

Endovenous Laser Therapy: Long Term Results

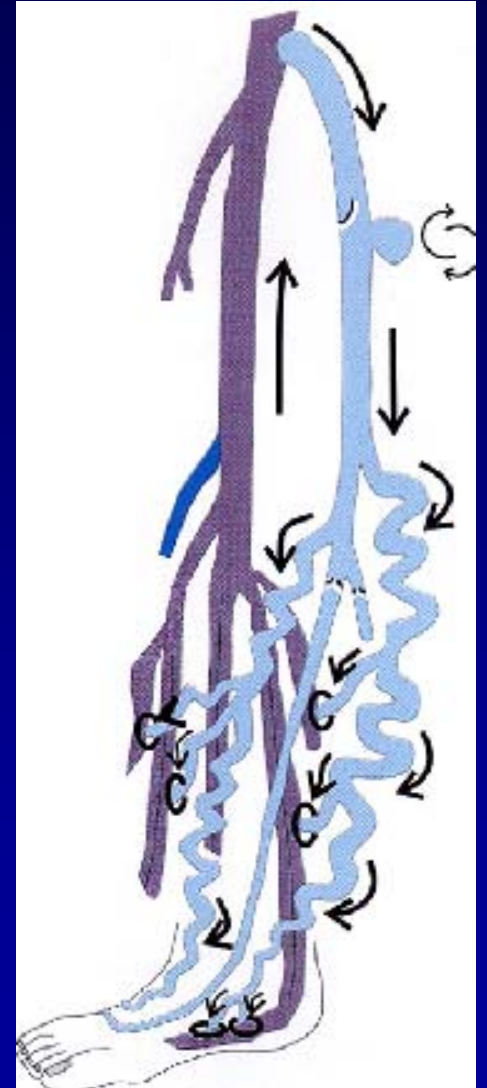
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MIT 2004

Varicose Vein Treatment

- Rx begins with truncal reflux elimination
 - Ligation and stripping
 - Endovenous thermal ablation
 - Sclerotherapy (foam)

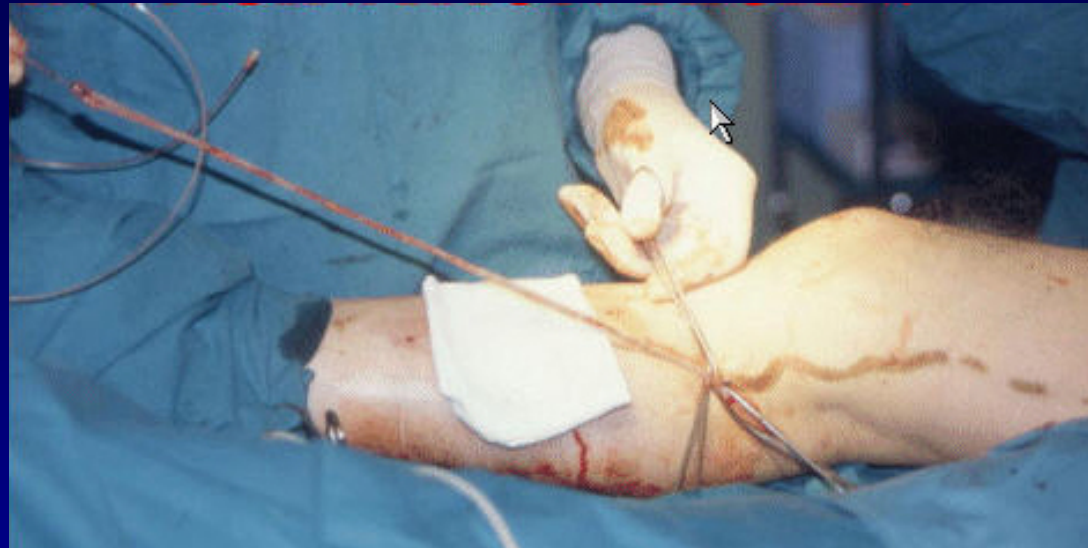


Ligation & Stripping



- *Established* treatment for GSV reflux
- Invagination Phlebectomy

Ligation & Stripping: Intimidates patients



- Risks of general anesthesia
- Possible complications of surgery
 - Paresthesia, infection, bleeding
- 1-5 days recovery
- Higher costs of in-hospital procedure

