



Dr Peter Chapman-Smith

Phlebologist

Skin and Vein Clinic

Whangarei

Myths about Leg Ulcers - Practice Nurses Programme

Saturday, 30 July 2011

Start 3:30pm

Duration: 30mins

Speight Room



NZMA
New Zealand Medical Association
South GP CME 2011

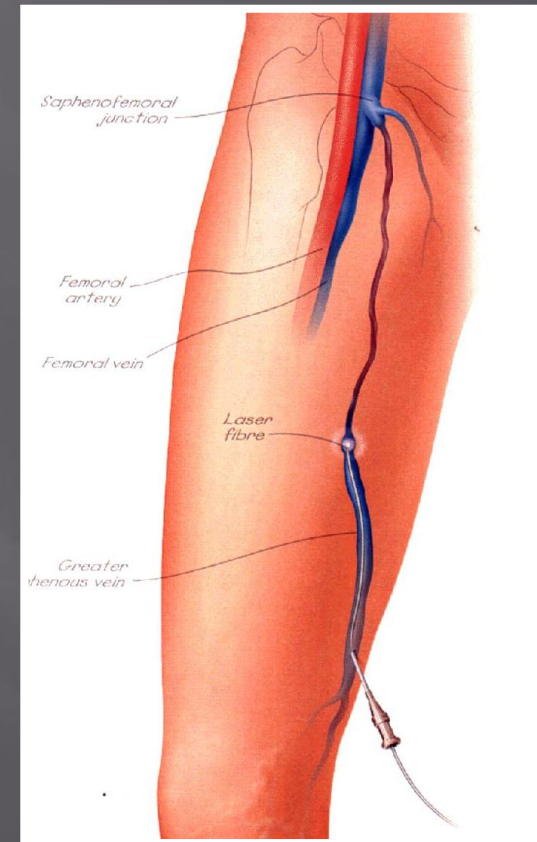
General Practice Conference & Medical Exhibition

28-31 July 2011 | The Dunedin Town Hall | Dunedin

MYTHS ABOUT VEINS AND LEG ULCERS

Practice Nurse 's Programme
GPCME South July 2011
Saturday July 30th

Dr Peter Chapman-Smith
Angela Browne DMU



A photograph of a massive, ancient tree trunk in a dense forest. The tree's bark is thick, textured, and light-colored, contrasting with the surrounding dark green foliage. Sunlight filters through the canopy, creating dappled light on the tree and the forest floor. The tree's branches are visible at the top, spreading out against a bright sky.

No financial disclaimers

Skin and Vein Clinic, Whangarei

LEG VEINS - MYTHS

- veins are always visible
- related to sitting
- more common in women
- caused by crossing legs
- large veins need surgery
- always recur
- symptoms relate to size
- treatment is cosmetic
- only in the legs
- treat after pregnancies



WRONG !

Varicose



Veins

After UGS



Normal Valve



Abnormal Valve



Retrograde downward flow

Varicose Veins

- Superficial leg veins
- 2 million leg veins
- **High** pressure/ volume/ flow - deep system
- **Low** pressure/ volume/ flow - superficial system
- **Retrograde downward flow**
- CVI and CVH
- Poor skin oxygenation/ nutrition
eczema, ulceration, bleeding

Lower venous pressure

Higher hydrostatic
pressure
lower leg

Bluish feet



Causes of VVs

- Family History
- Sedentary jobs
- Multiple Pregnancies
- Rarely trauma
- Urban > rural
- Male : female same
- Incidence c. 50% population.

CEAP Vein Classification

Class 1 : telangiectases and reticular veins

Class 2 : varicose veins

Class 3 : oedema

Class 4 : skin changes without ulceration,
eg. eczema, pigmentation

Class 5 : healed ulcers

Class 6 : active ulcers

Patient Assessment

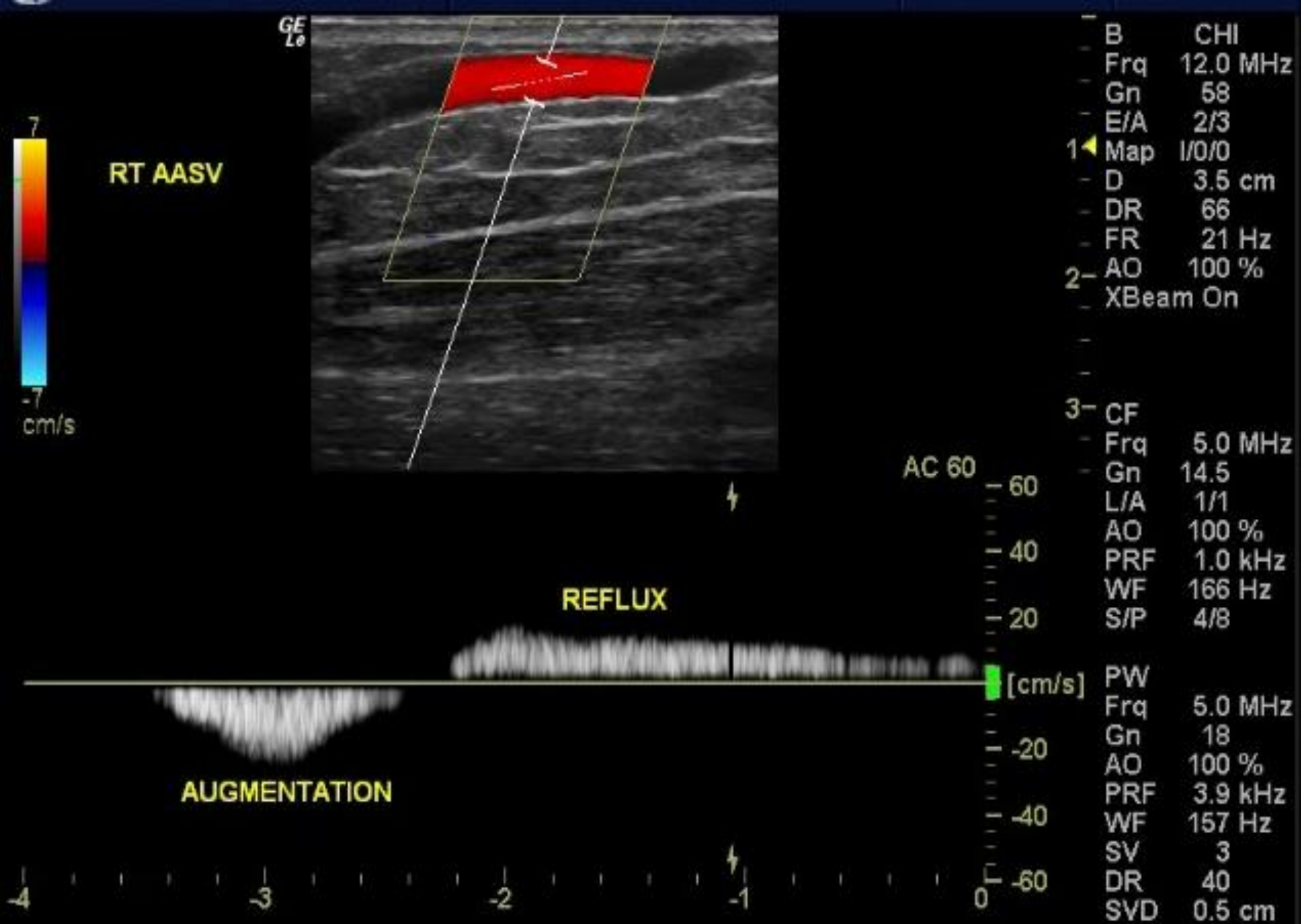
- Medical hx, meds, allergies....
- Vein Hx
- Thrombophilia Hx- personal, FH
- Examine
- Duplex US scan



