make several very small nicks (usually 2 to 4 millimeters) in your skin. Your physician will remove the damaged vein sections through these nicks. You may feel some pressure at this time, but you should not be in pain. If you do feel uncomfortable during the procedure, tell your nurse or physician.

When finished, the surgeon or a nurse will clean your skin again. In some cases, the surgeon may use stitches to close the incisions. A member of your care team will apply dressings. We will help you put your compression stockings on.

# Post-procedure care

In general, it is important to keep fairly active as you recover. However, for the first 24 hours:

- › Rest and relax, but do not stay in bed all the time.
- › You may wish to keep your legs elevated when sitting. This can help lessen swelling and discomfort.

## Compression stockings

Keep these on continuously for 24 hours. Then remove them to shower. After you have dried your leg completely, put the compression stockings back on.

**Week 1:** Wear the stockings **continuously**, even when asleep. Remove them only to shower.

**Weeks 2 and 3:** Wear the stockings all day and evening. Remove them only to sleep at night and to shower.

## Dressing care

Keep the dressings on for 24 hours after your procedure. You may then remove them to shower. You won't need any new dressings.

In some cases, your care team will use Steri-Strips to secure the wound. Steri-Strips are thin white or brown strips that they will place on the skin under the bulky white dressings. If you have Steri-Strips, do not pull them off. Leave them on until they fall off in 7 to 10 days.

## Bathing

You may shower after 24 hours. Do not take tub baths, swim or soak in water for at least 2 weeks after your procedure, or longer if the incisions have not yet completely healed.

## Activity

- › Walking is highly encouraged.
- › Avoid other forms of exercise (like core exercises) for at least 1 week.
- › Do not lift anything heavier than 10 to 15 pounds for 1 week following your procedure.
- › Ask your physician when you may safely resume exercises.

# Follow-up

A member of your care team will make your follow-up visit and ultrasound appointment when they schedule your procedure. This appointment is needed to check the condition of your veins and to remove any stitches, if present.

## What to expect during recovery

You may not see desired effects for 4 to 6 weeks after the procedure. After the procedure, your treated leg(s) may look quite bruised and a little swollen. You may also experience some of the following as you recover:

**Bruising/pain.** Some tenderness and bruising is normal. Wearing the compression stockings helps. This will improve with time.

**Scarring/skin color changes.** All skin may heal with some scarring. Scars will usually fade over time but may not completely go away. The scars may appear lighter or darker than the surrounding skin, even when completely healed.

Sometimes, dark color changes or stains remain from bruised areas or incision sites. These may last for several months or even years. To lessen the chance of this happening:

- › Wear compression stockings as prescribed.
- › Keep legs out of the sun.

**Bleeding.** Some bleeding may occur from the small nicks made in the skin. If this happens, lie down and apply gentle pressure to the area for 15 to 20 minutes. When the bleeding stops, put on a new, clean dressing. Please continue to lie quietly for another 30 minutes. If the bleeding still does not stop, go to your nearest emergency department.

**Swelling.** Mild swelling around the incision sites is normal and will decrease with time. However, widespread leg swelling and pain with walking can be a sign of a blood clot or infection. This requires immediate medical care.

## When to call the physician

The following may be signs of infection or other serious problems. Call the Vein Center if you have:

- › Temperature more than 100 degrees F or chills
- › Nausea or vomiting
- › Leg swelling or trouble walking
- › Pus draining from incision sites on the leg
- › Redness extending beyond the incision sites on the leg

**If you have any questions or concerns, call the Vein Center.**

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# Ultrasound-guided foam sclerotherapy

In contrast to small spider/reticular veins treated with traditional sclerotherapy for cosmetic purposes, varicose veins are larger, wormlike and often associated with symptoms. These veins typically bulge at the skin and are more prominent with standing, especially at the end of the day and during menstruation.

The formation of varicose veins is usually related to the development of leaky valves in some of the leg veins. This condition is also known as venous insufficiency or valvular incompetence (see page 6). This is a common occurrence in both men and women. Contributing factors include age, pregnancy, weight, work that involves prolonged standing, and genetics.



Varicose veins can be treated with ultrasound-guided foam sclerotherapy (USGFS). Ultrasound is used to identify visible varicosities as well as similar associated veins below the surface. While not always visible, these subsurface veins can be an important cause of varicose vein-related symptoms.