Ligation & Stripping - Results

Recurrence

Follow-up

	Recurrence	Follow-up
Blomgren ¹	57%	6-10 years
Sarin ²	35%	21 months
Jones ³	25%	2 years
Dwerryhouse ⁴	23%	5 years

¹Blomgren L, Johansson G, Dahlberg-A, et al. Recurrent varicose veins: incidence, risk factors and groin anatomy. *Eur J Vasc Endovasc Surg* 2004; 27:269-74.

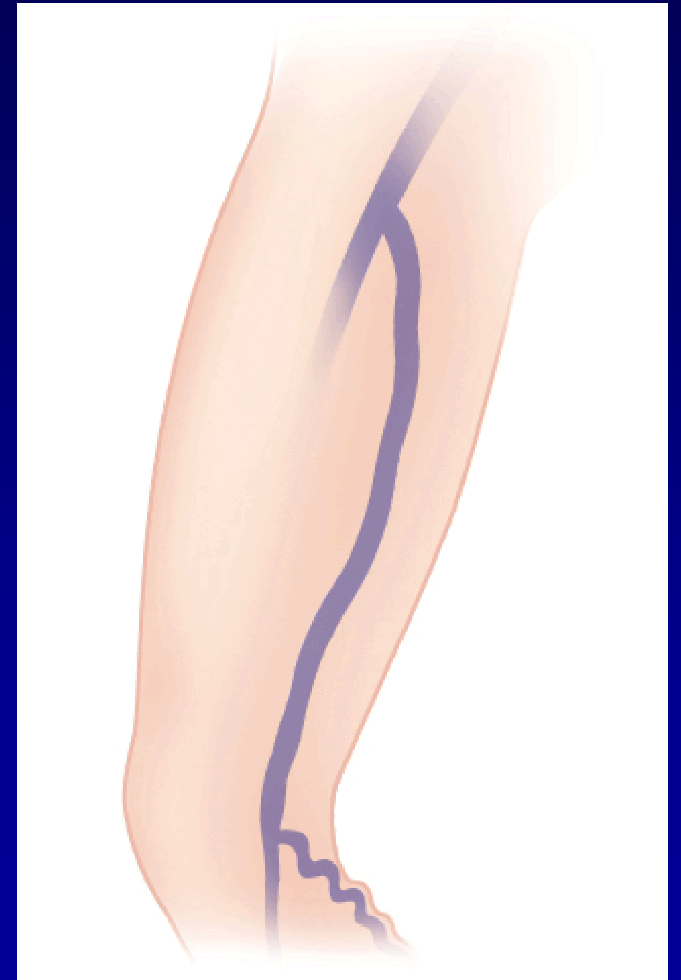
²Sarin S, Scurr JH, Coleridge Smith PD. Stripping of the long saphenous vein in the treatment of primary varicose veins. *Br J Surg* 1994; 81:1455-8.

³Jones L, Braithwaite BD, Selwyn D, et al. Neovascularization is the principal cause of varicose vein recurrence: results of a randomized trial of stripping the long saphenous vein. *Eur J Vasc Endovasc Surg* 1996; 12:442-5.

⁴Dwerryhouse S, Davies B, Harradine K, Earnshaw JJ. Stripping the long saphenous vein reduces the rate of reoperation for recurrent varicose veins: 5-yr results of a randomized trial. *J Vasc Surg* 1999; 29:589-92.

