Methods. We analysed 349 adverse events of endovenous laser (EVL) and radiofrequency ablation (RFA) reported in the Manufacturer and User Facility Device Experience (MAUDE) database from January 2000 to June 2012. Outcomes of interest were pulmonary embolism (PE), deep vein thrombosis (DVT), death, and device failures (i.e., broken laser tip, broken sheath).

Results. Two hundred and three (58%) reports were patient-related injuries and the other 146 (42%) device-related failures. More complications were related to RFA compared to EVL (216 vs. 133 procedures). Thirty (8%) non-fatal PEs and 123 (35%) DVTs were described. There were 7 (2%) peri-procedural deaths, all from PE. Of the 146 device failure reports, 41 (28%) required surgical intervention. Despite an increasing number of procedures, reported events peaked around 2008 and stabilized since then. Over the past 5 years, the incidence of adverse events reported for RFA and EVL were 1 and 2 per 10,000 procedures. The complication ratio over the years was <1.250 for DVT, <1.100 for PE, <1:5,000 for death.

Conclusions. EVA has gained high acceptance worldwide but the risks tend to be overlooked. Despite a very low complication rate, mortality has been reported. The complications found in MAUDE represent only a fraction as the majority of the practitioners do not even know this database. Further investigation by a large prospective initiative is still warranted to better define the real magnitude of EVA complications.

Endovenous Laser Ablation Follow up Study (ELAFOS). A Prospective Trial to Assess Long Term EVLA Results

D. Kontothanassisis1, P. De Zoli3, N. Lahropoulos3
1Istituto Flebologico Italiano-MediClinic Hospital, Pozzomoro, Italy
2Istituto Flebologico Italiano-MediClinic Hospital, Pozzomoro, Italy
3Stony Brook University Medical Center, Stony Brook, NY, USA

Aim. Determine the true long term clinical outcome of endovenous laser ablation (EVLAA).

Methods. Patients with chronic venous disease CEAP class 2 or higher that had EVLA and minimum 5 years follow-up were included in the study. Clinical examination and duplex scanning were performed prior to treatment and at the last follow-up. All patients were selected to have reflux in the great saphenous vein with a diameter of >5mm, reflux duration of >2s and treatment length >20cm. Patients’ clinical characteristics, saphenous closure rate, residual, recurrent and new disease, and clinical outcome were recorded in detail.

Results. There were 59 patients, 45 females, mean age 51 years having a mean follow-up of 88 months (range 66-110). Duplex scanning showed immediate occlusion of all the ablated veins. At the first follow-up there were 2(3.4%) partial recanalisations whereas in the last follow up there were 2(3.4%) partial and 3(5.1%) complete recanalisations. Residual disease was detected in 7(11.9%) patients and new disease developed in 20(33.9%), thigh 2, calf 8 and both 10. There were 34 patients that regressed in class 0-1, 16 in class 2 and the last 9 with C4-5 remained in the same class. Despite the high incidence of new disease only 4 (6.8%) patients were symptomatic.

Conclusions. EVLA of the great saphenous vein has very good long term results with a low recurrence. New disease develops in a third of the patients at long term but only a few patients are symptomatic.

One-Year-Follow-Up of the European Multicenter Study on Cyanoacrylate Embolization of Incompetent Great Saphenous Veins

T. Proebstle1, J. Alm2, D. Sameh3, L. Rasmussen4, M. Whiteley5, J. Law son6, A. Davies6
1Dept. of Dermatology, University of M ainz, Germany, Mainz/Rhein, Germany
2Dermatologikum, Hamburg, Hamburg, Germany
3Spire Cheshir e Hospital, Warrington, United Kingdom
4The Danish Veins Centres, Naestved, Denmark
5The Whiteley Clinic at The Wimpole Clinic, London, United Kingdom
6Academic Section of Vascular Surgery, Imperial College London, Lon don, United Kingdom

Aim. Endothermal saphenous ablation requires the use of perivenous tumescent anesthesia and postinterventional compression stockings, moreover, causing paresthesia in 5%-10% of patients. An embolization technique lacking these needs and complications would significantly improve treatment.

Methods. A prospective multicenter cohort study was conducted in seven European centers between 12/2011 and 07/2012. Incompetent Great Saphenous Veins (GSVs) received endothermal embolization with a unique endovenous cyanoacrylate (CA) adhesive implant. Neither tumescent anesthesia nor post-interventional compression stockings were used. Varicose tributaries remained untreated for 3 months. Duplex ultrasound and clinical examination were performed at days and after 1, 3 and 6 months, which was the primary endpoint of the study.

Results. 70 GSVs in 70 patients were treated, all followed-up for 6 months. At 2 day follow-up 69 of 70 patients (98.6%) showed complete occlusion. Partial recanalizations were observed at 3 months in 2 more cases and in one additional case at 6 months follow-up. Life-table occlusion rates were 98.6% at 2 day follow-up (95%-CI:0.958-1.0), 95.7 % at 3 months (95%-CI:0.911-1.0) and 94.3 % at 6 months (95%-CI:0.890-0.999). Standard error was below 0.028 at all times. Phlebitis occurred in 6 cases (8.7%), 5 of whom received NSAIDs for an average of 7 days, no SAEs were observed. Average VCSS improved from 4.3±0.3 at baseline to 1.3±0.16 at six months follow-up.