During treatment, ultrasound is used to target the varicose veins, and then a sclerosant foam mixture is injected into the vein. This sclerosant foam will irritate the inside of the vein. When combined with compression, this will cause the vein to close and disappear.

USGFS of varicose veins is usually successful, but sometimes varicose veins may need another treatment to achieve complete closure.

Procedure risks associated with USGFS are similar to the risks of spider vein sclerotherapy (see page 24). There is a slightly greater risk of developing a deep vein thrombosis (DVT). DVT is a blood clot in the deep leg veins. When they occur, most of DVT are localized and without symptoms. They are identified during the careful ultrasound exam performed during your first follow-up visit.

## Insurance coverage

Unlike cosmetic sclerotherapy for spider veins, most insurance carriers will provide coverage for varicose vein treatment with USGFS. But there are rules about vein size and symptoms.

## The day of your procedure

Bring your compression stocking to your appointment. Your care team may instruct you to take a mild relaxant medication (Xanax®) 1 hour before your appointment. This helps prevent vein spasm so the procedure is smoother.

During the procedure, your physician will inject a small local anesthetic at each treatment site. You may feel discomfort when the local anesthetic is injected, but then you will likely not feel the injection of the sclerosant.

When the procedure is finished, a member of your care team will apply compressive dressings at the treatment sites. We will help you put on your compression stocking over these dressings.

# Post-procedure care

It is important to follow instructions from your care team after your procedure. Wearing your compression stocking and taking anti-inflammatory medication are necessary for a successful outcome. Your care team will provide details about the schedules for both compression stocking and anti-inflammatory medication use.

You will be scheduled for a routine follow-up visit approximately 1 week after your procedure. At this visit, the treated leg will be examined and a careful ultrasound of the treated leg will be performed. In some cases, your clinician may ask that you return for an additional follow up visit in 4 to 6 weeks.

In some cases, blood can become trapped within the treated veins and this material may be aspirated during one or more of these follow up visits. This process can help reduce inflammation and decrease the likelihood of developing skin darkening at the treatment site. Your physician will determine whether you might benefit from this treatment at the time of your follow up visit.

Allow at least 6 to 8 weeks for healing to occur. Most bruising should be gone by then but it is common to still note small areas of firmness under the skin at the treatment sites. This firmness represents blood material trapped within the treated veins and will slowly resolve with time. There may be some skin darkening overlying the treatment sites, called hyperpigmentation, and this will also typically resolve slowly with time. If this darkening persists or is significant in degree, your physician may recommend over the counter or prescription skin lightening material for you to apply locally to the area, and in rare instances this skin darkening will be permanent unless removed by surface laser therapy

## Compression stocking

Keep your compression stocking and dressings on for 24 hours. Then remove them to shower. After the shower, dry your leg and put the compression stocking on again.

Some days you will need to wear your compression stocking overnight. The schedule for compression-stocking use will last from 2 to 3 weeks. During this period, you may shower, but do not take tub baths, swim or soak in water.

## Anti-inflammatory medication

You will be asked to take anti-inflammatory medication for 2 weeks after the procedure. This medication is important for preventing excessive inflammation of the treated veins. If you cannot take anti-inflammatory medication for medical reasons, please let your care team know so they can provide a different plan

## What to expect during recovery

After the USFGS, your legs may look worse than they did before the procedure. Redness, swelling, bruising and tenderness at the treatment sites is normal. It may last for several days to several weeks.

Most people have an easy recovery, but you may have discomfort. The treated leg may be sore for several weeks after the procedure. The discomfort should be tolerable with the use of over-the-counter medications.

Keep the treated areas out of the sun until they fully healed. Exposure to sunlight can increase darkening at the treatment site.

## Exercise

For 1 week after the procedure, please avoid aerobic impact activities like running, jumping and lifting weights with your legs. However, do walk at least 30 minutes each day. This helps the growth of new healthy veins. After 1 week, you may return to your normal level of exercise.

Avoid other forms of exercise (like core exercises) for at least 1 week.

Do not lift weights or anything heavier than 20 pounds.



