Myths About Varicose Veins and Leg Ulcers

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GPCME North Meeting, Rotorua, June 2014
Disclaimer

There are no commercial conflicts of interest with this presentation.
Varicose Vein Myths

- Blue knobbly surface leg veins
- Caused by sitting/crossing legs
- Higher incidence in women
- Large veins need surgical removal
- VVs always recur
- Symptoms relate to vein size
- Rx is just for cosmesis
VVs - The Reality

- Veins may be invisible
- Symptoms matter
- Any size VVs treatable nonsurgically. (safer, cheaper and preferred by patients)
- 40-50% adults will suffer from VVs
- <5% attend for cosmesis (s & v)
- VVs - chronic and recurrent illness
- Significant QOL and PH cost
What are Varicose Veins?
VVs

- Varicose veins - diseased superficial leg veins
- Approx. 2 million leg veins
- Abnormal flow from higher pressure deep system to lower pressure superficial venous system
- Retrograde flow down the limb, away from the heart
- Higher hydrostatic pressure at ankle
- Chronic venous hypertension results
- Reduced tissue oxygenation/nutrition with CVI → skin problems, eczema, ulceration
Retrograde downward flow

Normal Valve

Abnormal Valve
Lower pressure

Higher hydrostatic pressure

Bluish feet, poor oxygenation and skin nutrition
Causes of VVs

- Family History
- Sedentary jobs
- Number of Pregnancies
- Obesity
- Rarely trauma
- Urban > rural
- Male : Female same incidence
Why treat VVs?

✓ Relieve Symptoms

✓ Prevent L-term problems

✓ Improved QOL, comfort and cosmesis
Vein Symptoms

- Aching
- Swelling
- Restless Legs Syndrome (50%)
- Cramps
- Itching
- Heaviness and tired legs
- Burning or throbbing pain
- Haemorrhage
- Ulcers
- Worse - standing, hot weather, menses.
Long-term Complications

- Varicose eczema
- Thrombophlebitis
- Pigmentation
- Haemorrhage
- Ulceration
- Higher risk VTE
- Reduced QOL

Lipodermatosclerosis
Assess the patient first

Medical hx
Vein Hx
FH or PH thrombophilia
Examine
Photograph, size ulcers
Duplex US essential
ABI s +- with PVD
Thrombophilia Screen

- **Antithrombin III** - High
- **Low Protein C** - Moderate to High
- **Low Protein S** - Low
- **Activated Prot C Resistance (FV Leiden)** - Low
- **Factor V Leiden** - Low RR 8
- **Prothrombin Mutation (PTG20210A)** - Low RR 4-8
- **Homocysteine** – relevant if high, ? causal
- **Lupus Anticoagulant (APLS)** - High risk
- **Anticardiolipin Antibodies** – IgG and IgM
- **Others** – platelets, fibrinogen, FVIII etc
Duplex US Map

Normal scan.
Blood flow to heart

Severe varicose veins.
Blood retrograde flow
Less obvious VVs.

1 in 4 have VVs
Normal legs
Sorry .... gross 3 vessel reflux bilaterally
CEAP Classification

Class 1: reticular veins
Class 2: varicose veins
Class 3: oedema
Class 4: skin changes - eczema, pigmentation
Class 5: healed ulcers
Class 6: active ulcers
Vein Size - GSV

Normal

Abnormal
“Angioneogenesis” post surgery vessel leash at SPJ
VV Treatment Options

- **None**: ignore them
- **Venotonics**: e.g. Daflon, ineffective
- **Stockings**: Graduated C2 Compression Hose
- **Surgery**: ambulatory phlebectomy, stripping, flush ligation, stab avulsion, endoscopy, morcillation.
- **EndoChemical Ablation**: over 100 yrs
  - Macrosclerotherapy: blind injection of tributaries. Poor.
  - **UGS**: US guided foam sclerotherapy
- **EndoThermal Ablation**: since mid 1990s
  - RFA ... VNUS Closure fast
- **EVLA**: longer wavelength (combined with UGS)
- Steam ... experimental
Modern Treatment for VVs

Non Surgical Treatment is the Gold Standard in all Western Countries

eg Public Hospitals Rx, Australia, Canada
Factors To Consider

Efficacy
Comfort
Safety (especially VTE risk)
GA v LA risks
Scarring
Recurrence rates
QOL
Patient compliance
Cosmesis