Conclusions. Transcatheter endovenous CA adhesive for closure of insufficient GSVs proved to be feasible, safe and effective without the use of sedation, tumescent anesthesia or compression stockings. Side effects were mild, in particular paresthesia was not observed.

Sclerosing Agents Binding with the Human Proteins: Electrophoretic Evidences, Clinical Consequences and Safety Profiles

1Bassi Foundation Trieste, 37019 Peschiera del Garda, Verona
2Casa di Cura Stella Martis, San Benedetto del Tronto, Italy
4Centro duomo analisi, nola (napoli), Italy
5Casa di Cura Citta di Parma, Parma, Italy
6Private practice, Roma, Italy
7Vascular Disease Center University of Ferrara- Italy, Ferrara, Italy
8Istituto Ricerche Farmacologiche Mario Negri, Milan, Italy

Aim. Investigations concerning the bubbles propagation and the interaction among the sclerosing agent (SA) and the blood need more evidences. Aim of our work was: 1. to identify SA ligands 2. to determine the binding time 3. to highlight clinical consequences.

Methods. Thirtyone blood samples were tested by electrophoresis. The control curve was compared after the SA (sodiumtetradecylsulphate or polidocanol) addition. Six patients

40 INTERNATIONAL ANGIOLOGY October 2013
apoptosis of the vein wall; however, studies evaluating these pathophysiologic alterations are more likely associations, with significant variability in results and inconclusive. Metabolic abnormalities may be critical to venous dysfunction and lead to pathology. Metabonomics is the study of metabolism in biologic systems in response to pathophysiologic responses, and in patients with varicose veins there are significant differences in three important metabolic products involving creatine, lactate, and myoinositol metabolites. Analyzing the cellular metabolic pathways and their role in varicose veins, with signature end metabolites, reflect the metabolism of the tissue and hold key information to the disease processes. Further research in this exiting field is necessary to have a better understanding of the processes leading to primary venous diseases, in order to have targeted therapy in both the prevention and active treatment of varicose veins and their diverse clinical manifestations.

FREE PAPER SESSION 11

New 2-Ring Radial Fiber Experience in the Endovenous Laser Ablation of Varicose Veins

U. Demirkilic1, S. Doganci2
1Kurup Merkezi, Kavaklidere/Ankara, Turkey
2Galibane Military Academy of Medicine, ANKARA, Turkey

Aim. Endovenous laser ablation (EVLA) has been proven to be an efficient and safe treatment modality for varicose veins. According to the current guidelines endovenous thermal ablation is recommended over high ligation and stripping. Two-ring radial fiber as a new generation fiber splits the energy in two phases and leads to an effective vein wall closure with less delivered energy density. Aim of this study is to present our experience with 2-ring radial fiber in the treatment of varicose veins.

Methods. Between January 2012 and September 2012, first 80 patients (134 limbs and 173 veins) who had a six month follow up treated for incompetent Greater Saphenous Veins (GSV) and Small Saphenous Veins (SSV) included in this study. All patients were treated with 1470 nm diode laser plus 2-ring radial laser fiber. All the procedures were performed under tumescent local anesthesia. Treatment parameters were 12 Watts and 50 J/cm of LEED for GSVs and 10 Watts and 50 J/cm of LEED for LSVs. Cold tumescent local anesthesia was given under ultrasound guidance and with the help of a tumescent pump (10 ml/treated vein length). Vein diameters, treated vein length, total amount of delivered energy, amount of tumescent local anesthesia, duration of ablation, occlusion rates, local pain, bruising, induration, paraesthesia in the ablated regions, patient satisfaction and changes in VCSS (preoperative, postoperative 1st month) were recorded. Additional phlebectomies were performed for all patients in both groups. No heparin prophylaxis was used. Follow-up visits were planned on the 2nd postoperative day, 7th day, 1st, 3rd, and 6th month.

Results. Mean age of the patients was 46.3±13.7 (17-71), 67 of the patients were female. In 30 of the patients there were additional SSV ablations (39 veins). Three of the patients had isolated SSV incompetence. Mean GSV diameter at saphenofemoral junction and the knee levels were 9.3± 4.2 and 6.9±3.1 mm respectively. Mean SSV diameter at the level of junction and mid-calf level were 6.9±2.5 and 5.3±1.6 respectively. The initial success rate was 100% in all patients. All treated GSVs and SSVs remained closed after 6 months. No major complication such as deep vein thrombosis and pulmonary embolism was observed. There were no local pain, no bruising, no induration and no paraesthesia in the ablated segment in both groups. Mean treated vein length for GSV was 46.8±9.6 cm and 16.3±4.0 in SSV. Mean duration of ablation for GSVs was 233.4±52.3 seconds and 91.2±33.8 seconds for SSVs. Mean delivered energy during the procedure was 2651.9±727.8 Joule for GSVs and 932.8±386.3 for SSSS. Mean VCSS scores (Preoperative: 8.65±4.12, 1st month: 2.48±2.11, p<0.01) were improved after the procedures. Most of the patients were satisfied with the procedure.