## When to call the physician

The following may be signs of infection or other serious problems. Call the Vein Center if you have:

- › Temperature more than 100 degrees F or chills
- › Nausea or vomiting
- › Leg swelling or trouble walking
- › Pus draining from incision sites on the leg
- › Redness extending beyond the incision sites on the leg

**If you have any questions or concerns, call the Vein Center.**

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## Spider veins and cosmetic sclerotherapy

Spider veins are tiny red or purple veins close to the skin surface. They may only be as wide as a human hair, although some can be larger. They may appear threadlike, fan-shaped or in large clusters. They are harmless and pose no health risk. However, some people find them unsightly.

The cause is not completely known. Women are more likely to have them. Genetics, hormones and pregnancy may play a role. Other factors may include standing for long periods of time or leg trauma that damages the valves in the leg veins.

Spider veins are not varicose veins, although people can have either or both. Varicose veins are thick, bulging, ropy veins. Varicose veins often throb or ache, especially after standing for long periods of time. Spider veins may cause mild discomfort, which may worsen during menstruation. Wearing compression stockings may help, but spider veins do not resolve without treatment. There are no creams or pills to prevent or treat them.



## Cosmetic sclerotherapy

Sclerotherapy is a common, safe and effective method of treating spider veins. This treatment involves injecting a small amount of a liquid sclerosant, which irritates the vein walls, into the spider veins. The sclerosant typically is polidocanol or sodium tetradecyl sulphate, but other agents such as salt water and glycerin have been used effectively in the past.

Once injected, the sclerosant will irritate the inside of the vein, which causes the small veins to collapse and no longer be visible. It may take several weeks to see results. You may feel mild discomfort during the procedure, but most patients do not need pain medication. After the injections, a member of your care team will apply compression dressing and compression stockings.

Bruising is common after the injections, and legs will often look worse before they look better.

Every person is different; you may need many injections for each leg during each session. One sclerotherapy session takes about 45 minutes. One course of treatment requires several sessions, usually 3 or 4 sessions.

Your body needs time to heal between sessions. Therefore, please schedule your sessions 3 to 4 weeks apart.

Do not have sclerotherapy if you are pregnant or breastfeeding. The sclerosant used has not been tested in pregnant or nursing women, and the effects on an infant or fetus are unknown.

### Sclerotherapy success

Most people have good results from sclerotherapy. Once the initial redness and bruising goes away, most are very satisfied with the treatment. If you had successful treatments in the past, you will likely have a good response in the future. A course of treatment is classified as successful if it improves unwanted veins by 75% to 80%. You may need several sessions to get the best results.

Sclerotherapy will not remove all unwanted veins. After each session, some veins will become smaller, and some will completely disappear. The veins that remain will need more treatments. Please be patient! Remember, these veins did not develop overnight, nor will they disappear overnight.

### Insurance coverage

Insurance companies consider spider vein treatment to be a cosmetic treatment. This means the Vein Center cannot and will not write letters of medical necessity for spider vein treatment. Please check with your insurance company. You will be responsible for payment.

Risks

**Venous matting:** New, blush-like areas may appear around injected veins. These are new veins that usually go away over several months. However, you may not be able to treat small matted areas that remain. If this occurs, you may be referred to a dermatologist for surface laser treatments, which are typically effective in matting resolution.

**Blood clots:** Blood may collect inside a treated vein. It will feel like a small pea under your skin. This is not harmful and will go away over time. If needed, your physician will make a small nick in the skin to help drain this trapped blood. Call the Vein Center if you have concerns. There is also a very small risk of developing a deep vein thrombosis (DVT). DVT is a blood clot in the deep leg veins. Although rare, this is a serious medical problem.

**Skin color changes:** You may see the skin darken (hyperpigmentation) at the site of a bruise. This is from iron in the blood that deposits in the skin. It may look rusty brown in color and can get darker when exposed to the sun. Skin darkening usually fades with time. However, it could take many months or years to fade, and may never completely fade away. If this occurs, call the Vein Center to discuss prescription and over-the-counter topical cream options. To prevent or lessen skin darkening:

- › Wear the compression stockings as prescribed.
- › Avoid exposing any bruises to sunlight.

**Skin ulcers and scars:** Though unlikely, small, open sores can develop in the treated areas. If not treated, they may get bigger, become infected and/or leave a scar. If you think you have a skin ulcer, contact the Vein Center immediately.

