The Management of Side Branches and Perforating Veins

T. Noppeney

Center for Vascular Diseases:
Outpatient Dept. Obere Turnstrasse,
Dept. for Vascular Surgery Martha-Maria Hospital
(Academic Teaching Hospital Erlangen University)
Nürnberg, Germany
Disclosures

Workshops and Presentations for Covidien

Consultant Medi Bayreuth
The focus of this presentation will be on endovenous thermal ablation of incompetent perforating veins (IPV).

Due to lack of time I don’t talk about minimal invasive techniques of side branch ablation.
Development of Endovenous Thermal Ablation of Perforating veins

- 1998 CE mark for radiofrequency ablation (RFA)
- 1999 CE mark for endovenous laserablation (ELA)
- 2009 first publication about RFA stylets
- 2009 first publication about ELA in perforating veins
Ablation of IPV with RFA

- Retrospective case series, follow up 5 years after initial treatment
- Follow up 55%
- Occlusion rate 81% (n=101/125)
- 14 new IPV
Ablation of IPV with RFA

- Treatment of 14 IPV with RFA stylet
- Occlusion rate 3 m postoperatively 68%
• Observational study in 48 ablation procedures in 93 IPV

• Mean diameter $3.8 \pm 1.1$ mm

• 11 (11.8%) IPV remained patent

• Age, prior GSV ablation, IPV diameter and C class didn’t have an influence on occlusion, only pulsatile flow in the IPV ($p<0.001$)
Ablation of IPV with ELT

Occulsion of 6 of 7 IPV with 50-60 J

Follow up 4 weeks
Ablation of IPV with ELT

- Treatment of 58 IPV in 33 legs with 810 nm laser
- Occlusion rate 78% 3 months postoperatively
- 4 of 5 ulcer healed after 6 months
Observational study in 13 patients, 16 limbs and 24 treated IPV

- Average Energy 174 J (105-236 J)
- 2 patients with local paresthesias
- 4 of 5 ulcers healed within 8 weeks
- Occlusion rate 86.9% at 12 months follow up

Dumantepe M, Trahan A, Yurdakul I, Ozler A  Endovenous laser ablation of incompetent perforating veins with 1470 nm, 400 µm radial fiber
Photomed Laser Surg 2012; 30: 672-677
Summary

• RFA and ELT are feasible to treat IPV
• Ulcers seem to heal faster
• Occlusion rates are acceptable and vary between 68 and 88 %
Question

Is it necessary to treat IPV
• Review ➤ 4 RCT’s and case series

• After Ablation of the GSV alone there was a significant reduction of IPV

• In 2 RCT’s the additional ligation of IPV showed no additional benefit in comparison to compression alone

• Case series showed little effect on the addition of IPV treatment to GSV stripping

O´Donnel TF The present status of surgery of the superficial venous system in the management of venous ulcer and the evidence for the role of perforator interruption J Vasc Surg 2008; 48: 1044-1052
Nelzén O, Fransson I; Swedish SEPS Study Group; Early results from a randomized trial of saphenous surgery with or without subfascial endoscopic perforator surgery in patients with a venous ulcer
Br J Surg 2011; 98: 495-500

- No additional benefit regarding ulcer healing in patients with stripping and SEPS in comparison to stripping of the GSV alone
SEPS for Treatment of IPV

Ulcer Healing Rate

• Retrospective analysis in 86 patients with 95 ulcers

• Compression alone vs. compression, ablation of axial reflux (33%) and (29%) or UGFS (31%) of IPV

• Follow up 1 year

• Recurrence rate was less in the intervention group (27.1 vs. 48.9%; p< 0.015)

• Ulcers in the intervention group heald faster (9.7% vs 4.2% per week; p<0.001)

Alden PB, Lips EM, Zimmermann KP et al. Chronic venous ulcer: minimally invasive Treatement of superficial axial and perforator vein reflux speed healing and reduce recurrence
Ann Vasc Surg 2013; 27: 75-83
Compression is the primary treatment in venous ulceration (Grade 1B)

To reduce ulcer recurrence additional ablation of superficial reflux should be performed (Grade 1A)

IPV should be treated, if they are larger than 3.5 mm and the reflux lasts more than 500 ms (Grade 1A)
Study as part of a RCT in 94 ulcerated legs

Compression vs. Compression, ablation of axial reflux and SEPS

Healing was not influenced by the number of remaining IPV

Recurrence was higher in patients with incomplete SEPS (p<0.007)
Prospective study with 99 patientes, local treatment and compression

- Ulcer healing 62.6%
- Negative influence on ulcer healing
  - ulcer size
  - duration of ulceration
  - reflux in the deep venous system
  - yes 41% non healing
  - no 14% non healing

Hierppe A Prolonged healing of venous leg ulcers: the role of venous reflux, ulcer characteristics and mobility
J. Wound Care 2010; 19: 474-478

**Venous ulceration – conservative therapy**

- Prospective study with 99 patientes, local treatment and compression
  - Ulcer healing 62.6%
  - Negative influence on ulcer healing
Summary

- The role of IPV is still unclear, most studies with ablation of axial reflux
- Most of IPV disappear after ablation of superficial or axial reflux
- Concomittend reflux of the deep venous system is a strong predictor of non healing
- Endovenous thermal ablation of IPV is costly and the occlusion rates reach not 100 %
Percutaneous Perforator Interruption
Thank You Very Much for Your Attention

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