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EHIT: Incidence in a large collective after standardized endovenous laser

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Purpose: The term EHIT (endothermal heat induced thrombosis) has been established in recent years, representing a major complication of thermal saphenous treatment. Four classes are defined, depending on the propagation of thrombus and the degree of lumen closure. We reviewed a large collective to determine the influence of technical details.

Material and Methods: Retrospective study of 8.550 cases of thermo-occlusion according to the angioclinic protocol (Laser 810 - 2000 nm), performed 2009 - 2016 with standard follow up after 2 and 8 weeks. The protocol differs from general use by standardized hemodynamic treatment strategy (HDTS), determining the intended closure point (e.g. GSV: junction, below epigastric vein) according to diameter relations. Furthermore, coaxial perivenous local anesthesia (CPLA) is used for circumferential thermal insulation instead of common tumescence.

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 registered 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 related to the junction, occurring week 3 and 6 after perfect intermediate status. The aimed pattern of junction closure was obtained in 8314/8550 cases (97.2%).

Conclusions: EHIT may be preventable by 1) adequate thermal insulation including complete circumferential fluid layers and 2) precise heat activation. The study furthermore provides proof that anatomy-dependent laser crosssection is feasible and safe.