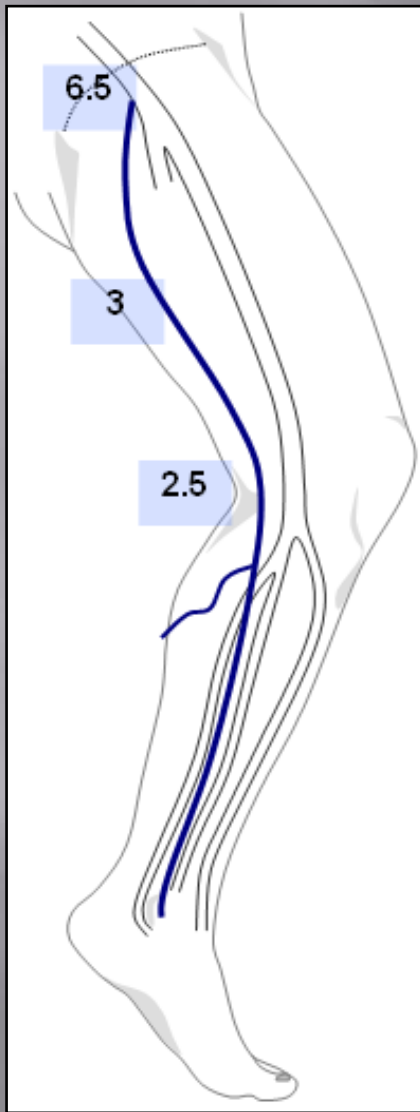
Duplex US Map Essential



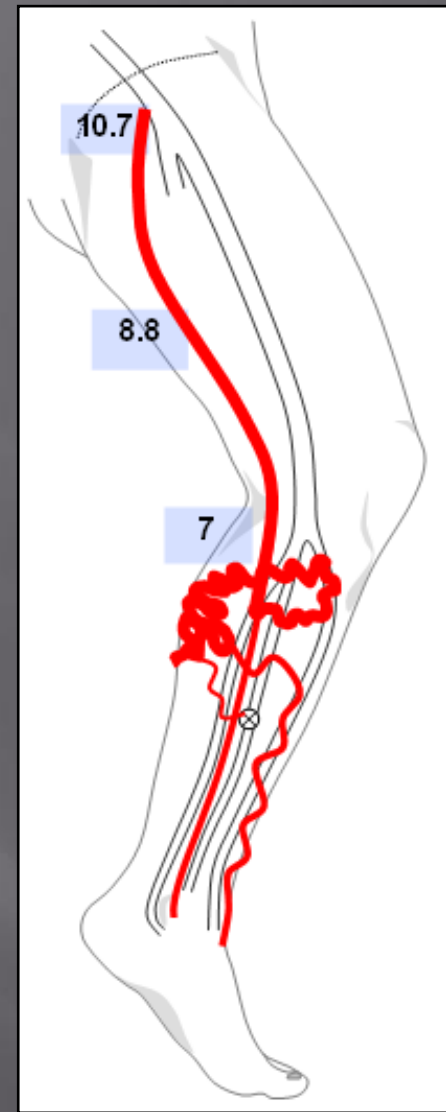
Skin and Vein Clinic - Northland -
Otago - Hibiscus Coast



Duplex US Map



Normal scan,
Flow to the heart



Severe varicose veins.
Retrograde flow

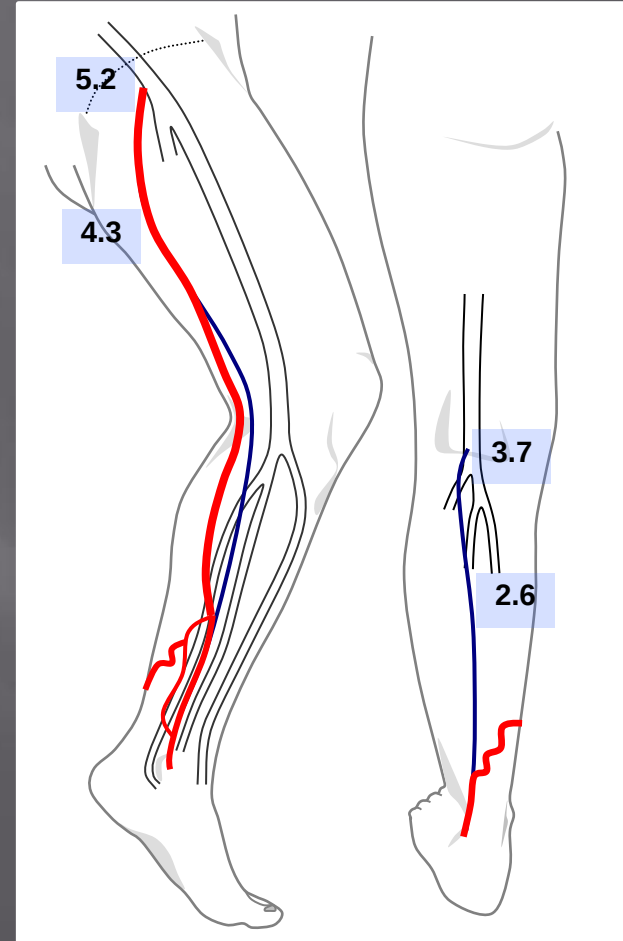
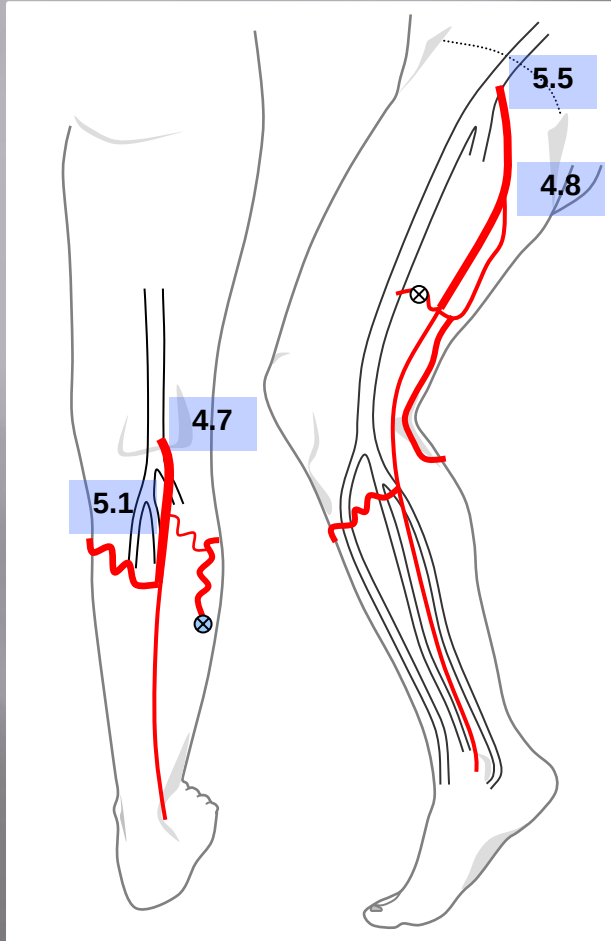
Do we diagnose varicose veins well?

Normal legs ?



Skin and Vein Clinic - Northland -
Otago - Hibiscus Coast

Actually gross reflux bilaterally – 3 vessel



Surface Vessels - 1:4 may have VVs



Enquire re venous sx

“ My veins don’t
bother me Doc ”

Presenting Vein Symptoms

Aching	75%	Worse Standing	68%
Swelling	66%	Worse Heat	51%
Heaviness	47%	Worse Menses	11%
Restless Legs	50%	Hx of STP	6%
Cramps	43%	Hx of Ulcer	8%
Brown Pigment	24%	Hx of Eczema	38%
Burning	16%	Hx of Bleeding	5%
Itching	1%	Cosmetic	1.6%
Pain&Tenderness	5%	Tiredness	?

What to Look For ?

- Cyanosed lower legs/feet
- Oedema
- Thrombophlebitis
- Cellulitis
- Dilated tributaries (may be none)
- Skin signs - LDS, atrophie blanche, eczema, ulcers, capillaritis, ulcer scars



Vein Size



Normal 4.7mm



Abnormal 9.5mm

“Size does not matter”

Symptoms do not
relate to size

Why treat VVS

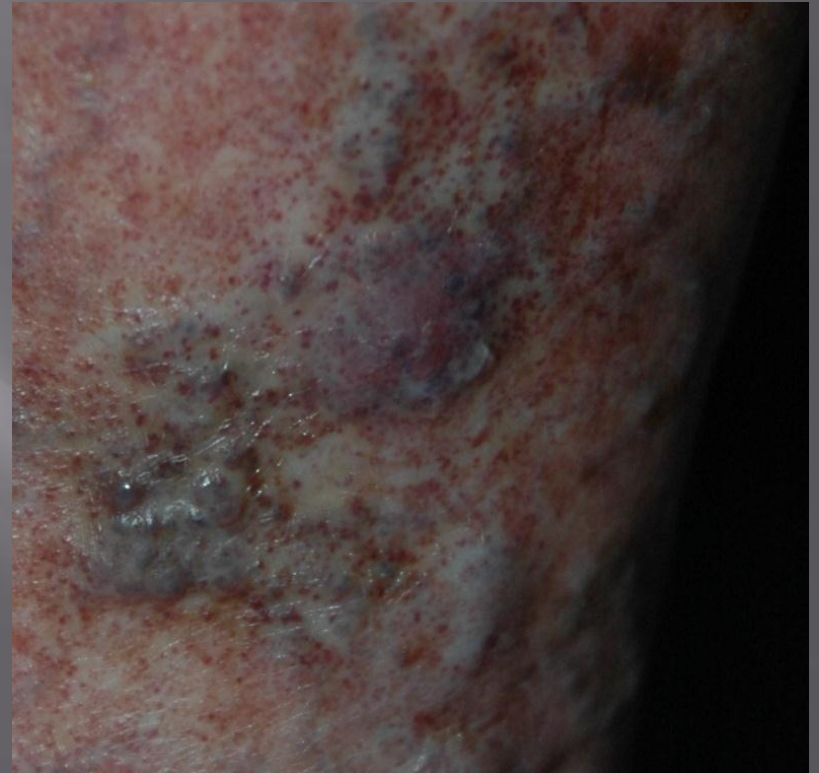
Patients

- Relieve symptoms
- Better QOL
- Better cosmesis
- Prevent long term complications
- (Private Rx)

Public Health – consumes \$\$\$\$

VV Complications

- Varicose eczema
- Thrombophlebitis
- Phlebothrombosis
- Pigmentation
- Bleeding
- Ulceration
- DVT (+- flying)
- Reduced QOL



Lipodermatosclerosis
(skin infarction)

Case CEAP6 - CB

- Male engineer 46 yrs
- Off work, on ACC x 6yrs
- Leg ulcers x 4
- Requested amputation
- Undiagnosed VVs
- Morbid obesity, IDDM
- Gastric stapling , lost 50kg .

