Modern management of varicose veins

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History



Ebers papyrus (ca. 1550 BC)



foot of the Acropolis 4th c BC

History

Hippocrates (460-377 BC) recognized the correlation between VV's and ulceration

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1890, Friedrich Trendelenburg (1844-1925), GSV paper



Epidemiology

- 23% of adults
- 6% have advanced disease
- 11m(M) 22(F)
- >2m active ulcer
- Financial burden to patient and society
- <u>+</u> 1 billion US \$



Varicose veins

- Thought to be cosmetic problem
- Affect emotional wellbeing
- Frequently cause of
 - Discomfort
 - Pain
 - Loss of working days
 - Disability
 - Low QOL

Varicose veins

- Evaluation greatly improved with duplex u/s
- Dramatic change in treatment due to endovenous therapy
 - EVLA
 - RFA
 - Sclerotherapy

Anatomy



Varicose vein diagnosis

- Clinical evaluation
- Duplex doppler
- Rarely
 - Venogram
 - CTV
 - MRV
 - · IVUS

Varicose vein

treatment

- Medical therapy
- Compression therapy
- Open venous surgery
 - High ligation, division and stripping
 - Ambulatory phlebectomy
 - Powered phlebectomy
- Sclerotherapy
- Endovenous thermal ablation
 - EVLA
 - RFA
 - Superheated steam

Medical therapy

- Venoactive drugs
 - Treat symptoms of varicose veins
 - Reduce oedema
 - Accelerate ulcer healing

Mechanism of action unknown

- Principle: improve venous tone and permeability
- Insufficient evidence to support its global use
- Martinez MJ, Bonfill X, Moreno RM, Vargas E, Capella D. Phlebotonics for venous insufficiency. Cochrane Database Syst Rev 2005: CD003229.



EVOLUTION AND DEVELOPMENT

- First attempt : Zollikofer in 1682 with acid as 'sclerosant'
- 1940 1950 : The procedure became accepted in Europe
- 1946 : Sodium Tetradectyl sulphate (STS) developed – still used today
- Initially Liquid Sclerotherapy outcomes poor in larger vessels
- 1997 : Development of Foam Sclerotherapy for larger vessels

Sclerotherapy

- Indication :
 Contraindication :
- Residual vein after surgery
- Telangiectases.
- Isolated small dilated veins

- Pregnancy
- Sup thromboplebitis at the time of procedure
- · DVT
- Previous hypersensitivity reaction to sclerosant

Sclerotherapy

- Liquid sclerotherapy: smaller (telangiectases, small reticular, venulectases)
- Foam sclerotherapy : larger veins
 - Tessari-like technique





Sclerotherapy

• <u>Advantage</u>

Disadvantage

- Cheap
- Easy to learn
- Truly an OPD procedure an be repeated many times
- No anesthesia required

- Not suitable for SFJ/SPJ obliteration
- Thrombophebitis
- Pigmentation over skin
- More than 3 wks compression is required

Endovenous thermal ablation

- Minimal invasive
- Done under U/S
- Requires local tumescent anaesthesia
- Done as outpatient in office
- Better early QOL
- Early return to normal activities

Endovenous thermal ablation

mechanism of action

Causes direct thermal injury

- Destruction of endothelium
- Collagen denaturation of the media
- Fibrotic and thrombotic occlusion

Endovenous thermal ablation

contraindications

- Inappropriate size
- History of thrombophlebitis
- Tortuous GSV
- Aneurysmal SFJ
- Relative contraindications
 - Uncorrectable coagulophathy
 - Liver dysfunction
 - Immobility
 - pregnancy

Technique





EVLA



RFA





Endovenous therapy outcome





Pre therapy

One week post therapy

Post procedural care

- Maintain compression
- Early ambulation
- Thrombosis prophylaxis

EVLA COMPLICATIONS

- Bruising: 75%
- Paresthesia: 3%
- DVT: 3%
- Thrombophlebitis: 1.87%
- Skin burns: 0.46%
- Thrombus extension: 2.3%
- Kabnick LS. Vascular 2006;14(suppl 1):S31-2.
- Knipp BS,et al.J Vasc Surg 2008;48:1538-45.

EVLA vs SURGERY

2 YEAR FOLLOW UP

	SURGERY	EVLA	Ρ
No : Limbs	60	69	
Clinical recurrent	7%	7%	0.44
Incompetent perforator	3%	1%	0.45
Recanalization GSV	2%	3%	0.23
Neovascularization	18%	1%	0.0001

Eur J Vasc Endovasc Surg (2009) 38, 203-207



Complications

- Paresthesia: 3.2%
- Thrombophlebitis: 0.8%
- Ecchymosis: 6.3%
- Skin pigmentation: 2%
- Thrombus extension: 2.6%
- Proebstle TM, et al. J Vasc Surg 2008;47:151-6.
- Lawrence PF, et al. J Vasc Surg 2010;52:388-93

RFA reflux outcome

- 5 years
- 83.8% of GSV's were free from reflux first generation
- 3 years
 - at 3 years ~ 95.7% free of reflux
- at 3 years ~ 92.6% probability of occlusion
- No blood flow within the treated GSV was observed ~ 92.6%
- Merchant and Pichot ~ 2005 Journal of Vascular Surgery
- Proebstle et al of the European Closure Fast Study Group –Journal of Vascular Surgery. In press

Endovenous therapy

- Relief of symptoms
- Reduced hospital stay
- Most patients resume normal activities within 1-2 days
- Local anesthesia
- Good clinical outcome with minimal to no scarring, bruising or swelling



Surgery	Sclerotherapy	Laser ablation	Radiofrequency ablation	Foam therapy
• Wound infection, 3%-6%	 Skin staining or necrosis, 3% 	• Purpura/bruising, 11%-23%	• Saphenous nerve paresthesia, 13%	 Contusion, bruising, hematoma, 61%
• Sural or saphenous nerve injury, 10%-	 Superficial phlebitis, 22%-27% 	• Erythema, 33%	 Superficial phlebitis, 0%-20% 	 Skin pigmentation, 51%
23% • Hematoma, 31%		 Hyperpigmentation, 57% 	• Hematoma, 7%	• Headache, 11%
 Superficial phlebitis, 0%-12% 		• Hypopigmentation, 2%	 Thermal skin injury, 7% 	
	٨	• Blistering/sloughing,	• Paresthesia, <1%	
		 Scaring, 13% Telangiectatic matting, 28% Edema, 15% Paresthesia, 1%-2% Superficial phlebitis, 6% 	● Leg edema, <1%	



THANK

YOU