**Visual changes:** Vision changes may occur during or after treatment. This includes seeing “floaters” or small “blind spots.” This is temporary.

**Allergic reactions:** Please let us know of any allergies you have. Though unlikely, an allergic reaction is possible. This may be a skin reaction to the adhesive tape or skin cleanser used for the procedure. Or, you may have a general reaction to the medications or chemicals used. Mild itching on the day of the procedure is common. You can apply cold compresses or ice packs to itching areas for 15 to 20 minutes at a time.

Tell a member of your care team if you have any trouble breathing, talking or swallowing or throat tightness while you are at the Vein Center.

Pre-procedure preparations

Please follow these instructions to be ready for your procedure:

- › Be sure to get your compression stockings as prescribed.
  - You can buy these in the Vein Center or at a medical supply store. Please plan ahead and get your stockings well **before your procedure**. Occasionally, your size will not be in stock; your place of purchase may need to order the correct stocking size for you.
  - Try your stockings on as soon as you receive them to be sure they fit. They will be very snug. They should come to the very top of your leg (near your groin).

- To reduce bruising, do not take vitamin E, aspirin, ibuprofen or other nonsteroidal anti-inflammatory drugs (NSAIDs)\* for 5 days before your EVLA. If a member of your care team prescribed these medications, contact them for permission to stop taking them.

\* NSAIDs are over-the-counter pain medications. They include Motrin®, Aleve® and others. Check with your physician or pharmacist if unsure.

The day of your procedure

- › Do not shave your legs or apply creams, oils or lotions to your legs.
- › Be sure to bring your compression stockings with you.
- › You may eat, drink and take your routine medications before your procedure (except for those stated above). Drink plenty of fluids so you will be well hydrated. However, **avoid caffeine**.

After you arrive at the Vein Center, you will have a chance to ask questions. Then you will need to sign a consent form.



# Post-procedure care

After your sclerotherapy session, a member of your care team will cover your legs with cotton balls and tape dressings plus the compression stockings.

Leave all the dressings in place for 24 hours after your procedure. Then, remove the stockings and all the bulky white dressings to shower.

Leaving the dressings on longer will not help the healing. In fact, this may increase your risk of infection. After you have showered and dried off completely, put only the compression stockings back on. You do not need any other dressings.

Your legs may look worse right after treatment. Redness and some mild tenderness at the treatment sites may last for several days after your session. Your legs may be quite bruised. This is very common; it may take several weeks to go away.

- › Do not expose bruised areas to the sun or use artificial sun/tanning beds. This will increase your chance of having dark skin changes.
- › Check your legs daily for signs of infection: redness, new or worsening pain, swelling and discharge.

## Compression stockings

You will need to wear these for 1 week. This is very important for the success of your procedure.

**For the first 24 hours:** Keep them on continuously. You may then remove them to shower. Dry your leg completely, then put the compression stockings back on.

**Days 2 through 7:** Wear the stockings all day each day. You may take them off to shower and at night to sleep.

## Bathing

You may shower after 24 hours. However, do not take tub baths, swim or soak in water for the first week. This is to prevent infection.

## Exercise

For 1 week after the procedure, please avoid aerobic impact activities like running, jumping and lifting weights with your legs. However, do walk at least 30 minutes each day. This helps the growth of new healthy veins. After 1 week, you may return to your normal level of exercise.

## What to expect during recovery

Most people have an easy recovery with only mild pain, but you may have some discomfort. Your treated leg may be sore for several weeks after the procedure. This discomfort should be tolerable. You can:

- › Apply warm compress to the area twice a day.
- › Elevate the leg when sitting.

Take Tylenol (acetaminophen) in addition to other pain medication your physician has prescribed. Do not take more than 4,000 mg of Tylenol in 24 hours. This is especially important if your other pain medications contain Tylenol or acetaminophen.



# Follow-up

Allow 6 to 8 weeks after your final session for healing to occur. Most bruising should be gone by then. Some spider veins may still persist despite the best sclerotherapy treatments.

The expected result should be improvement, not perfection. We would be happy to see you to address additional questions or concerns after you complete your sclerotherapy sessions.