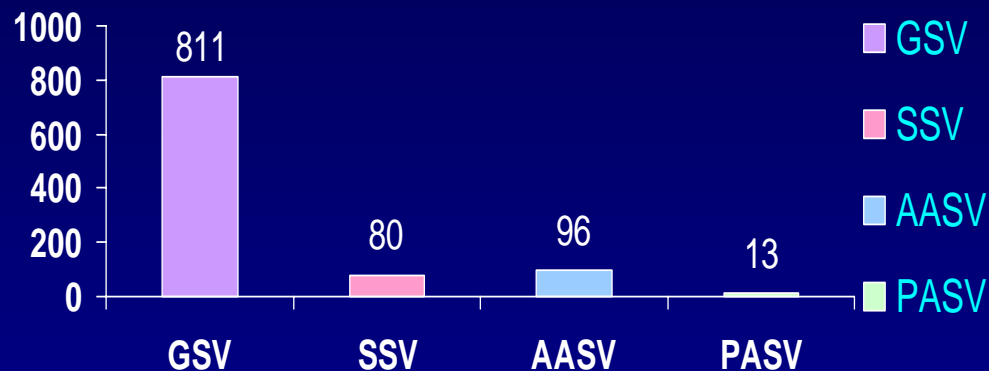
Endovenous Thermal Ablation

- Shortcomings of surgery inspired development of
 - Radiofrequency Ablation
 - Endovenous Laser Treatment



Endovenous Laser Treatment – *Results*

1000 limbs (RJ Min)



- 925 patients
- 87% patients symptomatic
- 810 nm Diode source

Data to be presented at ACP 2004

Endovenous Laser: Technique

- Pre-treatment DUS mapping
- Endovenous US guided laser fiber placement
- Tumescant Anesthesia
 - no sedation utilized
- Class II GCS (30 to 40 mm Hg)
 - 1- 4 wks
- No recovery period
- Interval sclerotherapy

Endovenous Laser Treatment – *Results*

Gender

812 (88%) women

113 (12%) men

Age

22 - 78 yrs

mean: 43 yrs

Side

56% left

44% right

Diameter

4.1 - 38 mm

mean: 10 mm

Length

7 - 70 cm

mean: 40 cm

Endovenous Laser Treatment – *Results* *1000 limbs*

Follow-Up (Yrs)	Closed / No. Treated	Continued Occlusion
< 1 Year	309 / 322	96 %
1 – 2 Years	216 / 218	99 %
2 – 3 Years	239 / 241	99 %
> 3 Years	218 / 219	99 %

All patients had compression sclerotherapy
All varicose vein recurrences seen with failure

Endovenous Laser Treatment – *Results* *810 nm Source*

- Majority (13/18) failures prior to 1 year
- Only 1 failure in over 500 veins treated with 14 watts continuous mode
- 100% success if treated with > 70 joules/cm

Endovenous Laser Treatment – *Results*

Min: 1000 limbs

- 99% of successful procedures resulted in resolution of symptoms
- Bruising & mild / moderate tenderness (most resolved in < 2 wks)
- **NO** skin burns, DVTs, or paresthesias

Endovenous Laser Success Rates: Other Published Data

- 90% (94/104) closed at 12 months

Proebstle TM, Gul D, Lehr HA, et al. J Vasc Surg 2003;38:511-6.

- 97% (29/30) closed at 12 months

Sadick NS and Wasser S. J Cosmet Laser Ther 2004; 6:44-49.

Endovenous Laser Success Rates: Published Abstracts

- 96% (280/291) closed at 12 months

Todd K, Fronek H, Isaacs M, Mackay E, Pearson D. JVIR supplement 2004: Abstract S144.

- 99% (149/150) closed at 12 months

Roizental M. JVIR supplement 2004: Abstract S211.