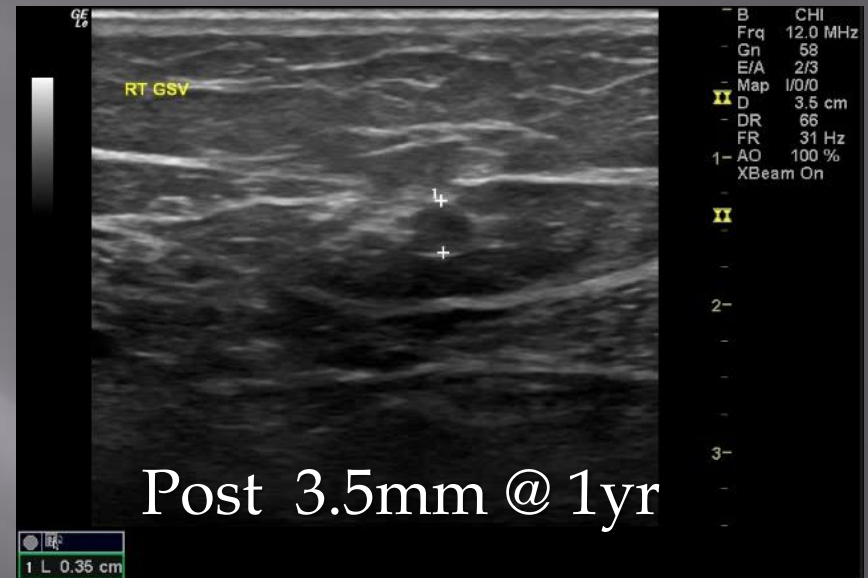
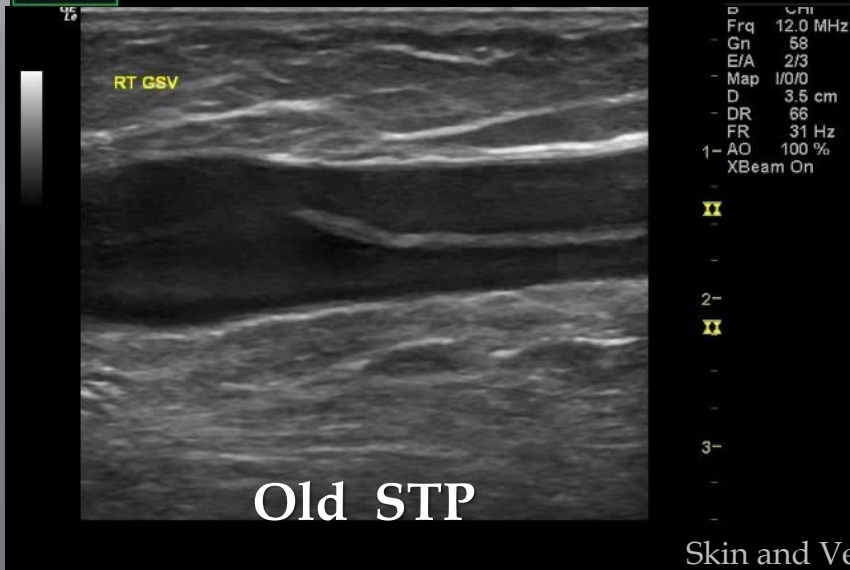
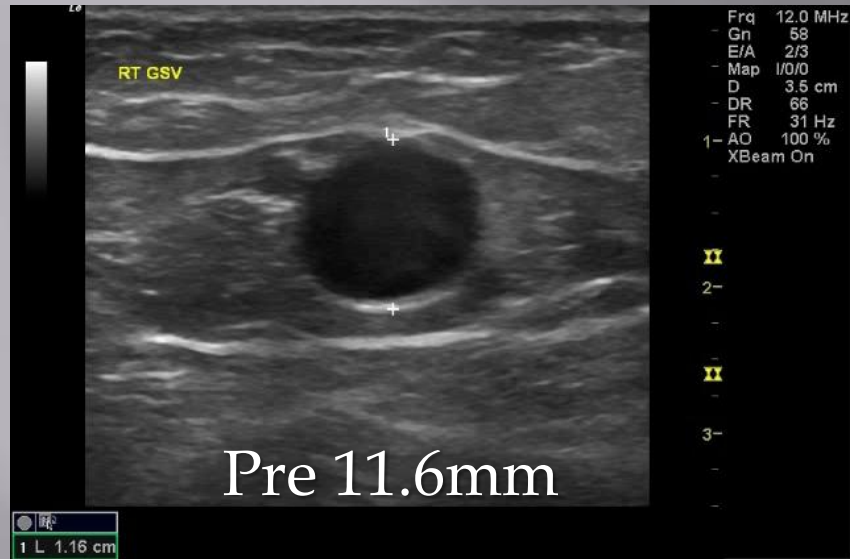


CB 2 - Pre

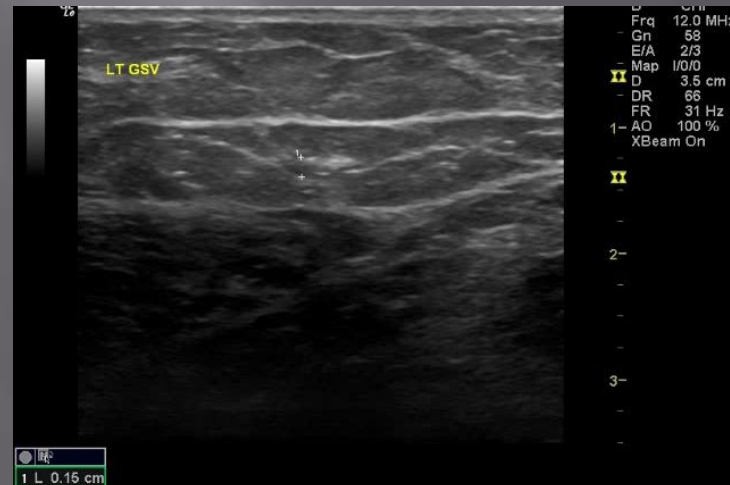
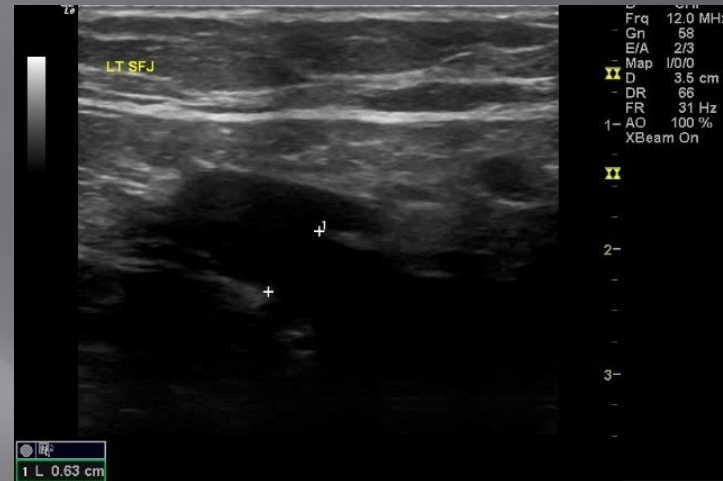
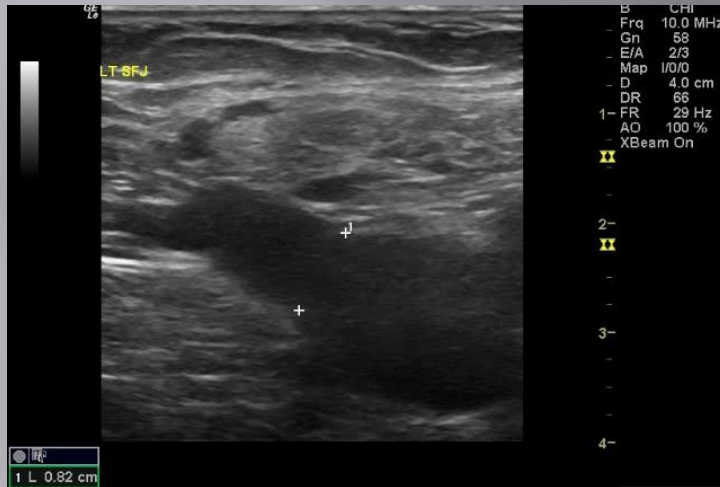


Skin and Vein Clinic - Northland -
Otago - Hibiscus Coast

CB - Duplex R Leg



CB - L leg



CB at 1 yr



Ulcer Definition

“ Non healing break in the skin lasting over 2 weeks “

“Chronic VU “ = non healing over 4-6 weeks

All need a duplex US scan

Leg ulcers

80% - leg ulcers are venous

20% - arterial, diabetic, decubitus,
malignant (median 25yrs to diagnosis)

1-2% Vote Health pa, UK 400M Pds

NZD \$5000 pa

Prevalence UK: 1.2-2.4/1000

1.7% over 65yr olds



Skin and Vein Clinic - Northland -
Otago - Hibiscus Coast

18cm >10yrs

Societal Cost of VU

Large numbers affected – C5 0.5%; C6 0.6-1.4% popn.