Conclusions. EVLA with 1470 nm wavelength and 2-ring radial fiber for GSVs and SSVs is an effective and safe procedure. This new fiber gives not only the advantage of decreasing delivered energy but also provides almost perfect occlusion rates and besides cause almost no pain and no adverse events.
Advantages of Foam Sclerotherapy with Oxygen And Polidocanol

F. Vega Rasgado¹, M. Vega Díaz², M. Salinas P³, L. Vega Rasgado⁴
¹Academia Mexicana de Flebología y Linfología, Tlahuac, Mexico
²E.N.C.B., I.P.N., Mexico, Mexico
³Clinica de Várices y Ulceras de México, México, Mexico
⁴E.N.C.B., I.P.N., México, Mexico

**Aim.** 1. Prevention of serious neurological effects post sclerotherapy 2. To improve the quality of the micro bubbles reducing gas solubility (O2) in blood 3. Inject higher volume of sclerosing agent

**Methods.** Patients with multiple veins from Ambulatory Surgery Center were randomly selected. Patients were analyzed for HB, Ch, PT, EKG and chest x-ray. Procedure was performed in the surgical room with assistance of the anesthesiologist and continuous monitoring. Vein line was required and sometimes sedation. The foam was prepared with Tessari method using 1 part of liquid polidocanol at different concentrations and 4 parts of pure oxygen. The volumes used were according to the type and number of affected veins. The patients were discharged after 3 Hrs with bandage and compressive stockings

**Results.** A concentrate of the results is as follows: Patients = 500 Legs = 629 Right = 277 = 56 % Max. Volume= 60 ml Average Vol. = 19.5 ml Average polidocanol concentration = 2% Reticular and spider veins = 471 (74.88 %) Affected veins: Boyd perf. = 40 % Cocket I perf. = 195 (31 %) Saphenous veins = 125 (19.9 %) Others = 30 % Adverse effects: 0 The polidocanol concentrations were between 0.5-3%. Here we report just the most frequently affected groups of veins. Our study continues

**Conclusions.** The FOAM sclerotherapy performed with O2 is a good option to prevent and decrease the side neurological effects. The FOAM performed with O2 is safe for high volumes injection when it is required.

Caring for an Infant with (KT) Klippel Trenaunay Syndrome Complicated by Microcystic Lymphatic Malformation of Left Lower Quadrant

P. Tubbs-Gingerich

**Aim.** Reduce/control edema and lymphedema when both the venous and lymphatic systems are compromised. Protect the integrity of an infant's skin during long periods of gradient bandaging and wearing gradient compression garments. Educate both parents in administration of total home care. Teach awareness of their infant's future needs so they can, in turn, prepare him as he grows, to care for himself. Prevent infection

**Methods.** Study Design: 1. Implement new ways to treat complications of pediatric lymphedema 2. Design skin care program for extremely fragile skin 3. Integrate clinical and home care regimens 4. Educate parents 5. Design patient and age specific gradient compression garments Years Study Conducted - April 1, 2001 thru present Disease Condition Studied - KT Syndrome and Primary Lymphedema Subject Studied - 3 month old infant to present Setting in which subject studied - Clinical and Home Care Interventions - Manual Lymph Drainage Gradient Bandaging Intensive Skin Care Gradient Compression Garments Monitor possible problems during growth and mobility Outcome Measurements - Patient's Response - Minimal discomfort during treatment Independent Variables - Positive Effects: Reduction of fluid volume Healthy Skin Parents performing total home care Effective gradient compression garments Preliminary Analyses - Excellent total patient response

**Results.** Positive projected Results. - Parents' acceptance of condition - Parents' administering total home care - Reduced swelling and minimal skin complications - Minimal discomfort during treatment - More mobile, independent, compliant patient - Custom gradient compression stockings that fit

**Vein Sparing Endovenous Laser Therapy**

S. Doganci¹, U. Demirkile²
¹Gulhane Military Academy of Medicine, ANKARA, Turkey
²Varts Merkezi, Kavaklidere/Ankara, Turkey

**Aim.** After gaining experience in the laser ablation of residual and/or recurrent veins, the idea of vein sparing endovenous laser ablation has emerged. The aim of this study is to assess the efficacy, results, and adverse events of vein sparing endovenous laser ablation strategy.

