



Dr Paul Thibault

Phlebologist & Assistant Editor
Phlebology (International Journal)
Australasian College of Phlebology

Prescribing Effective Compression and PTS - Main Session (Workshop options scheduled)

Saturday, 17 August 2013

Start 9:50am

Duration: 20mins

Plenary



South GP CME 2013

General Practice Conference & Medical Exhibition

15-18 August | Edgar Centre | Dunedin

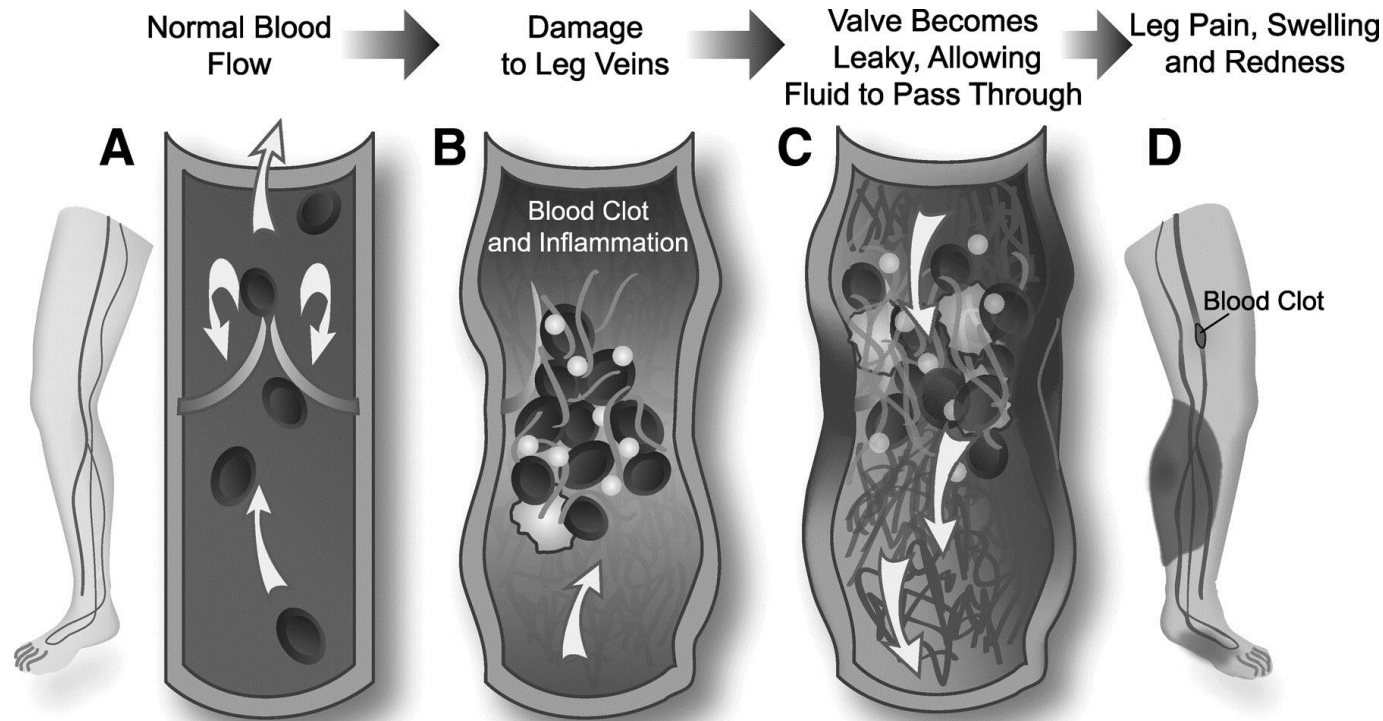
Prescribing Effective Compression and PTS

Dr Paul Thibault

Phlebologist, Newcastle, Australia

What is PTS?

Valves in the leg veins help blood flow in the right direction.



20 -50% of DVTs go on to PTS
5 -10% of DVTs develop severe PTS

Diagnosis of PTS

- **Clinical diagnosis**
- Past history of DVT
- Typical signs and symptoms – Non specific
- > 6 months after initial DVT (to allow resolution of acute symptoms of DVT)
- Diagnostic tests (eg Duplex ultrasound, plethysmography) are supplementary to the clinical diagnosis

Risk Factors for PTS

- Having a blood clot above the knee (proximal DVT)
- Having >1 blood clot in the same leg more than once
- Still having symptoms 1 month after initial diagnosis of DVT
- Being very overweight
- Older age groups
- Inadequate INR levels during the first 3 months after starting warfarin (3 times risk)
- Not related to the cause (thrombophilia or circumstances of DVT)

Typical clinical features of PTS

Leg symptoms

- Heaviness or fatigue
- Pain
- Swelling
- Itching
- Cramps
- Paresthesia
- Bursting sensation
- Symptom pattern: worse with activity, standing, walking; better with rest, recumbency

Signs

- Oedema
- Peri-malleolar telangiectasia
- Venous ectasia, varicose veins
- Hyperpigmentation, venous eczema
- Dependent cyanosis, erythema
- Lipodermatosclerosis
- Healed ulcer
- Open ulcer



Hyperpigmentation
Venous ulcer



Venous ectasia



Edema



Skin induration
Venous ectasia



Quantitative assessment -Villalta Scale

Each symptom is rated by the patient and each clinical sign is rated by the clinician as 0 (absent), 1 (mild), 2 (moderate), or 3 (severe), except ulcer, which is marked as present or absent. All numeric points are summed to yield a total score:

0-4 indicates the absence of PTS;

5-9, mild PTS;

10-14, moderate PTS;

≥ 15 or the presence of an ulcer, severe PTS.