## When to call the physician

The following may be signs of infection or other serious problems. Call the Vein Center if you have:

- › Temperature more than 100 degrees F or chills
- › Nausea or vomiting
- › Leg swelling or trouble walking
- › Pus draining from incision sites on the leg
- › Redness extending beyond the incision sites on the leg

**If you have any questions or concerns, call the Vein Center.**

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# 07

## VenaSeal

Healthy leg veins have valves that keep blood flowing to the heart. Venous reflux disease, also called venous insufficiency, develops when the valves stop working properly. They allow blood to flow backward (reflux) and pool in the lower leg veins. If venous reflux disease is left untreated, symptoms can worsen over time. These symptoms include pain, swelling, heaviness, itching and varicose veins.

Superficial venous reflux disease treatment aims to reduce or stop the backward flow of blood. Treating the diseased vein improves overall blood flow and relieves symptoms. For some patients, wearing compression stockings may improve blood flow. For other patients, closing or removing the diseased vein may be necessary to improve blood flow. Closing or removing the diseased vein directs blood to nearby healthy veins. Your physician can help you decide which treatment option is best for you.

The VenaSeal procedure uses a medical adhesive to permanently close the superficial vein. The procedure involves making a single incision of 2 to 3 millimeters. The VenaSeal closure system provides immediate vein closure, so you will not need to wear compression stockings after the procedure. Symptoms may improve as soon as the diseased vein is closed, but the recovery can take 6 to 8 weeks.

Some medical conditions will prevent you from having the VenaSeal procedure (contraindications). You cannot have the procedure if you have:

- › Inflammation of a vein caused by a slow moving blood clot (thrombophlebitis migrans)
- › Inflammation of a vein caused by a blood clot (acute superficial thrombophlebitis)
- › Allergic reactions to the VenaSeal adhesive or cyanoacrylates
- › Systemic inflammatory or autoimmune conditions

### Risks

The VenaSeal procedure is minimally invasive and involves a permanent medical adhesive. As such, it may involve the following risks. Your physician can help you understand these risks.

- › Allergic reaction to the VenaSeal adhesive
- › Blood clots in the deep veins (deep vein thrombosis)
- › Swelling (edema) in the treated leg
- › Bruising or hematoma (the collection of blood outside of a vessel)
- › Darkening of the skin (hyperpigmentation) or visible scarring
- › Infection at the access site
- › Mild inflammation
- › Pain
- › Inflammation of a vein (phlebitis)

### Insurance coverage

As with any procedure, insurance coverage may vary. We will contact your insurance carrier before treatment to determine whether they will cover the procedure. Once we have verified coverage, we can schedule your procedure.



Pre-procedure preparations

You will have an ultrasound imaging exam of the leg that is to be treated. This exam is important for assessing the diseased superficial vein and planning the procedure.

The day of your procedure

- › Do not shave your legs or apply creams, oils or lotion.
- › You may eat, drink and take your routine medications before your procedure. Drink plenty of fluids so you will be well hydrated. Avoid caffeine.

During the procedure

You may feel some minor pain or stinging with a needlestick to numb the site where the physician will access your vein.

Once the area is numb, your physician will insert the catheter into your leg using ultrasound guidance. You may feel some pressure from the placement of the catheter.

The catheter will be placed in specific areas along the diseased vein to deliver small amounts of the medical adhesive. You may feel some mild sensation of pulling or tugging. Ultrasound will be used during the procedure to guide and position the catheter.

Most patients feel little, if any, pain during the procedure.

After treatment, the catheter is removed and a bandage placed over the puncture site.

While each procedure is different, most take 1 to 2 hours. You will be able to walk out of the procedure room and go home.

Post-procedure care

**Bathing:** You may shower after 24 hours. Do not take tub baths, swim or soak in water for 72 hours. This is to prevent infection.

**Dressing care:** Often, Steri-Strips are used to secure the wound. They are thin white or brown strips that your care team places on the skin at the end of the procedure. Do not pull off the Steri-Strips. Leave them on until they fall off in 7 to 10 days.

**Adhesive:** Only a very small amount of VenaSeal adhesive is used to close the vein. Your body will naturally absorb the adhesive over time.

**Activity:** You may resume your normal activities without restriction. Walking is highly encouraged. Many patients return to normal activity immediately after the procedure.