Cost of investigation & management

Lost working days, reduced QOL

Direct- Drs and nurses

Indirect- loss of work (USA 2M days 2002)

Annual \$\$\$- 1-2.5 M. Euros Western Europe/ USA. =
1-2% of total health care budget. 2.6% France.

22% district nurses time

80% on those > 45yrs age.

Venous Ulcers – Risk factors

Severe VV Factors:

Chronic CVI

PTS (post DVT)

Obesity (BMI > 40)

Only 3% have DVI alone

>90% superficial venous disease

Causes of Leg Vein Ulcers

Recurrent DVTs.

Trauma - 44%

Spontaneous - 56%

Delayed healing/recurrence:

Age, ulcer chronicity, ankle mobility, ulcer size,
popliteal vein reflux.

(Ref Kulkarni SR et al Phleb 2008;23: 130-136)

Mechanism VU

Poor venous drainage

Chronic venous hypertension = CVI

Increased transmural pressures in post capillary vessels

Skin papillary damage , fluid exudation

Leakage of inflammatory proteins

Interstitial oedema

Tissue ischaemia and hypoxia

Tissue malnutrition

Causing inflammation, infection, thrombosis

Necrosis , LDS

Ulceration

Treatment of Leg Ulcers

Not a simple wound just requiring dressings and topical agents alone

Complex lesion with a definite aetiology

AIM: Improve wound environment
 Reduce oedema.



Leg Ulcer Rx

- Nursing – debridement, dressings
- Compression – class 2 hose, bandaging
- Rx underlying cause = varicose veins



•

Skin and Vein Clinic - Northland -
Otago - Hibiscus Coast



GP's role - Leg Ulcers

- Diagnose the cause – usually VVS
- Prescribe compression - C2 - support, improved tissue hypoxia and nutrition
- Occasionally ABs
- Coordinate nursing services
- Refer for Rx of underlying venous HT
(EVLA + UGS)

Ulcer Dressings

- Hydroolloids (Duoderm)
- Foam (Allevyn)
- Hydrogel (Intrasite, Comfeel)
- Honey
- Alginates (Kaltostat)
- Ichthyopaste
- Larvae
- Antibiotics/ antiseptics
- Silver

They all work

Ulcer Dressings

Change 1-2 x per week

Moist environment

NOT- saline and guaze

LED light- 680, 890nm healed medium to larger ulcers faster

(Ref: Caetano et al - Photomed Laser Surg. 2009 ;27(1):111-8. Phototherapy improves healing of chronic venous ulcers.)

Compression until healed

Dressing Allergies - common

- Allergic reactions to topical dressings
- Multiple allergies in same patient
- Allergens: fragrances, antimicrobials, excipients, rubber accelerators, topical corticosteroids.

Ref : Wound dressings no difference in healing- meta analysis. .

Khashram M, Lewis DR. Managing Venous Insufficiency. NZMJ May 2009; Vol 122 No 1295: 6-8.

Pharmacologic Rxs C4-6

MPPF (Daflon)

Other Flavonoids

Pentoxifylline (Trental)

Oxerutins, Rutosides

Horse chestnut seed extract (Cochrane)

Not Aspirin!

Reduced WBC adhesion, increased venous tone, inhibit platelet function, improved lymphatic flow .

Compression Therapy

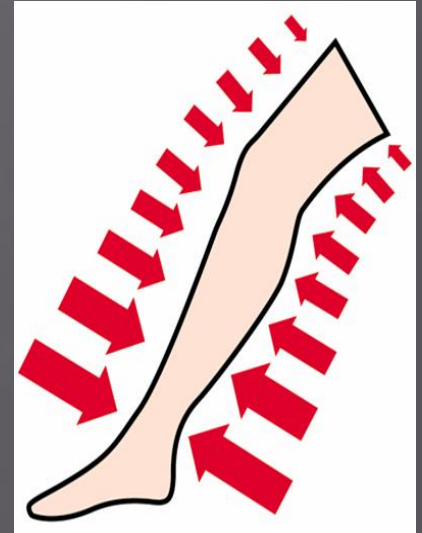
“Graduated Compression Hose”

Promote flow up leg

Compress veins

Prevent ankle pooling

Reduce oedema



PVD - ABIs, arterial assessment

Tubigrip is not compression

Level 1 evidence compression effective
in healing VU

Classes of Compression

Power = Level of compression at ankle

Travel – 8-15mmHg

1 – 18-21 mmHg

2 – 25-32 mmHg

3 – 36-48 mmHg

4 – 48+ mmHg



TED stockings = 18mm Hg

To prevent DVTs perioperatively .

“For use in the non-ambulant convalescing patient”

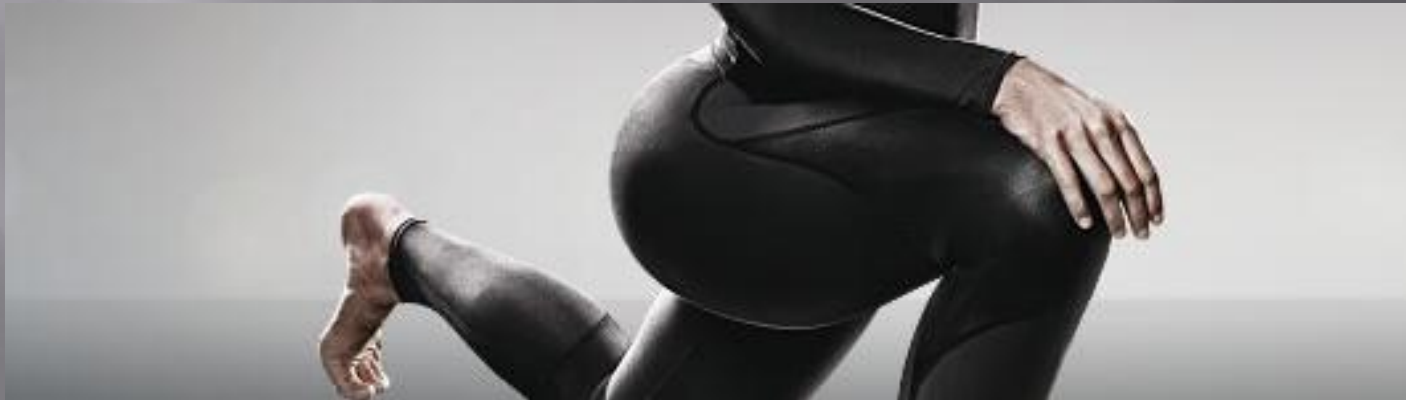
(Manufacturers Recommendation)



**Choose the SKINS She
range to perform better
and recover faster**

she

SKINS She has been
scientifically designed with your team
sports, running, gym etc.



Skin and Vein Clinic - Northland -
Otago - Hibiscus Coast

Ulcer Recurrence

Mayberry JC et al Surgery 1991;109:578-81

Surgical RX VU - 93% complete healing

mean 5.3 mths 30-40mm Hg GCS

All **severe CVI** - 90% compliant hose

97 % compliant ... healed

55 % non compliant healed

Healed group

79% still compliant, 22% recurrence in 36 mths:

21% non compliant, 100% recurrence in 36mths.

Keys to Ulcer Healing

Diagnose - treat varicose veins

Good nursing

Adequate compression

Educate patient and carers

Address obesity

Positive Attitude

A team approach is best

Varicose Veins - Rx Options

- Haemotonics - (Daflon, Trental)
- Hose - palliative
- **Surgery**- ambulatory phlebectomy, stripping , flush ligation, stab avulsion, endoscopy, morcillation.
- Macrosclerotherapy- blind injection of tributaries
- **UGS** - US Guided Foam Sclerotherapy
- VNUS – Closure fast RF
- **Endovenous Laser Ablation (+ UGS)**

Surgery for VVs

SEs: bruising, pain, scars, downtime, nerve injury
+ GA risks

5% VTE risk – 1:20 (DVT/PE)

Recurrences:

SFJ/GSV : **23% at 3 yrs**

SPJ/SSV : **52% at 2 Yrs**

Clinical recurrence - 47.1% at 5 yrs, 62% at 11yrs

Physiologic recurrence - 66% at 5 yrs

1. Recurrence after varicose vein surgery: A prospective long-term clinical study with duplex ultrasound scanning and air plethysmography. Andre` M. van Rij, MD, FRACS, Perry Jiang, MB, ChB, Clive Solomon, FRACS, Ross A. Christie, NZCS, and Gerry B. Hill. (J Vasc Surg 2003;38:935-43.)

2. Winterborn RJ, Foy C, Earnshaw JJ. Causes of varicose vein recurrence: late results of a randomised controlled trial of stripping the long saphenous vein. J Vasc Surg 2004;40: 634-9.