Symptoms – self reported by Patient	Clinical signs assessed by Clinician
Heaviness	Pretibial oedema
Pain	Skin induration
Cramps	Hyperpigmentation
Paraesthesia	Venous ectasia
Pruritis	Redness
	Pain during calf compression
	Ulcer

What causes PTS to develop after DVT

- Venous hypertension due to
 - **Obstruction** (occlusive thrombosis)
 - Deep venous reflux (valvular damage)
- Calf muscle pump failure
- Impaired venous return
- Abnormal function of microvasculature
- Increases vascular permeability

Prescribing Compression for Prevention of PTS

- Recommendation of American College of Chest Physicians
 - Wear Elastic Compressions Stockings (ECS)
 - 30-40mm compression, below knee
 - for 2 years following symptomatic proximal DVT
 - Based on 2 randomised (but unblinded) trials

Evidence for Prophylactic Compression

- 194 patients with 1st episode proximal DVT
- 40mmHg compression at ankle – below knee GCS
- Randomised to active compression or No compression
- 2yrs duration-
- All treated with Heparin for 5 days and then warfarin for 6 months
- **Mild – mod PTS - GCS 20% - Controls – 47% $p<0.001$**
- **Severe PTS – GCS 11% - Controls – 23% $p<0.001$**

Brandjes DPM et al Randomised trial of effect of compression stockings in patients with symptomatic proximal vein thrombosis. Lancet 1997.

Evidence for Prophylactic Compression

- Meta-analysis of 5 randomised trials of GCS
- 580 patients with 1st proximal DVT
- below knee GCS >20mmHg at ankle
- Randomised to active compression or placebo/none
- **Mild–mod PTS - GCS 22% - Controls – 37%**
- **Severe PTS - GCS 5% - Controls - 12%**
- *All studies biased due to lack of blinding*

Mussani MM et al. Venous compression for prevention of post-thrombotic syndrome: a meta-analysis. AJM 2010

A Multicenter Randomized Placebo Controlled Trial of Compression Stockings to Prevent the Post-Thrombotic Syndrome After Proximal Deep Venous Thrombosis: The S.O.X. Trial - 6 month Follow-up - blinded

	Active GCS (n=397)	Placebo GCS (n=406)
Villalta severity category *		
None (score <5)	181 (51.9%)	182 (50.8%)
Mild (5-9)	114 (32.6%)	116 (32.4%)
Moderate (10-14)	30 (8.6%)	37 (10.3%)
Severe (>14 or ulcer)	24 (6.9%)	23 (6.4%)
Ipsilateral leg ulcer	16 ulcers in 16 patients	17 ulcers in 16 patients
Recurrent VTE	45 events in 33 patients	44 events in 38 patients
Recurrent ipsilateral DVT	18 events in 16 patients	17 events in 17 patients
Death	36 (9.0%)	36 (9.1%)
Death due to PE	0	0
Serious adverse event due to ECS	0	0
Adverse event due to GCS #	7	8

A Multicenter Randomized Placebo Controlled Trial of Compression Stockings to Prevent the Post-Thrombotic Syndrome After Proximal Deep Venous Thrombosis: The S.O.X. Trial (2012)

- GCS did not prevent the occurrence of PTS after a first proximal DVT and did not influence the severity of PTS or rate of recurrent VTE.
- The reported benefits of GCS to prevent PTS in some prior studies could be due, at least in part, to bias from open-label design.
- Whether GCS may be of benefit to manage symptoms of established PTS should be evaluated in future studies.

Established PTS

Stage 1 Wound Clean-up and compression

- Gentle wound debridement
- Daily dressing with silver sulphadiazine 1 week
- Low-stretch compression bandages



Stage 2

Compression –multi-layer technique

- Sterile wound contact layer
- Natural padding bandage
- Light conformable bandage
- Light compression bandage
- Flexible cohesive bandage
- May be worn for up to 7 days at a time.



Stage 3 – 30- 40mmHg GCS

- Wearing 30-40mmHg GCS
- Superficial venous incompetence and incompetent PVs treated with sclerotherapy
- Simple wound dressings



Stage 4 – Long-term compression

- 30-40 mmHg GCS



Compression Therapy for PTS

- Symptomatic
 - Oedema
 - Heaviness
 - Aching
 - Management of skin ulceration
- 30 -40 mmHg knee high GCS
 - 20 -30 mmHg if above too constricting or difficult to apply
 - 40-50mmHg may be needed to control oedema

Venoactive Medications for PTS

- Hydroxyethylrutasides (Paroven)
- Horse- chestnut seed extract (aescin)
- Pycnogenol (from French Maritime Pine bark)
- These may be combined with GCS

Take-home message

- Diagnose and treat proximal DVTs early
- Therapeutic Anti-coagulation for 3 to 6 months or until symptoms subside
- Recognise and treat recurrent ipsilateral DVT early
- Established PTS will require regular monitoring and management of secondary complications
- This should always include effective compression.