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Varicose Vein and CVI Information Sheet

HOW VEINS WORK:

Veins are the blood vessels responsible for returning deoxygenated blood to the heart. In the legs the blood must flow upward toward the heart. When you walk, the muscles in the calf help pump the blood out of the veins, and valves in the vein wall keep the blood flowing toward the heart, against the pull of gravity. The different types of veins in your legs are generally described as:

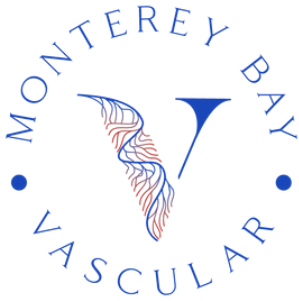
- Deep veins, located deep in the leg between muscle and bones. These include the femoral, popliteal and tibial veins. They are responsible for returning 90-95% of the venous blood back to the heart.
- Superficial veins, located under the skin they drain the blood from the skin and subcutaneous tissues. They are parallel to the deep veins and connect to the deep veins at multiple points. They include the greater and lesser saphenous veins, and in some patients there are additional accessory veins. They extend from the calf to the proximal thigh.
- Perforating veins link the deep and superficial veins together. They also contain valves which direct blood flow from superficial to deep.

WHAT IS CHRONIC VENOUS INSUFFICIENCY?

Chronic venous insufficiency (CVI) is a malfunction of the valves of the superficial veins. This allows blood to reflux, or flow back down to the feet, increasing the pressure in the veins under the skin. In the US up to 80 million people suffer from this condition. This can cause several types of symptoms, including varicose and spider veins, edema, legs that are heavy, tired, or achy, and in the worst cases damaged skin that is prone to wounds that can't heal normally. It tends to run in families. Symptoms can appear early or late in life, and may be asymmetric, with one leg worse than the other.

WHAT ARE VARICOSE VEINS?

Varicose veins are a result of CVI. They are the branches of the abnormal superficial veins that reside just below the skin. Venous reflux leads to increased pressure in these small veins. This increased pressure causes the veins to thicken, and enlarge in response. Varicose veins can be unsightly, painful, easily bleed, or develop superficial blood clots. These veins are abnormal and they do not transport blood back to the heart efficiently. Many factors play a part in the development of varicose veins:



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- *Heredity* – Varicose and spider veins tend to run in families. There is a good chance someone else in your family suffers from some degree of venous insufficiency. Symptoms are variable between family members.
- *Age* – the development of varicose veins and “spider” veins can occur at any age but usually occurs between the ages of 18 and 35 years, and peaks between 50 and 60 years.
- *Gender* – females are affected approximately four to one to males.
- *Pregnancy* – during pregnancy varicose veins may form but may also disappear shortly after the delivery of the baby. The incidence of varicose veins during pregnancy is approximately 8%-20%.
- *Lifestyle and Occupation* – people who are involved with prolonged sitting or standing in their daily activities have an increased risk of developing varicose veins.
- *DVT* – Patients that develop a deep vein thrombosis are prone to developing blockages in the veins which may lead to venous reflux.

SYMPTOMS:

The development of varicose veins is usually gradual and progressive. They not only cause a cosmetic concern, but also approximately 50% of those with varicose veins are bothered by symptoms such as:

- Tired, heavy, aching legs that limit enjoyable activity
- Leg and ankle swelling (this may also be caused by other medical conditions)
- Brown/red discoloration, and thickening of the skin
- Ulceration of the skin, wounds that can't heal normally, usually over bony pressure points

The onset of symptoms can be delayed, and symptoms can be alleviated, by making habits out of the following behaviors:

- *Elevate your legs* when possible, keeping your feet positioned higher than your heart level when sitting or reclining.
- *Move your legs frequently when standing.* Walking, or flexing your ankles periodically will help pump the blood out of your legs and reduce venous pressure in your legs. During periods of prolonged sitting or standing flex your ankles 10 times and repeat this every 10 minutes. Try to avoid sitting or standing without walking for extended periods throughout your day.
- *Exercise daily.* Walking, climbing stairs, cycling and swimming keep your calf muscles in motion to activate the calf muscle pump and maintain good muscle tone in your calf muscles.
- *Wear compression hose.* This provides external graduated counter pressure to aid in venous blood flow to the heart.



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DIAGNOSIS AND TREATMENT:

A quick examination and an ultrasound study can diagnose the problem. We will discuss the best treatment options for you. The goal of treatment is to alleviate the symptoms that limit your quality of life, reverse the damage of CVI and achieve a good clinical as well as cosmetic result. This can be done by a variety of techniques:

- *Endovascular treatment:* ablation of the greater or lesser saphenous veins, and sometimes accessory or perforating veins (see above). This is done with a catheter inserted into the vein with ultrasound guidance through a needle under local anesthetic. Heat is generated which internally cauterizes the vein along its entire length. This stops the venous reflux and decreases the pressure in the varicose veins and other veins under the skin, allowing them to shrink and regress and allowing the skin to begin to heal and return to normal.
- *Phlebectomy:* removal of the visible varicose veins through tiny nicks in the skin. This is done under local anesthetic and is helpful in removing the largest of varicose veins that may not completely regress after ablation.
- *Injection sclerotherapy:* This is done by placing a tiny needle directly into the dark, skinny network of veins visible in the skin and injecting a medication that causes the veins to collapse and regress.