**Methods.** Between February 2012 and September 2012 18 patients with varicosities that caused by the Hunter perforators (n=7), tributary veins that arise from great saphenous vein (GSV) (n=7) or from Giacomini vein (n=2) included in the study. All patients treated with 1470 nm diode laser
Results. In-vitro, studies were performed both in non-flow and flow conditions using varied clot preparations. Ultrasound with microbubbles showed increased thrombolysis over control conditions. However, significantly increased thrombolysis was observed in all but one study with addition of thrombolytic agents to ultrasound and microbubbles. In-vivo, studies consisted of animal thrombosis models using peripheral vessels. Increased thrombolysis with ultrasound and microbubbles was again demonstrated. Additionally, disruption-replenishment ultrasound techniques using intermittent low mechanical index (MI) imaging provided significantly better thrombolysis compared to continuous high MI imaging. No evidence of clinically significant emboli were observed as a result of sonothrombolysis; however, local thermal effects were reported in some animal models. Significant heterogeneity in methodologies did not allow quantitative comparison of studies.

Conclusions. Sonothrombolysis appears a feasible and safe technique for thrombus dissolution but further experimental work is required using specific models of DVT.

Effectiveness of Gebauer’s® Mist Ethyl Chloride Topical Anesthetic in Minimizing Pain Associated with Tumescent Anesthesia in Endovenous Ablation Procedures
T. Tran
Comprehensive Vein Center, The Villages, FL, USA

Aim. Tumescent anesthesia is the most painful and highest primary complaint of traditional Endovenous Ablation Procedures. There is limited research in the use of topical anesthetic to help patients alleviate the pain from instilling a large bore needle for tumescent anesthesia.

Methods. Methods To determine the effectiveness of Gebauer’s® Mist Ethyl Chloride spray in diminishing the pain related to tumescent anesthesia, we conducted a prospective observational study on a convenience sample of patients undergoing Endovenous Ablation of the Great Saphenous vein. Use of the spray prior to injection of tumescent and without was evaluated. Clinical and demographic data collected include age, sex, weight, and numeric pain scale 1-10. The primary outcome measures were the pain scale score differences with Mist Ethyl Chloride and without.

Results. Results Of the 71 patients, there were 22 (31%) males and 49 (69%) females, average age of 61.4 with a range from 30 to 87, Average weight 170.8 lbs. with a range from 110 to 280 pounds. The average pain without Ethyl Chloride is 6.309 with a min/max from 1 to 10, respectively. With use of Ethyl Chloride spray, the average pain scale is 2.633 with a min/max from 0 to 9, respectively. The spray does seem to have a significant effect on the pain level of the patients. The results show an estimated average difference of 3.6761 units of pain lower when patients were given the spray. This result is highly significant with a p-value of <0.0001. No clinical signs of infection or skin burn was identified in any of the 71 patients.

Conclusions. Conclusion According to the pain scale scores, use of Gebauer’s® Mist Ethyl Chloride spray appear to have a strong clinical significance in reducing the pain associated with tumescent anesthesia during Endovenous Ablation procedures. The study showed that there was a 58.2% reduction in pain with use of the spray than without. A higher population study or multi-center trial would need to be done to accomplish even a stronger clinical significance. In addition, there are multiple factors that can skew the pain scale such as age, sex, socioeconomic status, weight, small saphenous vein treatment, costs, and co-morbidities that would need to be considered and further studied in a comparison analysis.

Comparison of 2-Ring Radial and Closurefast Fibers in the Treatment of Very Large Diameter Veins
U. Demirkilic1, S. Doganci2
1Varti Merkez, Kavaklidere/Ankara, Turkey
2Gulhane Military Academy of Medicine, ANKARA, Turkey

Aim. Endovenous thermal ablation methods have proven themselves as effective and safe treatment strategies in the recent years. According to randomized trials ClosureFast fiber is superior for early postoperative pain when compared to laser, and stripping. Two-ring radial fiber is a new generation fiber. This fiber splits the energy in two phases and leads to an effective vein closure with less energy density. The aim of this study is to compare the efficacy, adverse events, occlusion rates, patient satisfaction and changes in venous clinical severity scores in the treatment of very large diameter (>12 mm) great saphenous veins (GSV).

Methods. Between September 2011 and September 2012, 40 patients (53 limbs) with GSV’s larger than 12 mm randomized in two groups. Group 1 was treated with 1470 nm diode laser plus 2-ring radial fiber and microbubbles. Group 2 was treated with radiofrequency (RF) energy plus ClosureFast fiber. All the procedures were performed under tumescent local anesthesia. In Group 1, treatment parameters were 12 Watts and 70 J/cm of LEED. In the RF group, treatment parameters were set by the RF generator. For the proximal segments of ablation of the same segment was performed. In both groups cold tumescent local anesthesia was given under ultrasound guidance and the help of a tumescent pump (10 ml/treated vein length). Vein diameters, treated vein length, total amount of delivered energy (in Group 1), number of segmental ablation (in Group 2), amount of tumescent local anesthesia, duration of ablation, occlusion rates, local pain, bruising, induration, paraesthesia in the treated regions, patient satisfaction and changes in VCSSs (preoperative, postoperative 1st week and 1st month) were recorded. Additional phlebectomy were performed for all patients in both groups. No heparin prophylaxis was used. Follow-up visits were planned on the 2nd postoperative day, 7th day, 1st, 3rd and 6th month.

