vascular professional

news & articles for phlebologists

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Endovenous Laser Ablation

5-year-results: Endovenous laser ablation of varicose veins with the 2-ring 1470nm radialtip in comparison to a radiofrequency catheter

BY DR. JUERGEN BOEHME,

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The development from trunk ablation to laser crossectomy

Summary:

The aim of this investigation has been to deliver 5-yearfollow-up data with the focus on recurrences of varicose veins in the site of the treatment using a 2-ring-1470nm radialtip-laser fibre and a radiofrequency catheter.

This retrospective shows the situation of real life in Northern Germany due to the limits of reimbursement. Laser and RFA are not equally covered.

The use of the 2-ring laser proved to be more efficient than the radiofrequency catheter.

Objectives:

Thermal ablation of varicose truncal veins has become a common treatment option. The laser technology changed dramatically in 2007. The used wavelength increased from 980nm to 1470nm. In 2008 the delivery of the applied endovenous energy was no longer straight forward but modulated by one and since 2012 by two single rings to reach the veinwall on the shortest possible way. Thus the target of the laser energy switched from hemoglobin in the blood to the water in the veinwall.

The aim of this investigation was to deliver 5-yearfollow-up data with the focus on recurrencies in the site of the treatment in comparison to the radiofrequency catheter.

Methods:

We originally treated 512 patients with 663 veins (FAST 404, LASER 257). Overall, 82 patients were lost to followup (FAST 66, LASER 16) that we have had included in our investigation at least **430 patients with 512 veines**. All procedures were done by one vascular surgeon.

RADIOFREQUENCY	Total number of veins:	296
	GSV:	226
	SSV:	70
LASER	Total number of veins:	225
	GSV:	175
	SSV:	50

Therefore we present 5-year-results of the 2-ring laser, for either great or small saphenous veins either, in a retrospective analysis.

There are no such studies until recently, all previous studies were done with the bare fibre laser.

In 2017 the patients of the year 2012 were scanned by duplex ultrasound to look for recurrencies and technical failures.

POSITIONING OF THE CATHETER TIP DIFFERS

Radiallaser 2-ring (ELVES® Radial® by biolitec®) Close to the terminal valve to perform laser-crossectomy

Radiofrequency catheder (ClosureFAST™ by Medtronic) Below the superficial epigastric vein

Results:

Both devices proved to be safe.

There were no major complications observed. Recurrences were more often seen in patients who underwent radiofrequency procedures.

Discussion:

Recurrences over all were with radiofrequency 11,49%, with laser 4%.

The 2-ring radialtip-laser fibre was more efficient in the treatment of superficial venous reflux than the radiofrequency catheter. Technically fail-ures, which led to recanalizations of the trunk, occured with more or less 5%. But recurrent varicose veins were not only recanalizations of the thermal ablated trunk. There were also new small reticular veins running through lymphnodes, new emerged insufficient perforators and varicose veins due to refluxing accessory veins like the anterior und posterior saphenous branches. This was more observed using radiofrequency. In recent times the treatment protocol of the radiofrequency changed to use more energy at the sapheno-femoral or popliteal junction (use at least 3 cycles of 20 seconds of heating; oral recommendation by Medtronic); in this study only 2 cycles were performed.

The laser treatment was performed with the amount of energy which was calculated by diameter of the vein x 7, which led to the **LEED** (the average linear endovenous energy density). We now use at least 100J/cm for the first 2cm.

What did we learn from this?

It is strongly recommended to treat accessory veins as well to reduce recurrent varicose veins.

We realized over the years, that it is feasible and safe to perform what is now called laser crossectomy. The flush ligation of open surgery is now made endovascular in an officebased setting.

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Dr. med Juergen Boehme is specialized in open and endovascular venous surgery with a leading annual number of thermal ablations. He was born 1963 in Heilbronn, Germany. In 1998 he acquired the Board certification General Surgery and in 2002 the Board certification Vascular Surgery. In 2003 he founded his own medical office for vein surgery, the Veincenter Lueneburg, which underwent in 2017 an expansion at a new location in Lueneburg. Dr. med Juergen Boehme holds lectures and presentations at international congresses (UIP) and educates physicians and nurses.



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