**Travel:** Avoid air travel and long-distance car travel for 1 week. If you must travel during this time, please discuss first with your physician.

**Discomfort:** You may feel tightness or stiffness along the treated vein. Tenderness and some redness can be normal. You can apply warm compresses to the area twice a day, elevate the leg when sitting or use NSAIDs (Alleve® or ibuprofen) for pain relief. Most patients report little to no bruising after the VenaSeal™ procedure.

Follow-up

A member of your care team will make a follow-up appointment for 1 week after your procedure. You will have an ultrasound exam. Contact the Vein Center sooner if you have problems or concerns.

When to call the physician

The following may be signs of infection or other serious problems. Call the Vein Center if you have:

- › Temperature more than 100 degrees F or chills
- › Nausea or vomiting
- › Leg swelling or trouble walking
- › Pus draining from incision sites on the leg
- › Redness extending beyond the incision sites on the leg

If you have any questions or concerns, call the Vein Center.

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# 08

## Vein ligation and stripping

Vein ligation and stripping is a type of surgery to treat venous insufficiency. Ligation refers to tying off the veins through small incisions. Vein stripping is removal of a vein. You may do ligation alone or along with stripping.

### Risks

These are generally very safe procedures. There is typically little pain, and patients usually tolerate the procedures well. However, there is some risk of complications with any surgery. The risk varies with each person and the type of surgery. You can take precautions to decrease these risks. Your surgeon will discuss with you the benefits and risks of your surgery.

Possible complications include:

- › Infection at the incision site.
- › A blood clot in the leg (deep vein thrombosis, or DVT).
- › Leg numbness. This may occur if the nerves along the veins become irritated during surgery. This numbness is rarely a serious problem and will typically will go away over time.
- › Bruising, discoloration and swelling of the leg. If present, this usually improves within a few weeks.

### Pre-procedure preparations

You may need pre-procedure tests to ensure that it is safe for you to have this surgery. You may also need to stop certain medications before surgery. Your care team will give you specific instructions to help you prepare.

### What to expect during the procedure

A vascular surgeon performs the surgery in a hospital operating room. You will receive anesthesia so you will be comfortable during surgery. This is an outpatient procedure, so you should plan to go home afterwards.

During surgery, your surgeon will make several short incisions along the leg to remove the veins. There may also be a larger incision to the groin. When your surgeon ties off or removes the varicose veins, blood flows through the deep veins back to the heart. The procedure usually takes 2 to 3 hours.

### After the procedure

- › Avoid heavy lifting (anything more than 15 pounds) for 2 weeks.
- › Gradually resume your normal activity. If something causes pain, then stop and rest.
- › You may climb stairs and cross your legs.
- › For the first 1 to 2 weeks, or until swelling subsides, keep your legs above the level of the heart when sitting.
- › Avoid exercise for 1 week or until your follow-up visit, when your care team can tell you it is OK to resume exercise.

### Medications

You may take ibuprofen (Motrin®, Aleve®) to help pain or swelling. Your physician may also prescribe a stronger pain medication as needed. Be sure to take medications as directed.

### Leg compression

Wear elastic bandages or compression stockings for 1 to 2 weeks. Compression stockings help the leg muscles move the blood toward the heart. You need this type of firm support to help decrease swelling.

**Week 1:** Wear compression stockings or elastic bandages day and night.

**Week 2:** If your care team tells you to continue compression for a second week, you may remove the stockings or bandages at bedtime.

Continue to wear them longer if swelling or pain persists.

### Travel

Do not drive after taking narcotic pain medication or sleeping pills. You may drive a car when you are free of pain and are able to move your legs normally. However, do not take long car trips or fly in an airplane for the first 2 weeks.

### Work

Depending on your job and its demands, you may return to work when you feel up to it.

### Bathing

- › You may shower 2 days after surgery.
- › Do not take tub baths for 2 weeks.
- › Clean the incisions gently with mild soap and water, and dry well.

### Wound care

There is no special incision care required.

- › If oozing from any incision occurs, cover the wound with a dry gauze pad or bandage.
- › Bruising, discoloration and lumpiness are normal and will disappear in time.
- › If you have stitches, your physician will give you a date for their removal.