Non Surgical Rx – EVLA, +UGS

- Endovenous laser ablation - 1st choice 10yrs
- Popular – patients & doctors
- Cheaper
- Negligible downtime
- **Lowest VTE risk** (EVLA 1:1500; UGS 1:5000)
- No GAs, nerve damage, scars
- Immediate RTW
- Easily repeatable and safe

Combined with UGS essential

SCLEROTHERAPY

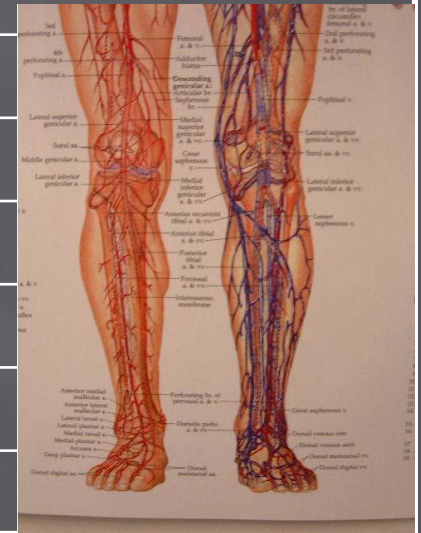
Injecting a foreign substance into a vessel lumen causing endothelial damage ,
with or without thrombosis,
inducing total FIBROSIS.

History Sclerotherapy 1

4 th Century BC	Greeks-Hippocrates	Described VVs, compression therapy
	Romans	Compression RX VVs
1682	Zollifofer	1 st sclerotherapy injected acid
1623-1688	Eisholtz	1 st IV injection , water into ulcer base
1840	Monteggio-D'Etiolles	Absolute alcohol
1851	Pravaz	Ferric chloride

History Sclerotherapy 2

1845	1st hypodermic syringe- Rynd
1916	Linser- perchloride of Hg, founder UGS
1921	Hypertonic saline
1929	Tournay technique
1946	STD, STS, Fibro vein
1961	Polidocanol, Aethoxysclerol
1980's	Echo guided sclerotherapy (UGS)
1989	Published UGS
1993	Laser fibre guided coagulation (EVLA)
1990s	RF ablation - VNUS



History UGS

- 1944 Orbach : air block technique, 3 cc max vol air
- 1937 Richardson:LD air inverse proportional rate injn (dogs)
- 1934 Harman-Harkins 8cc air/kg over 20-30secs (GA dogs)
- 1993 JR Cabrera industrial “microfoam” CO₂
- 1997 5yr experience Paris reported
- 1997 Monfreux on site production foam, glass syringe
- 1997-1999 Henriet 400 cases Polidocanol foam 0.1-0.3%
- 1999 Benigni liquid foam
- 2000 Tessari 2 disposable plastic syringes , 3 way tap, sterile
- 2000 Frullini- Cavezzi : duplex UGS with foam
- 2001 Sadoun 1 syringe and plug



Before UGS



After

UGS



Skin and Vein Clinic - Northland -
Otago - Hibiscus Coast



Pre UGS



30 days



2 yrs

UGS – 5yr prospective NZ study

146 patients, 203 limbs
25-85yrs ; mean age 57 yrs,
M 34% F 66%

30% post surgical VVs
Av. foam volume 7.3 ml
3:1 3% STS / air foam

ReRx rate - 43% 6 wks - 6 mths
 23% 6 mths – 12 mths

Average 2.53 Rx's

* Prospective five year study of ultrasound guided foam sclerotherapy in the treatment of great saphenous vein reflux.

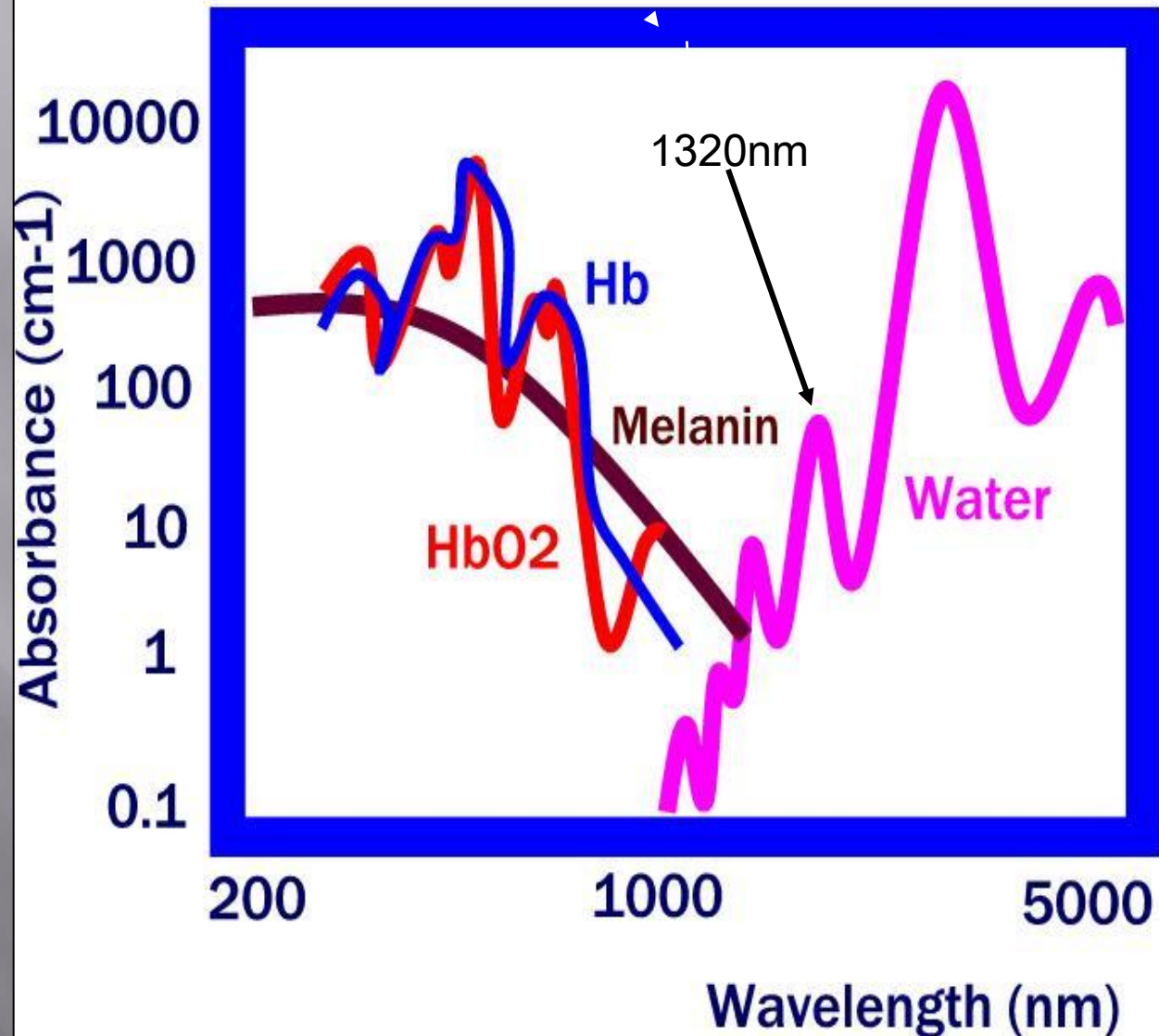
P Chapman-Smith, A Browne, Phlebology 2009;24:183-188

Endovenous Laser Ablation (EVLA)

- Any size veins
- Patient friendly
- Safe & effective
- Infrared lasers
- Klein Tumescant LA
- No scars
- No GA risks
- Automated pullback
- Clexane cover - thrombophilia



Figure 5 - Absorption of light by major skin pigments



Vaporisation effect- EVLA

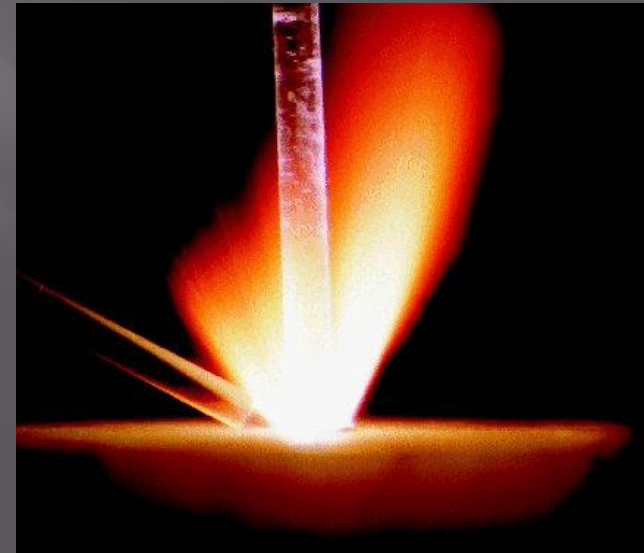
Temperatures $> 1000^{\circ}\text{C}$.