Results. Mean GSV diameter at saphenofemoral junction and the knee levels were 17.3±5.2 and 11.9±3.6 mm, and 16.8±4.1 mm and 11.5±3.1 mm respectively in Groups 1 and 2. The initial success rate was 100% in all patients. All treated GSVs remained closed after 6 months. No major complication such as deep vein thrombosis and pulmonary embolism was observed. There were no local pain, no bruising, and no paraesthesia in the treated segment in both groups. While there was no induration in group 1, there were 2 indurations and phlebitis in group 2 (p=0.05). Mean treated vein length was 46.5 cm in Group 1 and 45.9 cm in Group 2 (p>0.05). Mean duration of ablation was 198.2 seconds in Group 1 and 191.2 seconds in Group 2 (p=0.071). VCSS scores were improved after the procedures and there was no statistically significant difference between groups. There was also no statistically significant difference in patient satisfaction between groups.

Conclusions. Both treatment modalities are safe and effective in the treatment of very large diameter GSVs. 2-ring radial fiber also cause almost no pain as in the RF system. In very large diameter veins in order to increase occlusion rates double or sometimes triple ablations are performed in RF. This situation unintentionally increases the duration of the ablation procedure. From this point of view, laser ablation with 2-ring radial fiber is also as fast as RF system. There were 2 indurations and phlebitis in RF group. This may be related to vein diameter (diameters of these patients: 25 mm, 28.4 mm).
Endovenous Laser Treatment of Recurrent and Residual Varicose Veins
U. Demirkılıç,2 S. Doganci2
1Varis Merkezi, Kavaklıdere/Ankara, Turkey
2Gulhane Military Academy of Medicine, ANKARA, Turkey

Aim. Recurrent varicose vein following previous surgery is relatively common and surgical reintervention to treat these recurrent varicosities is a cumbersome procedure. The aim of this study is to assess the efficacy and safety of endovenous laser therapy in the treatment of recurrent varicose veins.

Methods. Between February 2010 and March 2012, 89 limbs of 69 patients with recurrent varicose veins after previous surgery were included in this non-randomized prospective study. Patients were evaluated by doppler examination, Saphenofemoral junctions were carefully examined for stump, any residual side branch or neovascularization and reflux. Then, presence of residual or dilated accessory axial and association of perforator veins were determined. Venous clinical severity scores (VCSS) were recorded. Patients were treated with 1470 nm diode laser and radial fibers by using 10 Watts and 50 Joule/cm of LEED. Postoperative morbidity, improvements of VCSS scores (determined at the 3rd month visit postoperatively), treated vein length and occlusion rates were also recorded. Follow-up visits were planned as 1st week, 1st month, 3rd, 6th and 12th months.

Results. Mean age of the patients were 41.4±11.3 (23-71) years. 46 of patients were female. All patients were completed 1 year follow-up period. Mean recurrence time was 5.7±2.4 years (2-12). There were different types of recurrences. All patients were successfully treated according to the recurrence type. VCSSs were improved in all patients. Significant improvements in VCSS were determined when compared to preoperative values at the third month follow-up. No adverse events such as ecchymosis, induration and paresthesia were detected at the early postoperative period. Patients complained minimal or no pain related with the procedure. No major complication such as deep vein thrombosis and pulmonary embolism was detected.

Conclusions. Surgical treatment of recurrent varicose veins is a demanding procedure which is more difficult than the primary surgery according to the pattern of reflux and recurrent veins. Endovenous treatment as in primary intervention provides an easy, safe and efficient treatment option in the treatment of recurrent varicose veins.

Minocycline Post-Sclerotherapy Hyperpigmentation
M. Isaacs
Vein Specialists of Northern California, Walnut Creek, CA, USA

Aim. Raise awareness of minocycline related hyperpigmentation as a complication of sclerotherapy Educate regarding underlying pathophysiology Present approach to treatment of this complication

Methods. A case report will be presented demonstrating minocycline-related post-sclerotherapy pigmentation. This case will be used as the basis for discussing the underlying pathophysiology of this form of hyperpigmentation. Treatment with a 755-nm Q-switched alexandrite laser was shown to be an effective method of treatment to speed clearing of the pigmentation. Photographs will be used to illustrate the nature of the hyperpigmentation and treatment with laser.

Results. (as previously described)

Conclusions. Minocycline related hyperpigmentation can persist for years after appearing, and in some cases may be permanent. 755-nm Q-switched laser is shown to be an effective method to speed clearing. It is advisable to screen patients carefully for minocycline use and to discontinue the drug well in advance of sclerotherapy.

Five-Year Results Following Endovenous Laser Ablation of Great Saphenous Vein Varicosities Treated With 1470 nm Diode Laser and Radial Laser Fibers: 1033 patients (1316 limbs)
S. Doganci2, U. Demirkılıç2
1Varis Merkezi, Kavaklıdere/Ankara, Turkey
2Gulhane Military Academy of Medicine, ANKARA, Turkey

Aim. The aim of this prospective study was to assess five-year outcomes, adverse events, side-effects, recanalization rates after endovenous laser ablation (EVLA) of great saphenous veins with 1470 nm diode laser and radial laser fibers by a standardized duplex and clinical protocol.

