Saphenion®-therapy of perforator varicose veins with vein glue: Clinical significance

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Saphenion®-The therapy of perforator varicose veins with vein glue: The human venous system has around 140 pairs of perforating veins, the majority of which are located on the lower leg. Of these connecting veins, about 18-20 pairs of veins are of clinical importance. That is why they are also called key perforation veins. The defective perforator veins increase the degree of hemodynamic disorders of the truncal varicose veins that are already present and lead to significantly increased pathological (functional and anatomical) effects on the leg, especially on the lower leg. These are primarily hardened skin and subcutaneous tissue, brown/red discolouration and finally the "open leg" (ulcer cruris). We will publish some cases of new therapeutic option-sealing the perforator veins with VenaSeal®-vein glue.

Key Words: *Varicose veins; Truncal varicose veins; Perforator varicose veins; Therapy perforator veins; Endo venous therapy; Vein glue VenaSeal®; VenaSeal®-therapy of perforator veins*

INTRODUCTION

The therapy of perforator varicose veins with vein glue: The human venous system has around 140 pairs of perforating veins, the majority of which are located on the lower leg. Of these connecting veins, about 18-20 pairs of veins are of clinical importance. That is why they are also called key perforation veins (Figure 1).

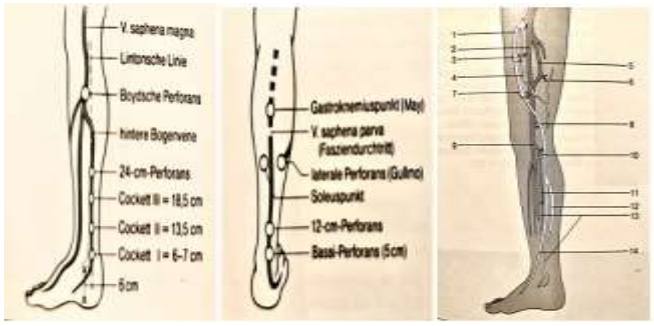

Figure 1) *Therapy of perforator varicose veins with vein glue: anatomy of the important lower leg perforator veins on the medial and rear lower leg*

In more than 60% of cases, these veins appear as a pair and accompany the skin arteries as they pass through muscle fascia to the skin. The connecting veins usually have valves that direct blood flow towards the deep venous system. The connecting veins on the back of the foot and in ankle area are an exception. These are anatomically and physiologically designed without vein valves, so they have no function as blood flow regulators. Here, depending on the position of the leg and the posture of feeds, the blood shuttles in the direction of the ankle and sole of the foot and generates a considerably increased venous pressure[1-4].

The particular importance of the perforator veins lies on the one hand in the connection of the deep truncal vein system to the cutaneous truncal vein system (GSV, SSV, vena accessory and vena femoropopliteal) and on another hand in the drainage from the muscle and fascia veins into the cutaneous truncal veins. In the case of defective vein valves in the connecting veins (perforator veins), local or generalized cutaneous varicose veins can develop on the entire leg.

The defective perforator veins increase the degree of hemodynamic disorders of the truncal varicose veins that are already present and lead to significantly increased pathological (functional and anatomical) effects on the leg, especially on the lower leg. These are primarily hardened skin and subcutaneous tissue, brown/red discolouration and finally the "open leg" (ulcer cruris) (Figure 2).

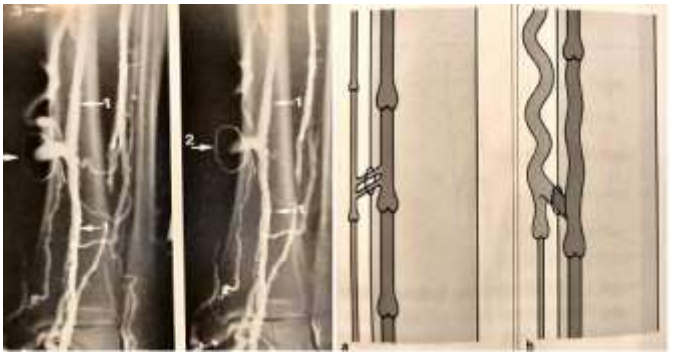

Figure 2) *Therapy of perforator varicose veins with vein glue: anatomy of the important lower leg perforator veins on the medial and rear lower leg*

The therapy of perforator veins (connecting veins) is usually carried out either by radical surgery/endoscopically via various skin incisions or catheter systems (laser/radio wave) are used. In the last 10 years, micro-foam therapy has also become important for the therapy of connecting veins [5-8].

