Post Thrombotic Syndrome: what you need to know

**Post thrombotic syndrome (PTS)** is a serious condition that can develop after experiencing a blood clot in the vein of a leg. Veins have tiny valves that control the direction of blood flow, carrying blood from the legs back to the heart. A blood clot in a leg vein can damage the one-way valves, causing the blood to flow backwards in the vein and sometimes pool in the lower legs and ankles (called venous insufficiency). The pooled blood can increase pressure in the veins. This can cause problems that are mild (leg heaviness, aching, varicose veins) or severe (swelling, skin color changes, rashes on the legs, recurrent skin infections and chronic ulcers). Post thrombotic syndrome can affect quality of life and will cause skin changes within 2-4 years of the initial blood clot. Some people are more likely to develop PTS than others.

**Increased risk for development of PTS:**
- Having a blood clot above the knee (proximal deep vein thrombosis)
- Having more than 1 blood clot in the same leg more than once
- Still having blood clot symptoms 1 month after being diagnosed with the blood clot
- Being overweight
- Having trouble keeping your warfarin levels in a therapeutic range during the first 3 months of starting treatment.
- Smoking
- Standing on hard surfaces for prolonged periods of time (working at a factory)
- Prolonged unresolved leg swelling

**Symptoms of PTS as a result of chronic venous insufficiency:**
- Swelling: Caused by pooling of the blood due to the increased pressures in the vein allowing for leakage of their contents into the surrounding tissue.
- Skin changes: A discoloration (tan or reddish-brown patches) of the skin due the vein leaking its contents into the surrounding tissue. Sometimes the skin in this area becomes hard and scar-like.
- Stasis dermatitis: The skin can become inflamed, which causes itching, dryness, oozing fluid, scaling, open sores from scratching, and crusting or scabbing.
- Venous ulcers: This breakdown of the skin can develop on either side of the ankle. Ulcers can occur spontaneously or after an injury.
- Cellulitis: Caused by scratching the irritated skin or trauma, leading to a bacterial infection.
- Burning or aching leg pain or heaviness.
- Varicose veins or bluish-red “spider” veins can develop in the affected leg.
- Veins near the surface of the skin can become irritated or inflamed, called phlebitis.
- The deep veins can develop blood clots and could possibly break off and travel upstream to the lungs, causing a pulmonary embolus.

**PTS Management:**

**Goals of treatment is to reduce swelling and improve blood flow, relieve skin irritation and dryness, improve pain level, prevent cellulitis/ulcers, and to prevent (further) blood clots.**
- Leg elevation above the level of the heart for 30 minutes at least 3-4 times a day.
- Gradient compression stockings: Knee high compression stockings at 30-40 mmHg apply the greatest
amount of pressure at the ankle and gradually decrease in pressure up the leg. This allows for improved blood flow and prevents the backward flow of blood.

• Severe leg swelling may benefit from more aggressive compression wrap therapy done by a specially trained physical therapist.
• Intermittent pneumatic compression (IPC) pump: An alternative approach is the use of an IPC pump. This device consists of flexible plastic sleeves that encircle the lower leg, and periodically compress the leg with air chambers that inflate and then deflate.
• Weight loss: Increased weight will increase blood pressures in the veins of the legs. It is important to take steps to lose weight until your ideal weight is reached.
• Regular exercise can help the muscles in the legs move blood against gravity up the leg. Exercise will also help with weight loss. Foot and ankle exercises can temporarily improve blood flow when traveling by car or airplane.

Medication

• Ecsin (horse chestnut seed extract) may reduce swelling and leg size. It can be used in people who cannot tolerate compression therapy, usually at a dose of 300 mg twice a day. This is a dietary supplement and does not require a prescription.
• Topical hydrocortisone creams can be used to help with inflammation and itching.
• Diuretics (water pills) can remove fluid from the body, but are usually not very useful for long term use.
• Antibiotics are only recommended when there is an infection.

Other over-the-counter supplements/ prescription medications have not been well studied and are not approved by the FDA for PTS. These include pentoxifylline, hesperidin and diosmin.

Vein ablation treatments: These are treatments designed to destroy superficial veins with abnormal vein function, and are reserved for people with symptoms that do not respond to the above medical management. They are usually not helpful for people who have had blood clots in the deep veins. However, this should be evaluated on an individual basis with the doctor that would perform the procedure. Treatments include sclerotherapy, radiofrequency or laser ablation, and vein ligation or stripping.