Methods. A non-randomized prospective trial was performed. We included a total of 1316 unselected limbs of 1033 patients with incompetent great saphenous veins (GSV), confirmed by duplex ultrasound between September 2008 and April 2011. Patients with small saphenous vein insufficiencies did not included in this study cohort. EVLA was carried out with a 1470 nm diode laser and radial laser fibers in continuous mode and using ultrasound guided tumescent local anesthesia. Concomitant phlebectomies were performed in the same session. No heparin prophylaxis was given. Compresion therapy was applied to all patients. CEAP classifications of patients were determined. Venous Clinical Severity Scores (VCSS), and patient satisfaction were determined (preoperative and postoperative 3rd month). Side effects, adverse events were recorded. Patients underwent standard clinical and duplex follow-up examinations for recanalization, complication such as deep vein thrombosis at postoperative 2nd day, 1 week, 1 month, 6 month, 1 year and yearly thereafter.

Results. Reflux was eliminated in all patients in the follow-up period (2 year- 54 months). 901 (87.2%) patients completed 2 years, 452 patients (43.7%) completed 3 years, and 216 patients (20.9%) (278 limbs) completed four years follow-up examinations. No reflux and recanalization was recorded in any control point so far. Until a one-year experience we used 15 Watts and 90 Joule/cm of LEED as a treatment protocol, then we revisited our protocol and gradually decreased watt and LEED levels. First we used 14W and 80 Joule/cm LEED and then for the last 20 months we are using 12 W and 70 Joule/cm LEED energy for the treatment of GSV varicosities. 216 patients that completed 3 year follow-up were treated with 15 Watts and 90 Joule/cm of LEED. There was 13 minimal ecchymosis and 15 indurations and 4 transient paresthesias in the laser treated area. After decreasing the parameters to 14 W and 80 Joule/cm LEED we treated 118 patients in a 5-month period. With this strategy 3 minimal ecchymosis and 3 inductions were seen in this group and no recanalization in the follow-up visits. Then we decided to decrease to 12 W and 70 Joule/cm LEED. 699 patients were treated with these parameters. With these parameters no ecchymosis, no induration and no paresthesia were recorded. Besides, these parameters did not change the closure rate during the follow-up period. Although most of the patients were satisfied with the treatment, satisfaction degree was even higher in the 12W and 70 Joule/cm LEED treated patients. VCSS scores were significantly decreased in all patients. Severe complications such as deep vein thrombosis or pulmonary embolism did not occur in any of the treated cases.

Conclusions. EVLA of the GSV with 1470 nm and radial
comfort with intermittent swelling of the lower left leg and varicose veins in the right leg. The physical examination revealed normal arterial pulses in the legs, C2 disease in the right leg and mild left pedal edema. Lower extremity and abdominal venous sonography confirmed superficial venous insufficiency without evidence of iliac vein compression or deep venous insufficiency.

**Results.** Lymphoscintigraphy demonstrated moderate left leg backflow of tracer and an enlarged popliteal lymph node. Further inquiry into the lymphoscintigraphic findings revealed that the patient had multiple episodes of “phlebitis” of the left thigh as a child and teenager in her native Puerto Rico.

**Conclusions.** Lymphoscintigraphy changed the course of treatment. A detailed evaluation over the left pedal edema beyond superficial venous insufficiency that would have been treated by venous ablation.

**Diagnosis and Treatment of Saphenous Vein Aneurysms**

**Aim.** Superficial venous aneurysms of the greater saphenous vein (GSV), small saphenous vein (SSV), have been documented and classified as to anatomic presentation. This study documents aneurysms of the anterior accessory greater saphenous vein (AAGSV), posterior medial thigh circumflex branch, as well as variations of GSV aneurysms. Reclassification of saphenous aneurysms is proposed, as well as treatment protocols.

**Methods.** In a 2-year period, records of patients (330), presenting at our center for evaluation and treatment of symptomatic venous disease were examined. Aneurysm criteria included both dilatation of 2 times the size of the contiguous vein and 3 times the size of normal vein diameter. All aneurysms were documented as to location, size, and clinical presentation. Histological evaluation of resected specimens was performed.

**Results.** A total of 18 patients met the criteria for aneurysm, 4 males and 14 females. The mean age was 44, with a range from 16 to 75. Aneurysm location was GSV (9), AAGSV (6), SSV (2), and posterior medial thigh circumflex branch (1). Treatment was determined according to location, aneurysmal neck size, and presence of collateral inflow. Modalities of treatment included foam sclerotherapy, surgical procedures, and thermal ablation either alone or in combination. Aneurysm size is related to the degree of internal elastic membrane disruption.

**Conclusions.** Reclassification of aneurysms should include standardized size criteria and should include AAGSV pathology and GSV aneurysm classification as to terminal and sub-terminal valve involvement. Aneurysms of the AAGSV commonly present as acute thrombosis. Aneurysms involving the terminal valve, SSV aneurysms, and AAGSV aneurysms, with a communication >4mm at the saphenofemoral junction (SFJ) should be ligated to decrease the possibility of clot embolization. Histological evaluation of aneurysms reveal smooth muscle hypertrophy and disruption of the internal elastic membrane.