### Follow-up

- › Be sure to make an appointment to see your surgeon 1 week after your surgery.
- › In some cases, you may need a second visit at a later date.



# Pelvic venous disease

Many women have chronic pelvic pain or other symptoms such as pressure or heaviness or in their pelvic area. There are many different causes of such symptoms. In about one-third of women, this pain is due to symptomatic pelvic varicose veins, otherwise known as pelvic venous disease (PeVD) or pelvic congestion syndrome.

Similar to the development of varicose veins in the legs, varicose veins form in the pelvis when valves in the veins do not close properly. Blood flows backwards, leading to distention of the pelvic veins with pooling and congestion. These pressurized veins then dilate and bulge, which can cause symptoms that affect the uterus, ovaries, labia, urinary bladder and even intestines. Some women note significant discomfort during or after intercourse (dyspareunia). Women may also feel a dull ache or pain in the lower abdomen and back that gets worse with prolonged standing. Living with chronic pelvic symptoms is challenging and it can affect interactions with friends and family.

PeVD can be difficult to diagnose. When a woman lies down for a pelvic exam or pelvic imaging, the pressure on the veins is relieved and the veins no longer bulge. Because the symptoms are worse with standing and better with lying down, they are harder to detect during an examination.

## Causes and symptoms

There is no single cause of PeVD, although typical patients will have had multiple pregnancies. The symptoms include:

- › Pain during and/or after intercourse
- › Little or no symptoms when you first wake up
- › Irritable bladder with urinary urgency and/or frequency
- › Change in bowel habits
- › Visible varicose veins in the pubic or labial area
- › Symptoms are worse at the end of the day, during your period or when you stand for a long time
- › Symptoms improve when you lie down

## How to diagnose PeVD

**Pelvic CT (CTV):** This type of computed tomography (CT) scan uses venous phase imaging to better view dilated veins. This is the most commonly used test to diagnose PeVD. Most cases require a physician to perform a specific evaluation of the findings for PeVD.

**Magnetic resonance venography (MRV):** This is a type of magnetic resonance imaging (MRI) adapted for looking at pelvic veins and blood flow. A regular MRI without venous phase imaging may not be able to detect the problem.

**Pelvic venography:** A physician places a catheter (a small hollow tube) into a vein in the thigh or neck. They navigate this catheter using X-ray guidance and then inject dye into the vein. They can then view the pelvic veins by X-ray for PeVD.

## Treatment

An interventional radiology procedure known as embolization can treat PeVD. This is a minimally invasive procedure done under moderate sedation on an outpatient basis.

During a pelvic venography (described above), the physician will move the catheter into the pelvic varicose vein network. Then, they inject a liquid agent similar to what is used for treating varicose veins in the legs. This agent will irritate the vein walls and cause them to close. After this procedure, there may be a second treatment of the veins using small embolization coils to prevent recurrence.

## Risks

**Blood clots:** There is a small risk of developing a deep vein thrombosis (DVT) in a leg or the pelvis.

**Recurrence:** In most cases, the procedure results in lasting symptom relief. In some cases, symptoms return or do not go away completely. Additional treatment may be necessary.

**Temporary worsening of symptoms:** After the procedure, you might have worse pelvic symptoms that last for 1 to 2 weeks. In most cases, treatment is anti-inflammatory pain medication. Then symptoms should improve steadily over the next 2 to 4 months.

## Before and after the procedure

A nurse will contact you before your procedure to tell you how to prepare for it. Arrange for a responsible adult to take you home after your procedure. After you recover, you can return to normal daily activities.

## When to call the physician

The following may be signs of infection or other serious problems. Call the Vein Center if you have:

- › Temperature more than 100 degrees F or chills
- › Nausea or vomiting
- › Leg swelling or trouble walking
- › Pus draining from incision sites on the leg
- › Redness extending beyond the incision sites on the leg

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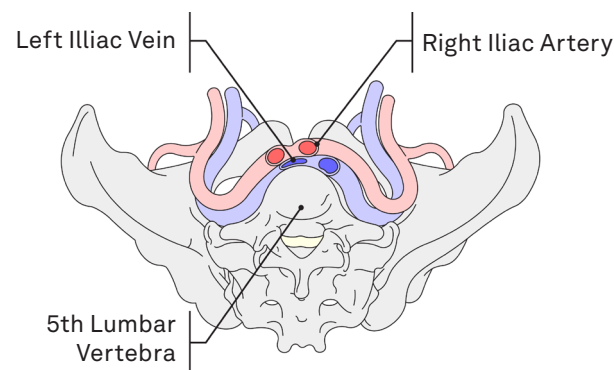
# May-Thurner syndrome