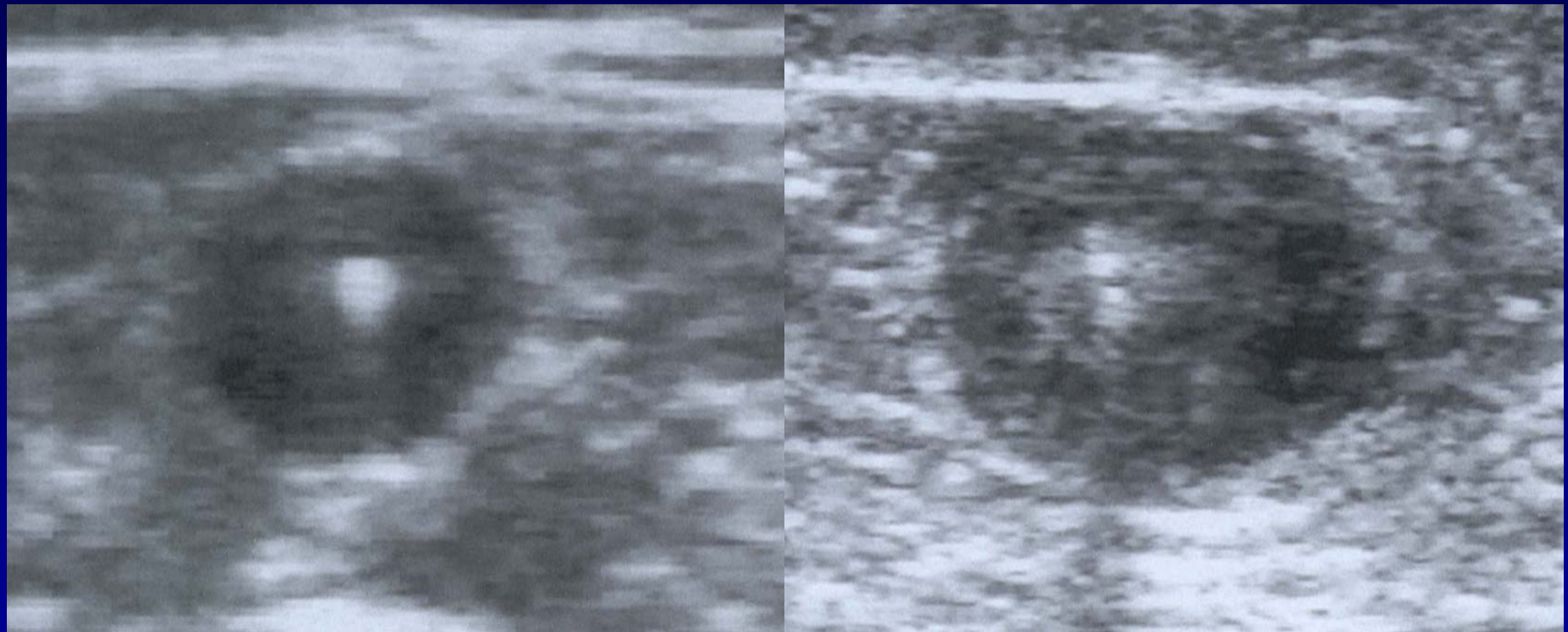
Endovenous Laser – *Complications*

- Pooling data from these studies for approximately 1500 limbs (810nm)
 - 0.25% transient paresthesia
 - 0% skin burn
 - 0% DVT

Features associated with success

- Treat the entire incompetent segment
- Start close to junction
- Deliver at least 80 joules / cm
 - Timmperman etal JVIR 2004
 - Continuous mode
- Good tumescent anesthesia
 - Safety and efficacy in addition to comfort
- Vein wall thickening on f/u DUS