**New Treatment Options for Varicose Veins Others than Trunk Insufficiencies Using the New Radial Laser Device**

**Aim.** The use of laser catheters in the treatment of trunk insufficiencies has become common and the data earned led to a consensus for this therapy. Varicosities left after catheter treatments consist of sidebranches and perforators. The aim was to perform fewer incisions and avoid open surgery and improve post procedural comfort

**Methods.** We used 2-ring radial - and slim single-ring radial laser catheters. Ultrasound was facilitated during treatment with GE’s Venue40 and for the pre- and postprocedural exams we used GE’s LogiQ-e. The treatment of a patient was done with a single catheter so it was necessary to choose the catheter of choice beforehand.

We used tumescent fluids with or without general anesthesia. Controls were made at day 1, 7 and after 3months. Heparin was given as a single shot application after the procedure. All patients were admitted back home one hour after treatment.

**Results.** There were no major complications. All perforators were closed except one located at the lower leg and closed after re-laser-treatment. Small bruising was common. There were no hematomas. There were no pigmentation due to treatment of superficial branches.

**Conclusions.** Radial laser catheters offer a new range of save treatment options for varicose veins as seen in their use in ablation of trunk varicose veins.

**Endovenous Laser Versus Surgery - Who Won the Race?**

**Aim.** 1. implement the new endovenous laser treatment 2. evaluate and compare the new endovenous laser treatment with the old surgical method for incompetent great and saphenous veins 3. propose a hierarchy in the wide accepted procedures for varicose veins

**Methods.** We designed this study in 2004 and we conducted it until 2012. All the patients with incompetent great and small saphenous veins were submitted to a complete phlebological examination, including Duplex and were informed about both methods. Until 2008 we managed to randomize the patients by an unusual procedure depending on their payment possibility, laser treatment being considerably more expensive and not accessible to almost a half of the patients (from 945 patients, 459 were treated with laser and 486 surgical). After 2008 it became clear that the people, even it was already an economic crisis, were more and more reluctant to accept the surgery and preferred the endovenous laser ablation. In 2009 we made 158 lasers and 103 crossectomies with saphenectomies for incompetent saphenous veins (~1:5:1), in 2010 the change was obvious: 243 patients preferred laser treatment and only 62 surgery (~4:1) and in 2011 and 2012 the surgery became an exemption: 38 surgical operations versus 585 endovenous laser (~15:1 for laser). Now we have a total of 2134 patients in the study, 1445 with endovenous laser treatments and 689 with crossectomies and saphenectomies. All the operations were performed under tumescent anaesthesia and ambulatory. The patients were monitored clinically and and by Duplex at 7 days, one month, 3 months, 6 months, 1 year and every 6 months after.

**Results.** Clinical recurrence at 5 years was 4% for the laser group and 5% for the surgical group (P = 0.1). The morbidity rate was very low for the laser group: 4%-indurations, pain, inflammation on the route of the vein and small ecchymosis, without superficial burns, hematomas or deep vein thrombosis. The recovery for work was 2-3 days. For the surgical group, the morbidity rate was around 10%- hematomas, paresthesias, infection of the wound, deep vein thrombosis (1 case) and a lot of cases with ecchymosis and pain. The patients recovered for work at 5-7 days.

**Conclusions.** The endovenous laser treatment brings less complications than surgery and less days of recovery and it
decreased the angle of rotation of the foot on the affected limb – 7.6±1.2°, indicating a severe antalgic immobilization of the joints of the lower extremities. The roll through the ankle joint was increased to 37%, which was increasing its functional overload (p<0.05). Time of rolling over the toe was decreasing to 16.2±1.3% at a rate of 52.1% (p<0.05).

**Conclusions.** In patients with C5-C6 classes of venous insufficiency of involvement in the process of tissue trophic ulcer of the ankle joint in conjunction with concomitant diseases of the locomotor system lead to the development of congestive arthritis. This leads to a marked disruption evacuation of the locomotor system lead to the development of congestive insufficiency of involvement in the process of tissue trophic ulcer formation of other ulcers, establishing the diagnose of venous ulcer.

**Methods.** One bandage is putting on the ulcer area (focal compression bandage) and another for making a gradual external compression bandaging. We make a differential diagnosis with other ulcers, establishing the diagnose of venous ulcer.

The material used is: A/ Gauzes for making a padded gauze bandaging /B/ Normal compression bandage for fixing the pad (focal compression) C/ Strong compression elastic / inelastic bandage for using as gradual external compression. D/ Physiological saline solution / Scissors / Scalpel / Adhesive tape. These are diagnostic tools: Hand held Doppler ultrasound device (measurement of the ankle-brachial-index) / Camera / Tuning fork / 5.07 Monofilament / Scales/ The Edinburgh Claudication Questionnaire.