Water  steam

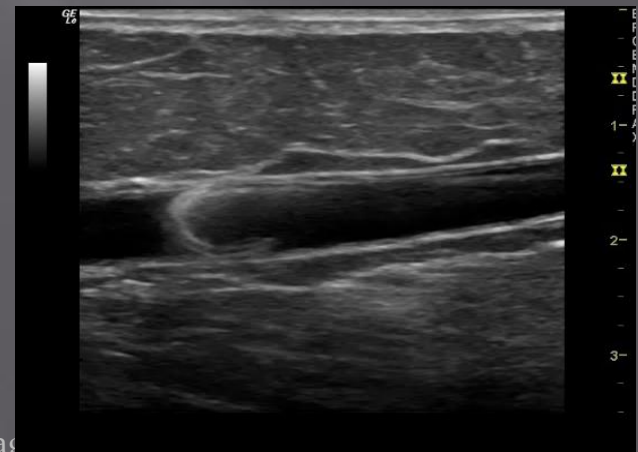
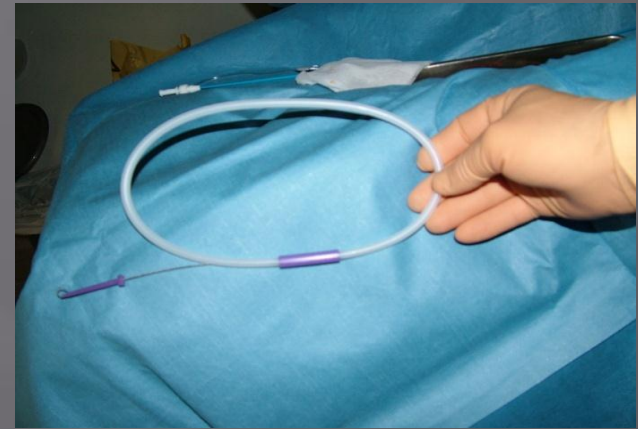
Water expands

Vaporisation

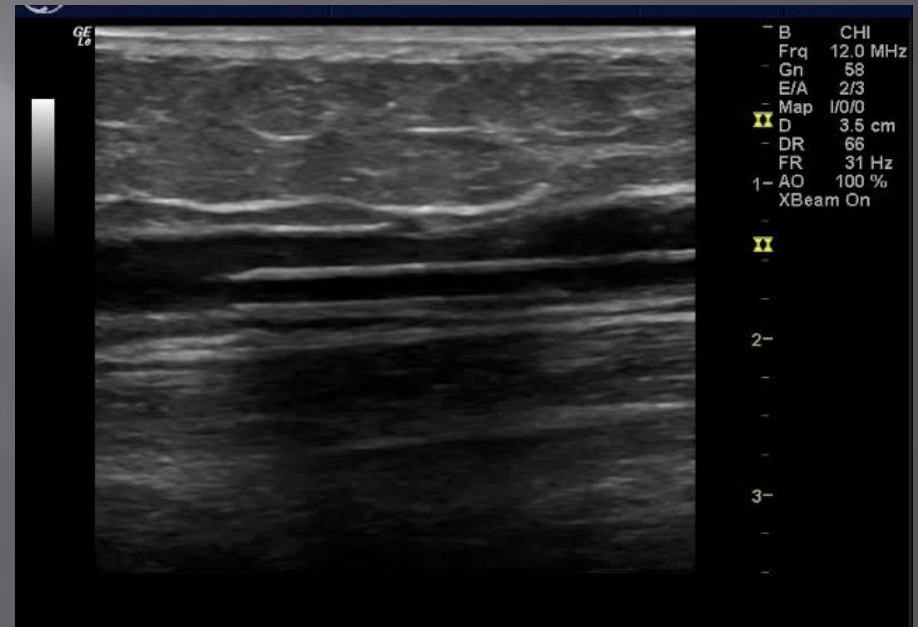
Coagulation



Insert Guidewire



Insertion Catheter



Catheter sheath with stiffener



Introducing the laser fibre

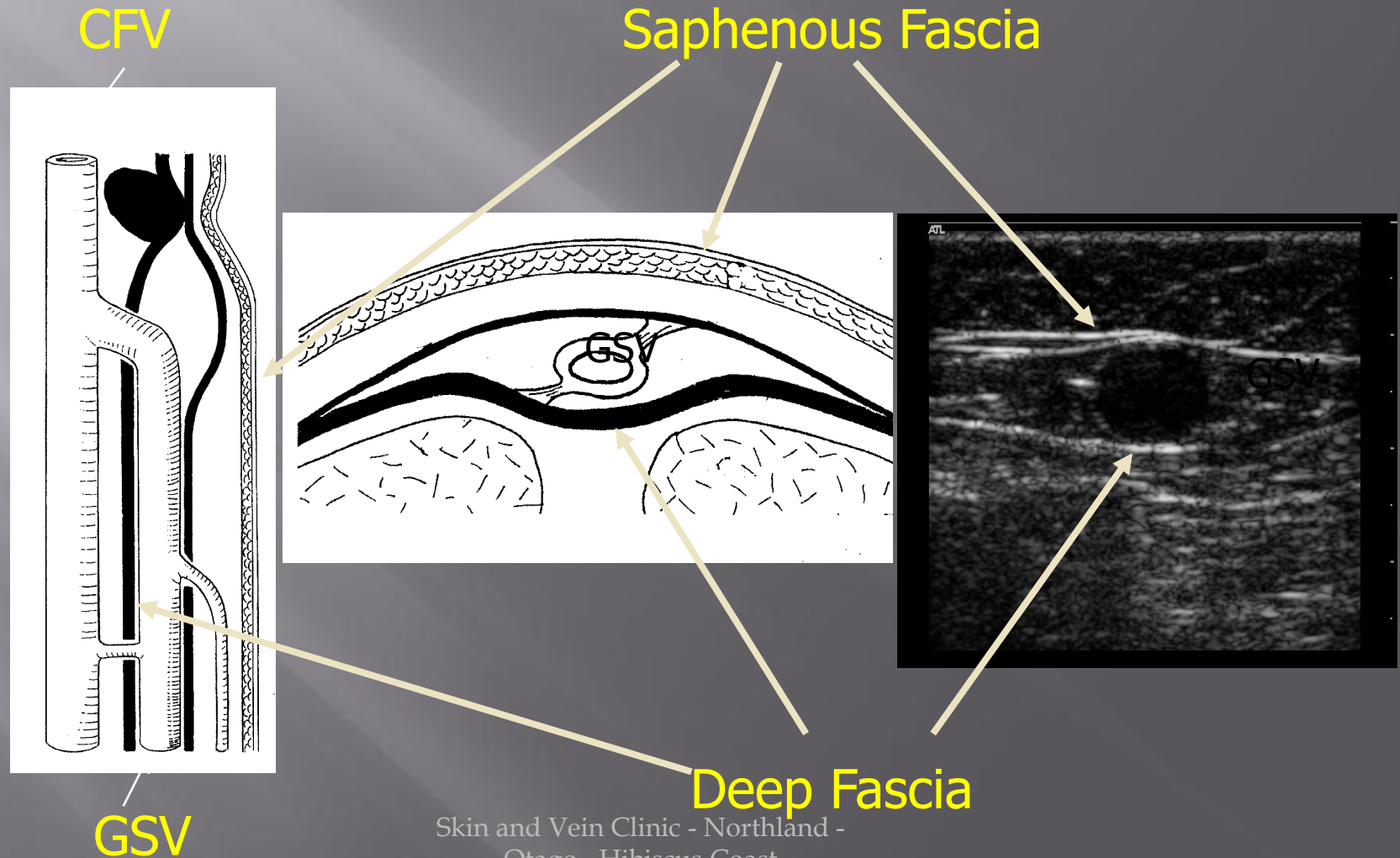
Skin and Vein Clinic - Northland -
Otago - Hibiscus Coast