US before and after TA

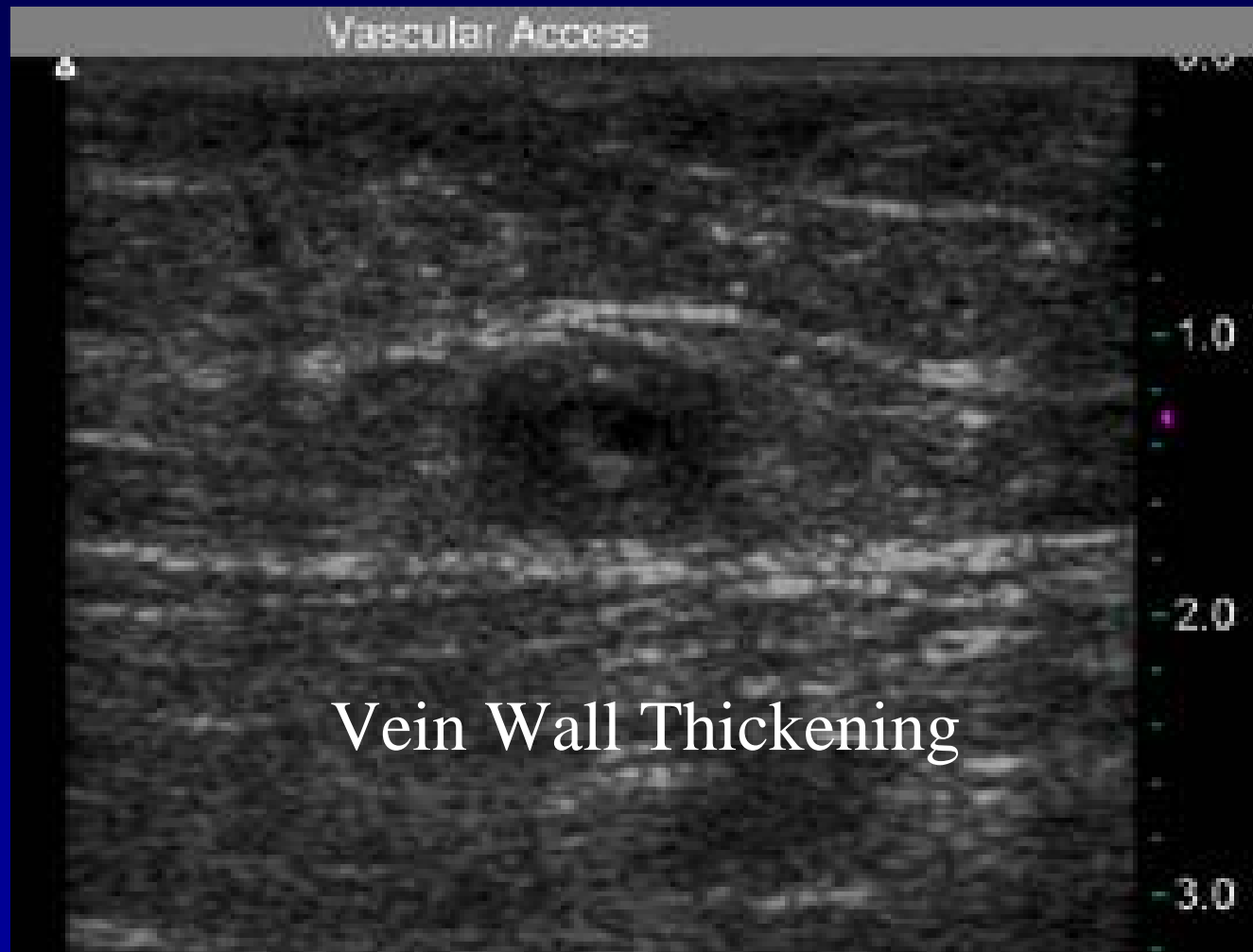


Distended vein

Vein collapsed

Most important with proximal vein segment

Follow-up one month after EVLT



Great Saphenous Vein *EVLT + Sclerotherapy*

Pre-Treatment



Post-Treatment



Great Saphenous Vein *EVLT + Sclerotherapy*

Pre-Treatment



Post-Treatment



Small Saphenous Vein *EVLT + Sclerotherapy*

Pre-Treatment



Post-Treatment



Endovenous Laser: Intermediate results

- Short recovery
- Few complications
- Excellent results
 - ? Better interval results than L & S
- Greater patient acceptance