

## Thrombophlebitis

*Thrombophlebitis* is phlebitis (vein inflammation) related to a thrombus.

When it occurs repeatedly in different locations, it is known as

‘Thrombophlebitis migrants’ or ‘migrating thrombophlebitis’.

Thrombophlebitis (throm-bo-fluh-BI-tis) occurs when a blood clot causes swelling in one or more of your veins, typically in your legs. On rare occasions, thrombophlebitis (often shortened to ‘phlebitis’) can affect veins in your arms or neck. Thrombophlebitis (another medical term is ‘White Leg’) is related to a thrombus in the vein.

The affected vein may be near the surface of your skin, causing superficial thrombophlebitis, or deep within a muscle, causing deep vein thrombosis (DVT). A clot in a deep vein increases your risk of serious health problems, including a dislodged clot (embolism) traveling to your lungs and blocking a pulmonary artery (pulmonary embolism).

### *Causes*

Thrombophlebitis can be caused by prolonged inactivity, such as from sitting for a long time in an airplane or automobile or from lengthy ‘bed rest’ after surgery. While sitting for long periods can promote a blood clot that can lead to thrombophlebitis, this occurs relatively rarely.

The cause of thrombophlebitis is a blood clot. Blood clots can be caused by many different things — namely anything that causes your blood not to circulate properly. It is possible a blood clot that causes thrombophlebitis could be caused by:

- An injury to a vein
- An inherited blood-clotting disorder

Risk factors include disorders related to blood clotting. Specific disorders associated with thrombophlebitis include superficial thrombophlebitis (affects veins near the skin surface) and deep venous thrombosis (affects deeper, larger veins).

### *Other factors*

- Thrombophlebitis migrans can be a non-metastatic manifestation of pancreatic carcinoma (Trousseau sign of malignancy).
- Are confined to bed for a prolonged time, such as after surgery, after a heart attack or after an injury, such as breaking your leg
- Have a type of cancer, such as pancreatic cancer, that may cause an increase of procoagulants — substances necessary for blood clotting (coagulation) — in your blood
- Have had a stroke that caused your arms or legs to be paralyzed
- Have a pacemaker or have a thin, flexible tube (catheter) in a central vein, for treatment of a medical condition, which may irritate the blood vessel wall and decrease blood flow
- Are pregnant or have just given birth, which may mean you have increased pressure in the veins of your pelvis and legs
- Use birth control pills or hormone replacement therapy, which may make your blood more likely to clot
- Have a blood-clotting disorder or a tendency to form blood clots easily
- Are overweight or obese
- Have varicose veins
- Are a smoker

The more risk factors you have, the higher your risk of thrombophlebitis. If you have one or more risk factors, be sure to discuss prevention strategies with your doctor.

### *Symptoms*

The following symptoms are often (but not always) associated with thrombophlebitis:

- Warmth, tenderness, pain in the part of the body affected
- Skin redness or inflammation (not always present)
- swelling (edema) of the extremities (ankle and foot)

- When a vein close to the surface of your skin is affected, you may see a red, hard and tender cord just under the surface of your skin.
- When a deep vein in the leg is affected, your leg may become swollen, tender and painful, most noticeably when you stand or walk.
- You may also have a fever.
- However, many people with deep vein thrombosis have no symptoms at all.

If vein swelling and pain are severe or occur with a high fever or shortness of breath, go to an emergency room. These signs and symptoms may indicate deep vein thrombosis, which increases your risk of a dislodged blood clot traveling through your veins to your lungs.

### *Signs and tests*

The health care provider makes the diagnosis primarily based on the appearance of the affected area. Frequent checks of the pulse, blood pressure, temperature, skin condition, and circulation may be required.

If the cause is not readily identifiable, tests may be performed to determine the cause, including the following:

To diagnose thrombophlebitis, your doctor will ask you about the discomfort you've had and then look for any affected veins near the surface of your skin. To determine whether you have superficial thrombophlebitis or deep vein thrombosis, your doctor may choose one of these tests:

- *Ultrasound.* A wand-like device (transducer) moved over the affected area of your leg sends sound waves into your leg. As the sound waves travel through your leg tissue and reflect back, a computer transforms the waves into a moving image on a video screen. A clot may be visible in the image.
- *CT or MRI scans.* Both computerized tomography (CT) and magnetic resonance imaging (MRI) can provide visual images of your veins and may show if a clot is present.
- *Venography.* A dye (contrast agent) is injected into a large vein in your foot or ankle. An X-ray procedure creates an image of the veins in

- your legs and feet, to look for clots. This test is used less frequently today because less invasive studies can usually confirm the diagnosis.
- *Blood test.* Almost all people who develop acute thrombosis have an elevated blood level of a clot-dissolving substance called D dimer. However, D dimer is elevated in other conditions, too. So, although a test for D dimer is very sensitive, it is not very conclusive. Currently, it is most useful for ruling out deep vein thrombosis or for identifying people at risk of developing thrombophlebitis repeatedly.

### *Treatment*

If thrombophlebitis occurs in a superficial vein, your doctor may recommend self-care steps that include applying heat to the painful area, elevating the affected leg and using an over-the-counter nonsteroidal anti-inflammatory drug (NSAID). The condition usually does not require hospitalization and improves within a week or two.

You can use self-care methods to ease pain and reduce your risk of clots. Various treatments, including medications and surgery, also are available for thrombophlebitis.