Tumescent Local Anaesthesia

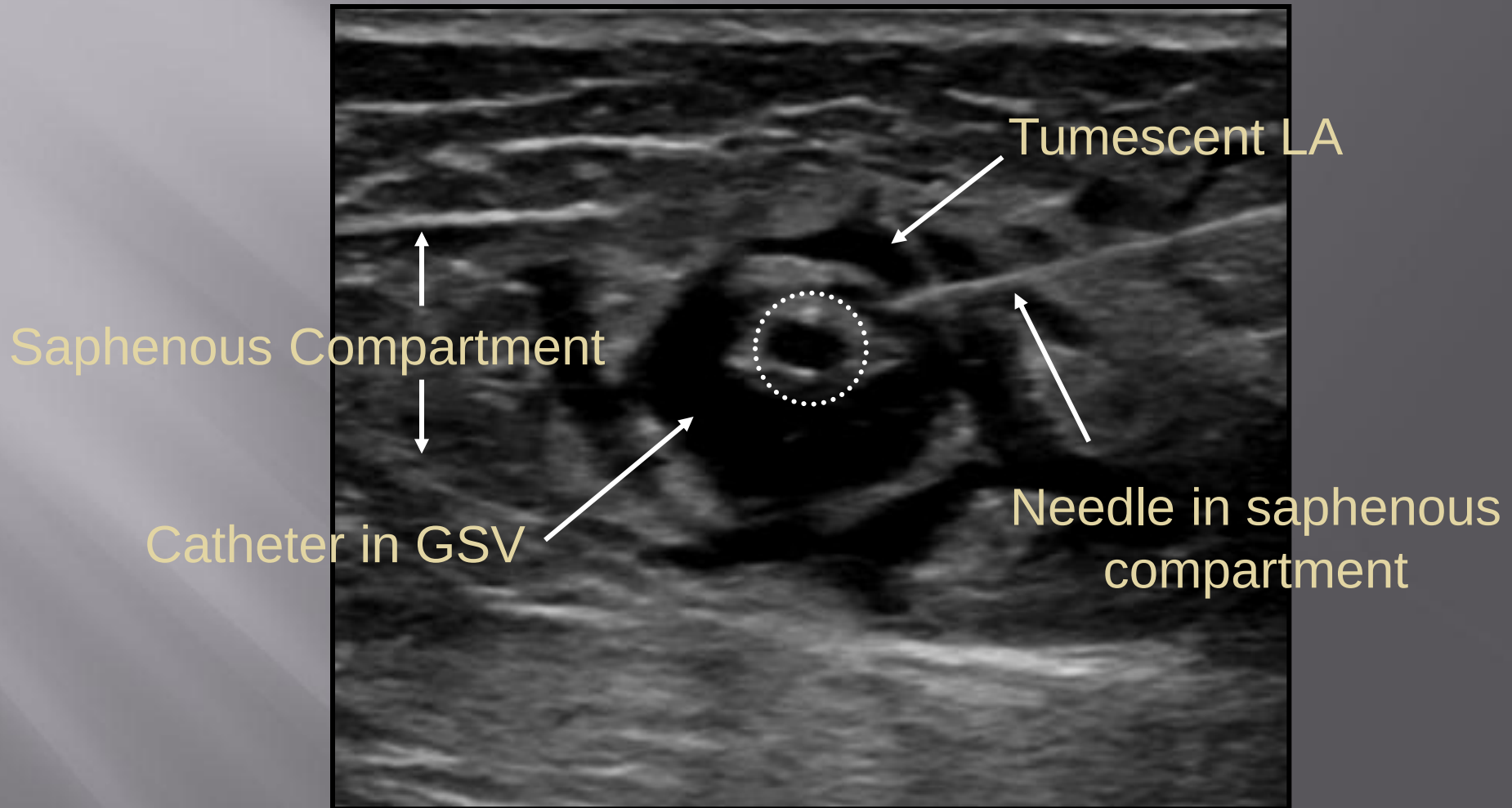
- Displaces perivenous tissues
 - Heat sink
 - Vein compression
 - Analgesia
-
- Tumescent Klein Anaesthesia 10-14 mls / cm
= Lignocaine + Na Bicarbonate + Adrenaline



The Saphenous “Egyptian” Eye



EVLA with TA



Fibre Withdrawal



Skin and Vein Clinic - Northland -
Otago - Hibiscus Coast



Skin and Vein Clinic - Northland -
Otago - Hibiscus Coast

Concurrent UGS



Microbubble foam
to distal trunks, all refluxing tributaries

Skin and Vein Clinic - Northland -
Otago - Hibiscus Coast

Post EVLA

- Walk out stat
- C2 hose - 10 days
- Exercise 30mins daily
- No straining and long haul flights - 30d
- Serial FU US - (objective)
- Annual patient assessment - (subjective)

EVLA Results



Before



1 Year after EVLA

Ulcers 2yrs. Farmer.



Pre EVLA

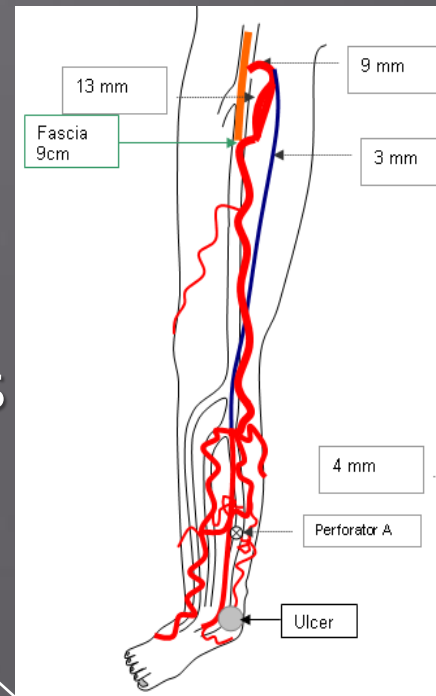


3 months



12 months

Prior ulcer scars



Ulcers for 10 years



Pre EVLA



6mths



12 mths

EVLA with 1320nm and Foam UGS - a 1000 prospective case series.

ACP Scientific Meeting
Melbourne April 2011

Dr Peter Chapman-Smith

Angela Browne, DMU

Skin and Vein Clinic
Whangarei, New Zealand

Vessels Treated

			Lengths Rx (cms)
GSV	742	71.1%	34 (8 – 84)
SSV	201	19.3%	19 (3 – 47)
AASV	100	9.6%	17 (5 – 53)

CEAP

CEAP 1	0.21%
CEAP 2	27%
CEAP 3	38%
CEAP 4	29%
CEAP 5	4%
CEAP 6	3.12%

Average Vessel Sizes - cms

	Initial diameter	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
SFJ	6.9	5.7	5.77	5.41	5.81	4.72
SPJ	5.9	3.29	2.65	2.47	2.55	2.3
GSV	6.2	1.76	1.74	1.49	1.44	1.5
SSV	5.53	1.77	1.59	1.37	1.58	1.22
AASV	5.09	1.45	1.59	1.36	1.15	1.2

Trunkal Veins post EVLA

n= cohort for year

	12mths	3 years	5 years
GSV closure	99% (n=437)	94% (n=126)	87% (n=30)
SSV closure	99% (n=130)	100% (n=32)	100% (n=5)
AASV closure	98% (n=59)	93% (n=14)	100% (n=2)

Patient Self Assessment Score

POST EVLA	Year 1	Year3	Year 5
Improved symptoms & appearance	99 %	100 %	100 %
Would undergo again if necessary	98 %	98 %	100 %
Would have preferred to have surgery	1 %	1 %	0 %
Would recommend to friends	97 %	98 %	100 %
Rated EVLA a successful treatment	100 %	100 %	100 %
Any pain	16 %	18 %	10 %
N numbers	360	96	24

EVLA - Complications - 970 limbs

Pain	5 %		n = 47	
Thrombophlebitis - EVLA , UGFS	0.5 %	0.8 %	5	8
Staining - EVLA, UGFS	1.5 %	2.0 %	15	20
Swelling	4.8 %		47	
DVS (calf only)	0.82 %		8	
Tongue of thrombus	0.61 %		6	
Sepsis	0.33 %		3	
Transient dysaesthesia	3.1 %		30	
PE	0.21 %		2	
Cellulitis	0.1 %		1	
Burns, death, DVT, cough, chest tight, TIA, CVA	NIL		NIL	
Scotomata	1.2 %		12	

Thrombectomy

Stab with 11 blade

Pad, GCS for 24 hours

For comfort, less staining , less recanalisation



Outcomes of combined EVLA-FS

Physiologic result

High efficacy & safety

Low VTE risk (< background population)

No upper vein size limit

Popular , no downtime

No scars

Infrared lasers best

Need sclerotherapy skills

1st line treatment for VVs

A large manta ray is swimming underwater, its body arched and fins spread. The water is a deep blue, and the scene is dimly lit. In the background, a diver is visible on the sandy ocean floor. The title "Deep Vein Thrombosis" is overlaid in a yellow, serif font.

Deep Vein Thrombosis

Skin and Vein Clinic - Northland -
Otago - Hibiscus Coast

DVT

- Thrombosis in deep venous system
- Incidence: 1-2 per 1000 pa
- Outcomes:
 - Resolution
 - Thrombus extends
 - Pulmonary Embolus – can be fatal

VTE Risk Factors

Varicose veins

Surgery

Trauma

Heart Disease

Cancer (6x risk)

Immobility (8x risk)

Obesity

Pregnancy

Hormone therapy (2-3x risk)

Age (2x every decade > 40)

Genetic (thrombophilia)

Previous DVT (4x risk)

Symptoms

- Unilateral leg swelling
- Rarely painful
- Pitting oedema
- Distension of superficial vessels
- Skin erythema



Diagnosis

- Clinical assessment - difficult
- Wells score
- “D-dimer” blood test – non specific
- Ultrasound scan - definitive



Treatment

- Clexane – LMW Heparin (Enoxaparin)
- Antecoagulate
- Graduated compression stockings C2
- US surveillance
- **No role for Aspirin**
- Community management in GP usual

“Phlebitis”

Thrombophlebitis

= inflamed, clotted superficial VVS

Rarely extend to deep system

Not an infection

Rx:

NSAIDS

Compression hose (class 2)

