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1. Treatment of ileofemoral venous occlusive disease: clinical experience

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Background: Venous thrombosis of the iliofemoral tract is a huge burden on both individual patients and society. Deep venous occlusions (DVO), together with deep venous insufficiency, are the major causes of post-thrombotic syndrome (PTS). To treat PTS in these patients we utilize an aggressive treatment plan. We report the short- and midterm follow-up characteristics of patients undergoing stenting for venous occlusive disease in our specialized tertiary venous care centre.

Methods:. Patients with iliofemoral and/or caval occlusion, receiving angioplasty and stenting as primary treatment, were included in this study. Diagnosis of DVO was made with ultrasound and magnetic resonance venography. Patency during follow-up was primarily determined with ultrasound.

Results: A total of 53 patients (61 limbs) were treated in this period. The average age was 43 year. 34 of the patients (64%) were female. In 41 patients (77%) the DVO was solely located in the left leg, whereas in 7 cases (13%) the DVO was bilateral. 25 patients (47 %) were diagnosed with May-Thurner syndrome. Of the 23 patients screened for thrombophilia, 13 (57 %) tested positive. Average time between the initial thrombotic event and stenting was 10 years (range 0 – 29 years).

Mean follow-up time, patency rate, re-stenting rate, complication rate, changes in CEAP classification and quality of life data will be gathered in the first week of May 2011.

Conclusion: The analyses of our expanding population show it to be feasible and safe on short- and midterm follow-up. Furthermore, clinical, functional and anatomical outcomes will be presented.

2. Endovenous Laser Ablation: the role of intraluminal blood

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Background: Endovenous laser ablation (EVLA) is a very popular minimally invasive alternative to surgical vein stripping in the treatment of saphenous vein reflux. In this histological study, the role of the intraluminal blood during Endovenous Laser Ablation was assessed.

***Methods*:** In 12 goats, 24 veins were treated with a 1500 nm laser. Four goats were treated in a anti-Trendelenburg position(group 1). The next four goats were treated in a Trendelenburg position(group 2) and the remaining four goats in the Trendelenburg position with additional injection of tumescent liquid(group 3). Postoperatively the veins were removed after one week and sent for histological examination. We measured the number of perforations. Vein wall necrosis and the perivenous tissue destruction were quantified using a graded scale.

Results: The *calculated total vein wall destruction* was significantly higher in the third group (81.83%), as compared with groups one(61.25%)($p<0.001$) and two(65.92%)($p<0.001$). All three groups showed a significant difference in the perivenous tissue destruction scale ($p<0.001$) with the lowest score occurring in the third group. Vein wall perforations were significantly more frequent in groups one and two as compared with the third group(T-test respectively $p<0.001$, $p=0.02$).

Conclusions: A higher intraluminal blood volume results in reduced total vein wall destruction. Injection of tumescent liquid prevents the perivenous tissue destruction and minimizes the number of perforations.

3. Randomised controlled trial comparing Sapheno-Femoral Ligation with Stripping and Endovenous Laser Ablation (980-nm): Intra- and Inter-observer Reproducibility of the Varicose Vein Recurrence by Duplex Ultrasound.

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Background: Endovenous treatment of the great saphenous vein (GSV) incompetence has become an alternative to sapheno-femoral ligation and stripping (SFL/S). This long-term study shows the 2-year results after SFL/S compared to EVLA 980nm bare tip. Recurrent veins were observed by different physicians. Before starting the study the reproducibility of observing recurrent veins by duplex ultrasound (DUS) has been evaluated by an intra- and inter-observer variability analysis.

Methods: Patients participate in a 10-year follow-up study. Clinical examination and DUS is performed yearly to document the recurrence rate. Patients with GSV incompetence were treated with 980nm diode endovenous laser (Biolitec) 12W or with SFL/S by Multistripper. DUS films of 44 non-included patients (22 competent and 22 recurrent veins after SFL/S and EVLA treatment) were interpreted twice by all physicians. These observations were analyzed with kappa tests.

Results: SFL/S was performed in 68 legs and 63 legs were treated with EVLA. Both groups were homogenous for age, sex, BMI and CEAP. After two-year follow-up 95% of the legs were evaluated. Six patients (5 SFL/S and 1 EVLA) were lost to follow-up. In the SFL/S group 5 groin recurrences were seen by DUS and clinically visible (8,1%). In the EVLA group 12 (19,3%, p-value=0.068) clinically visible recurrences were seen and 1 treatment failure was detected. All recurrences showed reflux in the anterior accessory great saphenous vein (AAGSV). Recurrences were treated by different modalities. A kappa of >7 between our observers showed a good reproducibility of the interpretation of DUS.