## (Iliac vein compression syndrome)

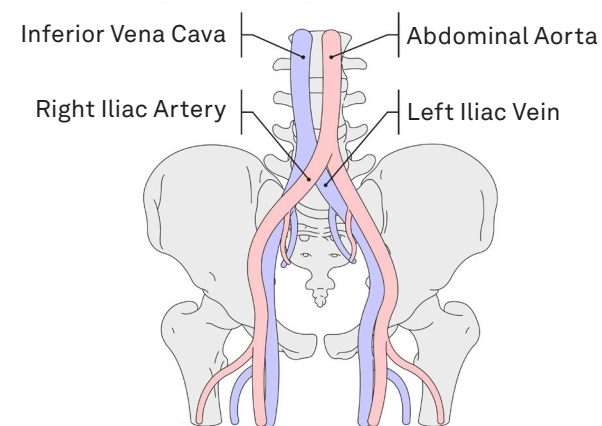
May-Thurner syndrome is a condition that affects blood flow through the veins in the left leg.

Arteries and veins in the body typically run parallel to one another. There are a few places where an artery and a vein cross each other. Sometimes the vein can get compressed by the more robust artery. One location where this can happen is the upper pelvis. The place where the right common iliac artery crosses the left common iliac vein is in front of one of the back bones (lumbar vertebral body).

Left Iliac Vein Compression



Right Iliac Artery Transverse



When this vein compression occurs, blood might not flow properly up and out of the left leg and back to the heart. The symptoms of this impaired blood flow involve the left leg:

- › Swelling
- › Clotting
- › Heaviness, tiredness or aching
- › Varicose veins
- › Skin changes like discoloration, hardening and open sores (ulcers)

### How to diagnosis May-Thurner syndrome

After asking about your symptoms and medical history, your physician will perform a physical examination. If your history and exam results point to iliac vein compression, your physician may order imaging tests to confirm the diagnosis.

**Pelvic CT venogram:** This type of computed tomography (CT) scan is used to look for iliac vein compression and other problems in the pelvic veins.

**Pelvic MR venogram:** This is a type of magnetic resonance imaging (MRI) used to look for iliac vein compression and other problems in the pelvic veins.

**Catheter venogram:** A physician places a catheter (a small hollow tube) into a leg vein. They inject X-ray dye into the vein while viewing it with an X-ray camera. This way, they can judge the quality of the blood flow through the pelvic veins.

**Intravascular ultrasound (IVUS):** A physician inserts a tiny catheter through the vein to the area where it is narrow. This provides detailed images of the vein and the area of compression.

### Treatment

The goal of treatment is to prop open the compressed vein. This will allow blood to flow better up and out of the leg. The most common treatment for May-Thurner syndrome is angioplasty of the narrowed left common iliac vein with stent placement. After these treatments, you will take oral medications that help keep the vein from getting narrow again.

**Angioplasty:** Your physician will insert a small catheter with an attached balloon into the narrow part of the vein. Then they inflate the balloon to stretch the vein open. After the balloon opens the vein, it is removed.

**Stent:** A stent is a small metallic mesh scaffolding. Your physician will put the stent in the same place opened by the angioplasty. This is done at the end of the angioplasty so the vein remains open. The stent is a permanent part of the vein wall, where it provides support for the vein and helps prevent compression from happening again.

**Medications:** Aspirin and a number of other similar medications are known as antiplatelet agents. These medications can help keep the vein from getting narrow again after angioplasty and stent placement. Your care team may give you prescriptions for 2 of these medications to take for a few months after the procedure. Then you may continue taking aspirin long-term.

### Outlook/Prognosis

Most people with treated May-Thurner syndrome do very well long-term and live normal lives. In some instances, following treatment your body's own healing process will form scar in the treated area, which causes narrowing within the stent. This is typically treated with a repeat angioplasty in the area with good effect.