Hirudoid cream

Rule out DVT



Post Thrombotic Syndrome

Leg pain

Swelling

Post DVT

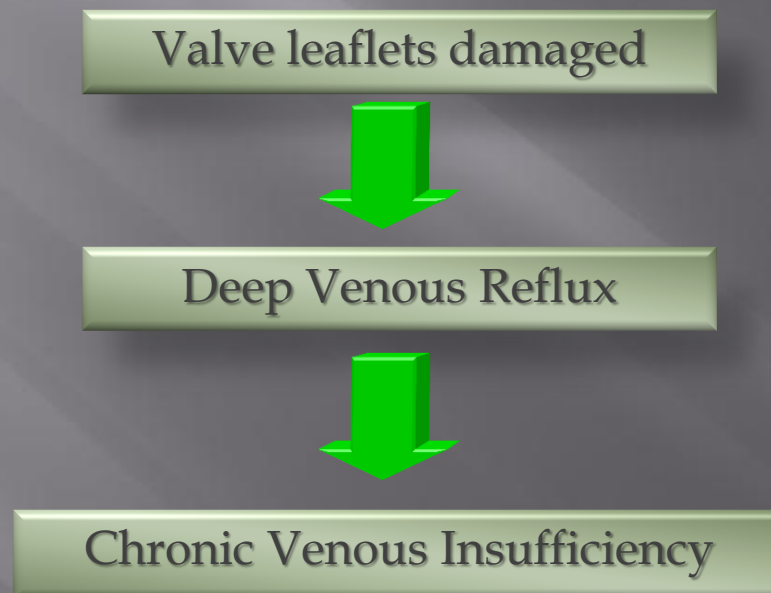
PTS - symptoms

- 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- CVI , damaged valves.
Reduced blood flow, swelling, and limb pain.



Post Thrombotic Syndrome

15 – 50 % incidence post DVT

5 % Severe PTS at 10 year FU

Higher thrombotic load (prox. DVT) higher risk
PTS – increased risk of further VTE.

**Level 1 evidence – wearing class 2 hose
for 2 yrs post DVT reduces PTS by 50% !!!!!**

PTS

30-50% BK DVT will develop PTS

Symptomatic within 2 years of DVT

More severe PTS:

- Persistent venous obstruction within 6mths
- >1 thrombosed segment
- Recurrent DVT
- More severe sx post DVT
- Iliofemoral segments involved

Reflux, obstruction, recanalisation easy to diagnose.

Villalta criteria

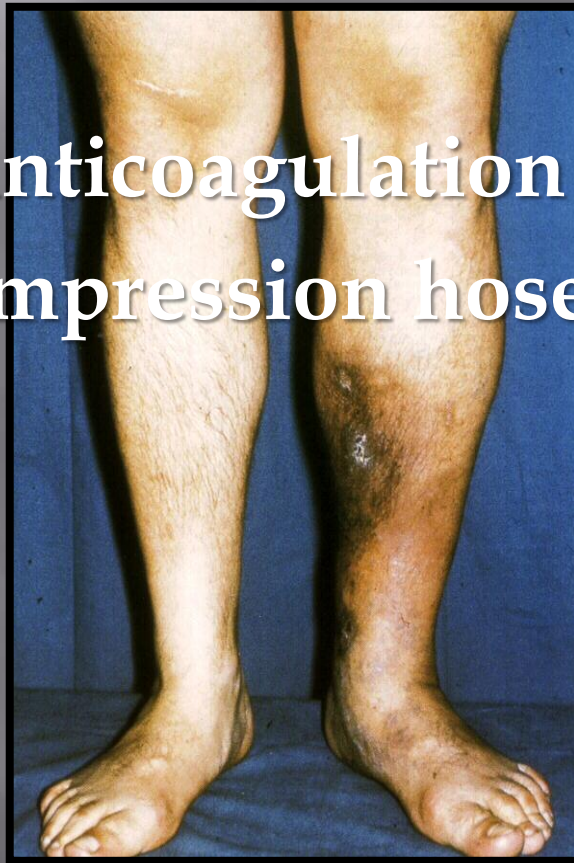
Skin and Vein Clinic - Northland -
Otago - Hibiscus Coast

Post Thrombotic Syndrome

Comparable to cancer and CHF

5-10% SEVERE

Adequate anticoagulation reduces risk
Wear compression hose lifelong.



Skin and Vein Clinic - Northland -
Otago - Hibiscus Coast

Who to Refer

NHS Guidelines- Phlebology July 2011

Bleeding veins, acute STP, complicated C4-C6 VVs

Skin changes increase risk of CVU.

All require a duplex US.

**Below knee skin break not healed
within 2 weeks –urgent referral
to eradicate superficial venous reflux.**

Ref: Recommendations for the Referral and Treatment of Patients with Lower Limb Chronic Venous Insufficiency (including varicose veins)

David Berridge, Alun Davies, Andrew Bradbury, Manj Gohel, et al.

Phlebology Vol 26 : 91-93, Number 3 2011 ISSN 0268-3555

Take Home Messages

Varicose veins are often missed

Leg ulcers need not be heart sink patients

Modern Rx - simple walk in/walk out procedures

Compression is a therapy

Surgery has been long surpassed

Few contraindications to Rx.

Allow better QOL



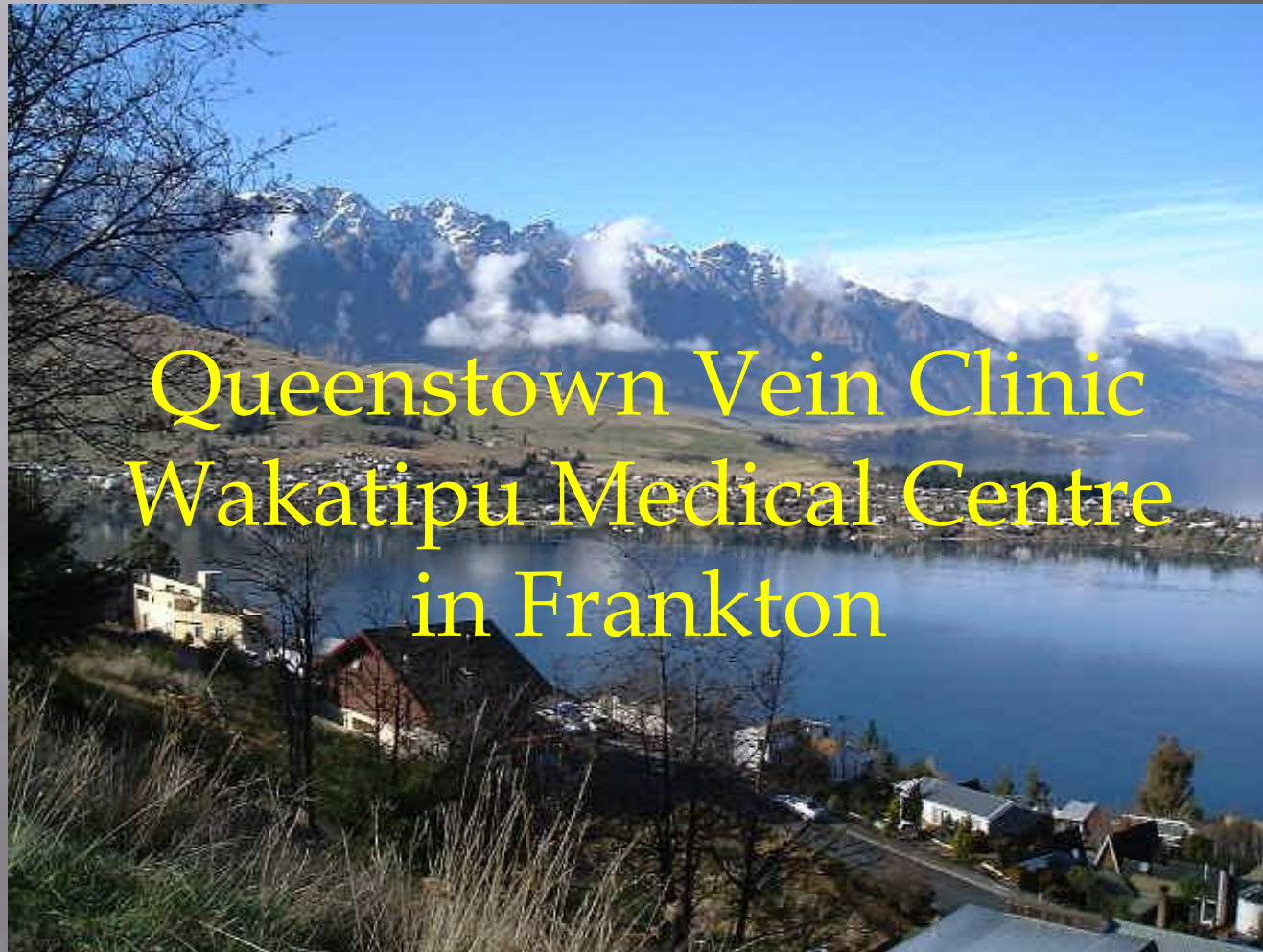
Correspondence:

skinandvein@clear.net.nz

0800 1 4 VEINS

www.skinandvein.co.nz

Thank you



Skin and Vein Clinic - Northland -
Otago - Hibiscus Coast