Conclusion: After two-year follow-up more varicose vein recurrences originating from the groin were seen in the EVLA-group compared to the SFL/S-group. All recurrences were seen in the AAGSV. The reproducibility of DUS evaluations, performed by our observers, is good.

4. Catheter directed thrombolysis in patients with iliofemoral deep vein thrombosis and in stent thrombosis; clinical experience

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Introduction: Patients with iliofemoral deep vein thrombosis have an increased chance of developing Post Thrombotic Syndrome (PTS). Quality of life of patients with PTS is equal to that of patients with heart failure, Diabetes Mellitus, and COPD. Catheter-Directed Thrombolysis (CDT) may reduce PTS in patients with iliofemoral DVT and improve quality of life for these patients. This research reports on quality of life and treatment success of all patients treated in our specialized tertiary centre. Ultrasound enhanced CDT was used because of expected shorter treatment time.

Methods: Patients who were treated with ultrasound enhanced CDT were included in our study. Diagnosis of iliofemoral DVT was confirmed using duplex sonography and MR-venography. Outcome measures were treatment time, treatment success, patency, clot lysis, major bleeding, DVT recurrence and pulmonary embolism. Follow-up was done using primarily duplex sonography.

Results: In total 34 patients (45 years) were included in our database. 40 CDT procedures were analyzed. Average treatment time was 53 hours (range 20 – 107 hours), success rate of thrombolysis was 93% (n=37), re-thrombosis occurred after 30% of procedures (n=12). Additional procedures were required in 47% (n=16) of patients. These additional procedures included PTA and stenting of the venous tract and 4 open procedures. 2 patients received the CDT twice and 2 patients receive CDT three times because of recurrent thrombosis or stent thrombosis. Average follow-up time is 14 months (range 1-30 months). Major bleeding occurred in one patient (3%) and one minor bleeding occurred at the insertion point of the catheter (3%). No pulmonary embolisms were encountered. [Results will be updated end of May 2011]

Conclusion: Thrombolysis of Ileofemoral DVT with ultrasound enhanced CDT seems feasible and safe. Supplementary angioplasty and stenting seem to play an important role in preventing rethrombosis.

5. Polidocanol concentration and time affect the properties of foam used for sclerotherapy. [Benelux prize winner]

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Background. The creation of foam for sclerotherapy varies and is not standardized. Moreover, the impact of several factors on the quality of the foam is not well studied.

Objective. To investigate the effects of different parameters on foam stability and bubble size.

Methods. As a measure of foam stability, foam half time (FHT) and bubble size distribution were determined for various parameters (polidocanol (POL) concentration, freshness of the POL, syringe size, liquid to air ratio, number of pump cycles and needle size) in the foam creation process.

Results. FHT measured 115 – 157 sec for 1% POL and 143 – 192 sec for 3% POL. The other parameters had a limited effect on FHT. 1% POL foam (t=0 sec) measured a mean bubble size of 71µm (SD 9µm), increasing when foam is maintained in the horizontal syringe: at 30 sec 102 µm (SD 12 µm); at 60 sec 121 µm (SD 20µm). The other parameters had no significant influence on the bubble size distribution.

Conclusions. Higher concentration of POL and rapid injection optimize foam stability and bubble size distribution, but other important foam characteristics are largely independent of differences in the generation and injection of foam.

6. Assessing disease- specificity of VEINES-QOL/SYM. Does it measure what we want to know? [Benelux prize winner]

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Introduction: Disease-specific instruments are increasingly used to evaluate the effects of specific treatments in varicose patients. However, none of these treatments show complete reduction of CVD reported symptoms. Perhaps venous instruments are incorrect because they contain several items that are not completely devoted to venous disease.

The purpose of this study is to investigate the disease specificity of the VEINES-QOL/SYM questionnaire for patients with chronic venous disease.

Materials: The VEINES-QOL/SYM questionnaire was translated into Dutch by using the recommended forward- backward translation and was pilot tested by selecting 20 respondents with chronic venous disease. Subsequently, the Dutch VEINES-QOL/SYM was tested for disease- specifity on a sample of 128 patients with leg symptoms and were divided into two equal groups (one group with chronic venous disease and one group without chronic venous disease). At the baseline visit all patients were categorized into one of seven CEAP clinical categories on the basis of a clinical examination, and completed standardized generic (Short-Form Health Survey, 36 items [SF-36] and venous disease- specific (QOL [VEINES-QOL] and symptom severity [VEINES-SYM] QOL questionnaires.

Results: final results will be presented in the future.