EHIT: Incidence in a large collective after standardized endovenous laser

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Background
The term EHIT (endothermal heat induced thrombosis) has been established in recent years, representing a major complication of thermal saphenous treatment in the location of the saphenofemoral or saphenopopliteal junction, with incidence up to 6% 1. Four classes have been defined, for the GSV, depending on the propagation of thrombus and the degree of lumen closure 1,2. We reviewed a large collective undergoing endoluminal laser ablation according to standardized protocols, to determine the influence of technical details on EHIT.

Patients/Methods
Retrospective study of 8,550 cases of thermo-occlusion according to the angioclinic protocol (Laser 810 - 2000 nm), performed 2009 - 2016 with completed standard follow up after 2 and 8 weeks. Distance to femoral level was chosen according to fiber geometry (Fig. 2). Furthermore, coaxial perivenous local anesthesia (CPLA) was used for circumferential thermal insulation 1 instead of common tumescence, with a minimum layer thickness of 5 mm (Fig. 3). Anticoagulants were given only in case of known thrombophilia (n = 26), and in case of protocol failure.

Results
No case of EHIT in the sense of incidental thermal effect around the junction was detected during FU. 12 patients (0.14%) received NMH due to protocol failure, like incidental laser activation within femoral or popliteal vein.

7 cases of DVT (0.08%) were registered during (n = 4) or after (n = 3) eight weeks of follow-up, two of them included a treated junction (SSV), occurring week 3 and 6 after perfect intermediate status, thus not counted as EHIT but spontaneous events.

Conclusions
According to the presented data, EHIT is a well preventable event, even without standard anticoagulation, depending on 1) adequate thermal insulation including complete circumferential fluid layers, adhering the vein wall to the laser probe and 2) precisely located heat activation, related to the geometry of the device used.

Literature
1 Kabnick LS. Endovenous heat induced thrombus (EHIT) following endovenous vein obliteration: to treat or not to treat? 18th Ann Meet AVF Feb 23, 2006, Miami Florida.

Work Group Dr. Ragg See videos on www.venartis.org
EHIT class 1

EHIT class 2

EHIT class 3

EHIT class 4
EHIT class 1

EHIT class 2

EHIT class 3

EHIT class 4
Laser crossectomy

EHIT class 2

EHIT class 3

EHIT class 4
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