In general, treatment may include the following:

- Medications
  - analgesics (pain medications)
  - anticoagulants or blood thinners to prevent new clot formation
  - thrombolytics to dissolve an existing clot
  - nonsteroidal anti-inflammatory medications (NSAIDs) such as ibuprofen to reduce pain and inflammation
  - antibiotics (if infection is present)
  - Support stockings and wraps to reduce discomfort

The patient may be advised to do the following:

- Elevate the affected area to reduce swelling.
- Keep pressure off of the area to reduce pain and decrease the risk of further damage.

- Apply moist heat to reduce inflammation and pain.
- Surgical removal, stripping, or bypass of the vein is rarely needed but may be recommended in some situations.

Your doctor may also recommend these treatments for thrombophlebitis, including deep vein thrombosis:

- *Medications.* If you have deep vein thrombosis, injection of a blood-thinning (anticoagulant) medication, such as heparin, will prevent clots from enlarging. After the heparin treatment, taking the anticoagulant warfarin (Coumadin) for several months continues to prevent clots from enlarging. If your doctor prescribes warfarin, follow the directions for taking the medication carefully. Warfarin is a powerful medication that can cause dangerous side effects if not taken properly. Regular monitoring is advised.
- *Support stockings.* These help prevent recurrent swelling and reduce the chances of complications of deep vein thrombosis. Your doctor may recommend prescription-strength support stockings.
- *Filter.* In some instances, especially if you cannot take blood thinners, a filter may be inserted into the main vein in your abdomen (vena cava) to prevent clots that break loose in leg veins from lodging in your lungs. Typically, the filter remains implanted permanently.
- *Varicose vein stripping.* Your doctor can surgically remove varicose veins that cause pain or recurrent thrombophlebitis in a procedure called varicose vein stripping. This procedure, typically done on an outpatient basis, involves removing a long vein through small incisions. Usually, you are able to resume normal activities in two weeks or less. Removing the vein will not affect circulation in your leg because veins deeper in the leg take care of the increased volumes of blood. This procedure is also commonly done for cosmetic reasons.
- *Clot removal or bypass.* Sometimes, surgery is necessary to remove a clot blocking a vein in your pelvis or abdomen. To treat a persistently blocked vein, your doctor may recommend surgery to bypass the vein, or a nonsurgical procedure called angioplasty to open up the

vein. Once angioplasty has opened up the vein, your doctor inserts a small wire mesh tube (stent) to keep the vein open.

### *Prognosis*

Thrombophlebitis and other forms of phlebitis usually respond to prompt medical treatment. By taking proper precautions, such as periodically stretching your legs or getting up to walk around, you can decrease your risk of developing thrombophlebitis.

### *Complications*

Complications are rare, but when they occur they can be serious. The most serious complication occurs when the blood clot dislodges, traveling through the heart and occluding the dense capillary network of the lungs; this is a pulmonary embolism and is extremely life threatening.

If thrombophlebitis is in a vein just under your skin (superficial vein), complications are rare. However, if the clot occurs in a deep vein you may develop a serious medical condition known as deep vein thrombosis. If that happens, the risk of serious complications is greater. Complications may include:

- *Pulmonary embolism.* If part of a deep vein clot becomes dislodged (embolism), it may travel to your lungs, where it can block an artery and cause a potentially life-threatening situation.
- *Heart attack or stroke.* If you have certain types of congenital heart defects that have caused a hole in your heart — such as a patent foramen ovale (PFO), an atrial septal defect or a ventricular septal defect — a clot traveling through your bloodstream can enter your coronary arteries or brain and cause a heart attack or stroke.

Deep vein thrombosis also may damage valves in the veins in your legs. Veins have valves to prevent blood from flowing back as it is gradually pushed uphill toward your heart. When the valves in the veins of your legs don't work properly, several problems can occur:

- *Varicose veins.* The pooling of blood in your veins can cause them to balloon, resulting in varicose veins.
- *Swelling.* In some cases, the pooling may become so bad that your leg swells (edema).
- *Skin discoloration.* With chronic swelling and increased pressure on your skin, discoloration called stasis pigmentation may occur. In some cases, skin ulcers may develop.
- *Blocked vein.* Deep vein thrombosis can cause a permanent blocking of blood flow in the vein.

### *Home remedies*

In addition to medical treatments, there are some self-care measures you can take to help improve thrombophlebitis.

If you have superficial thrombophlebitis:

- Use a warm washcloth to apply heat to the involved area several times daily
- Elevate your leg
- Use a nonsteroidal anti-inflammatory drug, such as ibuprofen, naproxen or others as advised.

If you have deep vein thrombosis:

- Take prescription anticoagulant medications as directed to prevent complications
- Elevate your leg if it's swollen
- Wear your prescription support stockings daily

To prevent thrombophlebitis, stop smoking if you are a smoker because smoking increases your risk of a blood clot.

Sitting during a long flight or car ride can cause swollen ankles and calves. The inactivity also increases your risk of thrombophlebitis in the veins of your legs. To help prevent a blood clot from forming:

- *Take a walk.* If you are flying, walk around the airplane cabin once an hour or so. If you are driving, stop as often as possible and walk around.
- *If you must stay seated.* Move your legs regularly. Flex your ankles, or carefully press your feet against the floor or foot rest in front of you at least 10 times each hour.

On flights or car rides lasting more than four hours, take additional precautions to reduce your risk of deep vein thrombosis:

- Avoid wearing tight clothing around your waist.
- Drink plenty of fluids to avoid dehydration.
- Stretch your calves by walking at least once an hour.

If you are at increased risk of deep vein thrombosis, talk to your doctor before your flight. He or she may recommend:

- Compression stockings
- A mild blood-thinning medication given before departure

Aspirin therapy is generally not recommended and could thin your blood too much if you are also taking warfarin (Coumadin).