OUR EXPERIENCE WITH VEIN GLUE

Saphenion®-therapy of perforating varicose veins with vein glue

Therapy of perforator varicose veins with vein glue: This technique provides an elegant and safe way to close the perforating veins at the same time as the therapy of the truncal varicose vein with vein glue [9-13]. On the one hand, perforation veins are closed in the truncal veins during the catheter manoeuvre by dispensing an additional drop of glue at the mouth (ultrasound control!). On the other hand, after sealing the truncal saphenous veins, in the same session with the puncture needle lying on the operating table, we also puncture and glue the perforator vein directly under the sight (Figure 3).

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Figure 3) *VenaSeal® application of the perforator veins with a special winged cannula*

erative day 3 since the patient was at low risk of bleeding. Although the thrombotic occlusion in the right common iliac vein was removed and dissolved, the thrombotic occlusion below the femoral vein remained. Anticoagulant therapy was initiated with a vitamin K antagonist. Signs such as edema in the lower extremities were alleviated, but anticoagulant therapy was continued to treat the recurrent occlusion. Due to worsening of the edema in the lower extremities 4 years after IVC filter placement, a CT scan was performed, which revealed an adhesion and a thrombotic occlusion of the IVC. Although the thrombus was dissolved after percutaneous thrombectomy, the perforating IVC and adhesion were not removed. As the patient's symptoms improved and no other signs of perforation was noted, we decided to do follow-up monitoring for the patient. The patient reported numbness in bilateral lower extremities and an intermittent stabbing backache after 3 years. Since she had an intervertebral disc herniation, we did not suspect that it was caused by the IVC filter, and so we continued to monitor the patient while treating the pain with analgesics and physiotherapy. In the CT scan, thrombotic occlusion in the right iliac vein There should be no more doubts about the locking effectiveness of the VenaSeal®-system. A small number of possible slight side effects have also been described many times. The very small amount of 0.09-0.27 ml of glue required for the therapy of perforator veins almost excludes this. This is also confirmed by our own experience. In our more than 8 years of experience with vein glue, only very low side effect rates were found with occlusion effectiveness of 96%. We started the additional therapy of the perforator veins very early, either by applying additional glue or by separate injection (Figure 4).

RESULTS AND DISCUSSION

Regardless of the types, clinical indicators for IVC filter placement include cases with DVT in whom anticoagulant therapy is contraindicated; other indications include patients with bleeding in vital organs, those that need surgery, and those with thrombocytopenia or PE due to recurrent DVT. A study by Decousus et al. on patients who are likely to develop severe PE from those with DVT in their proximal muscles in the lower extremities compared the effectiveness of PE prevention between a group that received anticoagulant therapy alone and another group that received anticoagulant therapy and IVC filter placement. The results showed that IVC filter placement in conjunction with anticoagulant therapy was the most effective method in the prevention of PE [1]. However, there is no study on the effect of the long-term placement of an IVC filter. Ferris et al. reported the need for long-term observation, but follow-ups with significant clinical implication were reported in only 16% [2]. Another study stated that IVC perforation is found in most cases over time and recommended removing the filter as early as possible [3].

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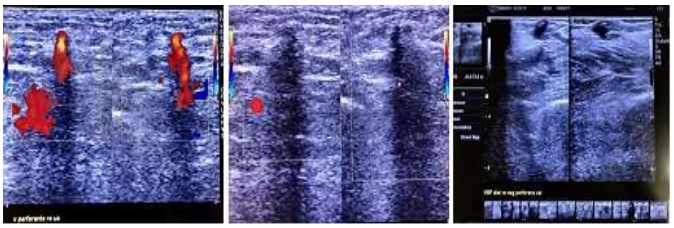

Figure 4) *Saphenion®- therapy of perforator varicose veins with vein glue: Cockett 3- perforator vein before and after glue therapy (left and middle pic.) Sealed Bassi - perforator vein (right pic)*

CONCLUSION

To date, no deep vein thrombosis has been seen in any of the 2964 veins treated. So, we have, with the VenaSeal®-Closure System, another very effective therapeutic option in the very important therapy of legs perforator veins.

CONFLICT OF INTEREST

There are no conflicts of interest.

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