Remember - VVs are often undiagnosed
SURGICAL VARICOSE VEIN TREATMENTS

- Pain, scars, GA risks, off work 2-3 wks

- **VTE risk 5%** (Van Rij et al, J Vasc Surg 2003;38:935-43)

- Post Surgical Recurrence Rates:
  - SFJ: 23% at 3 yrs, SPJ: 52% at 2 Yrs
  - Clinical recurrence: 47.1% at 5 yrs, 62% at 11 yrs
  - Physiologic recurrence: 66% at 5 yrs
EVLA for VVs

810nm diode: 97.5% closure at 1 yr
93.5% closure at 2 yrs, 3 yrs
Few recurrences; early at 3-9 mths. (Min et al, 2003)

1320nm IR:
90-95% closure at 5 yrs (S & V 10yr series 1:2000 reEVLA)
Longer IR wavelengths better.

VTE Risk: EVLA 1 : 1500
          UGS  1 : 5000
          Surgery 1: 20
NON-SURGICAL VV TREATMENTS

**Endothermal:**
Endovenous Laser Ablation (EVLA) reported 1999.
RF (VNUS) – less precise, expensive disposables
Steam – unproven
Clarivein – combined endothelial trauma/sclerosant

**Endochemical:**
US Guided Foam Sclerotherapy, UGS – safe, established, popular. Closed vein technique. STS used 100yrs, UGS 30yrs+
ELLE – (open vein) long catheter sclerotherapy
Rx Choices for VVs, CVI

- Conservative – GCS class 2
- Surgery- inpatient
- RFA - cheaper units, expensive disposables ($650 US)
- EVLA – well established, effective, safe, no scars, popular with patients, outpatient. Walk in, walk out, drive home.
- Foam Sclerotherapy – UGFS. Smaller VVs, post surgical angioneogenesis, tortuous veins or tributaries. Easily repeatable, safe, patient choice. Outpatient.
Post Thrombotic Syndrome, PTS

- 50% incidence with DVT
- 5% severe PTS at 10 years
- Higher thrombotic load, higher risk – proximal DVT
- Higher risk of further VTE.
- No useful treatment!!!
Symptoms of PTS

- Pain
- Oedema
- Hyperpigmentation (7-23%)
- Ulceration (4-6%)
- Lipodermatosclerosis (champagne glass leg)
- Heaviness, Cramps, Itchiness
- Numbness or tingling
- Dilatation of superficial veins
- Redness
PTS mechanism

Chronic mechanical problem.
Reduced blood flow, swelling, and limb pain.
Leg pain and swelling = post thrombotic syndrome.

Valve leaflets damaged

Deep Venous Reflux

Chronic Venous Insufficiency
PTS Rx.

Lifelong Compression hose
Leg Ulcers

“an ulcer on the legs that has not healed in under 2 weeks”
Leg Ulcers

80% are venous
20% arterial, diabetic, decubitus, malignant, mixed

C4-C6 risk factors: (Ref- N Labropoulos)

- Older Age, Chronic CVI
- Post surgery or DVT/PTS
- Obesity (BMI > 40)

3% have DVI alone
>90% superficial VVs +- IPVs
Public Cost

- To heal an ulcer – superficial venous surgery provides no additional benefit to compression.
- To prevent ulcer recurrence – higher pressure compression > surgery

- 1-2% Vote Health annually in NZ (5-6% France)
- Venous stasis ulcers 0.5 million people pa in US
Patient Cost of Venous Ulcers

- QOL impact: smell, pain, lack of mobility, frequent dressings, 2o infections, difficulty with GCS, medical fees, transport costs
- Can recur- need to address obesity, educate carers.
- Ongoing Class 2 compression- no TEDs!
Ulcer Treatment Choices

1. **Conservative**: No Rx or C2 hose 35-45mm Hg
2. **Treat the Cause, VVs** (CVI, CVHT)

**Surgery**: outdated
- Superficial surgery – SFJ, SPJ, rarely IPVs alone
- Deep Vein Surgery/valvuloplasty
- Skin grafts/debridement

**Nonsurgical**: modern
- Endothermal & Endochemical eg EVLA plus foam UGS
Effect of Treatment on VLU

**EVLA, RFA, Foam Sclerotherapy** reduce:

- Ulcer healing time
- Ulcer recurrence rate

**Compression** :

- Inelastic - better during healing
- Elastic - post healing to reduce recurrence
- Bandages lose efficacy after 90 minutes
Pathophysiology VLU

Valvular insufficiency:

- superficial, deep or perforating veins, 2o to:
  - valvular damage (prior DVT)
  - valvular obstruction

SITE:

- Lower leg & ankle, usual medial malleolus
- Recurs at same site
- Gravitational eczema (weeping, oozing, crusting)
- Size 0.5 – 10cm diameter
Aim of Treatment - VLU

- Improve venous haemodynamics
- Improve QOL
- Reduce weight
- Increased exercise

Patient compliance is the key
Improved Patient Compliance

- **Compliant patients do better** (Erickson CA et al J Vasc Surg 1995/22... A NZ study)
- **Noncompliant patients:**
  - believed compression hose were not worthwhile
  - believed compression hose would be uncomfortable

**Education** - important for 12 months

**Compression** - basis of care

**Compliance** - essential for success
Effective Rx of Venous Ulcers

Nursing – debridement, dressings, sepsis. 1-2x/wk.

Compression – class 2 hose best, elastic/inelastic, layered bandaging. (With PVD may have to compromise.)

Rx Underlying Cause = Varicose Veins
   CVI, chronic venous hypertension, interstitial oedema, local ischaemia and hypoxia

Rx Exacerbating Factors- HT, DM, obesity, sepsis, hygiene
The Nurses’ Role in VLU

- **Topical dressings:** Duoderm, Comfeel, Allevyn, Honey, Silver, seaweed (arginates), Ichthyopaste and many more, ... THEY ALL WORK

- **Skilled nursing important**

- **Frequency 1-2 x weekly**

- > just saline, guaze, tubigrip

- **Ongoing patient education and support**

- **Maintenance of adequate compression 24hrs /day**

- **Frames available for fitting hose**

- **Patient rapport/confidence/observation re progress**
Compression Therapy - VLU

**Graduated Compression**
- Higher pressure at ankle
- Promote blood flow to heart

**Reducing ambulatory venous pressure:**
- Compress varicose veins
- Prevent ankle pooling
- Reduce oedema

- ? PVD - ABIs
- Tubigrip poor second best
- TEDs are useless if ambulant
Compression Classes

Prescribe Compression power, height on leg

- Level of compression at the ankle
- European Standard
  1 – 18-21 mmHg
  2 – 25-32 mmHg
  3 – 36-48 mmHg
  4 – 48+ mmHg
  Travel – 8-15 mmHg
TED stockings

15-18 mmHg = Class 0.5
To prevent DVT intra/post-operatively used when supine.

Manufacturers recommendation:
“For use in the non-ambulant convalescing patient”
Compliance

Buy in needed from patient and family
Education for patients & nursing staff
Written handouts - multicultural.
Review weekly first 4 weeks with COD
DN service needs uniformity – dressing, compression, attitudes to GCS
Farmer, CEAP 6 x 2yrs. 1° VVs.

Prior ulcer scar

Ulcer pre EVLA

3 months

12 months
CEAP 5-6

GSV : SSV : AASV
20 : 10 : 1
CEAP 6 post EVLA
43yr hairdresser

Pre Rx
3 mths
6 mths
12 mths
18cm diameter ulcers
10 yrs “Rx” = dressings only, nil compression.
Same Lady  VLU over 12 mths post EVLA

Pre  6mths post  12 mths
Same Lady  VLU over 12 mths post EVLA

PRE

12 MTHS POST
Same Lady  VLU at 12 mths post EVLA
# CEAP 6 Outcomes

<table>
<thead>
<tr>
<th>Average Patient Age</th>
<th>c. 60 yrs</th>
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<tbody>
<tr>
<td>Male</td>
<td>45%</td>
</tr>
<tr>
<td>Female</td>
<td>55%</td>
</tr>
<tr>
<td>1x ulcer</td>
<td>67%</td>
</tr>
<tr>
<td>2x ulcers</td>
<td>20%</td>
</tr>
<tr>
<td>4x ulcers</td>
<td>10%</td>
</tr>
<tr>
<td>Post surgery</td>
<td>22%</td>
</tr>
<tr>
<td>DVI</td>
<td>45%</td>
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<tr>
<td>Diameter ulcers</td>
<td>2.5 cm average</td>
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<tr>
<td>Average healing time</td>
<td>9.5 weeks</td>
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<tr>
<td>Healing rate</td>
<td>93% at 4/12</td>
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<tr>
<td>DVT, PE, death</td>
<td>NIL</td>
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</tbody>
</table>
Thank you for listening

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