**Results.** The technique has been used for healing venous leg ulcers since 15 years ago. Last five years, it was used in patients who have been treated with different r treatments without achieving to heal the ulcer. We report 58 patients (20 M /38 F), between 62 and 92 years old, and show (photographic sequences) the clinical course of the ulcer till healing. We have never observed recurrences of the ulcer in the treated area.

**Conclusions.** 1- It is an efficient and effective measure considering the low cost, the resources used and the results achieved. 2- Patients are involved in the care of their ulcers.

**Clinical Signs and Risk Factors of Deep Veins Thrombosis of Lower Extremities. Efficiency and Safety of Anticoagulant Therapy. (Retrospective Research)**

V. Mishalov, E. Amososva, N. Litvinova
National Medical University, Kyiv, Ukraine

**Aim.** To conduct the retrospective analysis of clinical signs and risk factors for patients with diagnosis of acute deep veins thrombosis (ADVT) of lower extremities, treating oneself in the departments of vascular surgery and to compare effectiveness and safety of therapy with LMWH enoxaparin and UFH.

**Methods.** Methods: For period from 2007 to 2012 the diagnosis of ADVT was set for 518 patients, among them 256 (49.4%) men and 262 (50.6%) women. All of patients with ADVT got therapy with anticoagulants. Enoxaparin sodium was prescribed in 428 (82.6%) cases, UFH in 58 (11.2%) and in 20 (3.9%) – others LMWH. Were have analyzed efficiency and complications after antithrombotical therapy in a hospital period.

**Results.** Among patients with ADVT with primary localization in ileofemoral and popliteal segments which treated in the departments of vascular surgery prevailed senior persons more than 60 years old (52.7%). In 83.8% cases the most frequent symptoms of disease are an edema of extremity (in 80.1%) and pain syndrome 75.1%, which at a monosymptomatic variant (34.4%) patients are marked in 64.6% and 80% accordingly. Most frequent risk factors (RF) they had the prolonged (more than 7 days,) immobilization and malignant tumors. Efficiency of anticoagulant therapy (decreasing of the number of ascending thromboses, recurrent DVT, and episodes of pulmonary embolism (PE) was identical at enoxaparin and UFH groups and was achieved in 95.6% and 91.3% accordingly, however in cases of enoxaparin application regression of clinical signs in was rapid 67.4% cases, while if UFH used only in 55.1% cases of with enoxaparin as compared to UFH accompanied with reduced frequency of all hemorrhage complications in 1.2 times, serious in 2.4 times and moderate in 2.8 times.

**Conclusions.** Conclusions: Therapy of UFH and LMWH was effective (on the average a good result is got in more than in 86 % cases) enough. Enoxaparin treatment was related to considerably less of hemorrhage complications, than treatment of UFH (p<0.05), that concerned all of types of such complications.

**The Role of Lymphoscintigraphy in the Differential Diagnosis of Popliteal Cysts**

E. Sanchez2, M. Cook1
1Cardiovascular & Vein Center of Florida, Bradenton, FL, USA
2VA New Jersey Health Care System, East Orange, NJ, USA

**Aim.** Popliteal cystic structures that develop following arthroplasty could be related to the surgical procedure or due to unrelated pathology. Lymphoscintigraphy can be used to characterize post-operative popliteal cystic structures.

**Methods.** A 74 year old man who had right knee arthroplasty two months ago complained of right lower leg swelling. Vascular sonography revealed a right popliteal cystic structure. A bilateral lower extremity lymphoscintigram was performed. The images revealed a collection of tracer that corresponded with the right popliteal cystic structure.

**Conclusions.** The lymphoscintigram demonstrated that the right popliteal cystic structure accumulated the tracer and therefore represented a lymphocele.

**Clinical Signs and Risk Factors of Deep Veins Thrombosis of Lower Extremities. Efficiency and Safety of Anticoagulant Therapy. (Retrospective Research)**

V. Mishalov, E. Amososva, N. Litvinova
National Medical University, Kyiv, Ukraine

**Aim.** To conduct the retrospective analysis of clinical signs and risk factors for patients with diagnosis of acute deep veins thrombosis (ADVT) of lower extremities, treating oneself in the departments of vascular surgery and to compare effectiveness and safety of therapy with LMWH enoxaparin and UFH.

**Methods.** Methods: For period from 2007 to 2012 the diagnosis of ADVT was set for 518 patients, among them 256 (49.4%) men and 262 (50.6%) women. All of patients with ADVT got therapy with anticoagulants. Enoxaparin sodium was prescribed in 428 (82.6%) cases, UFH in 58 (11.2%) and in 20 (3.9%) – others LMWH. Were have analyzed efficiency and complications after antithrombotical therapy in a hospital period.

**Results.** Among patients with ADVT with primary localization in ileofemoral and popliteal segments which treated in the departments of vascular surgery prevailed senior persons more than 60 years old (52.7%). In 83.8% cases the most frequent symptoms of disease are an edema of extremity (in 80.1%) and pain syndrome 75.1%, which at a monosymptomatic variant (34.4%) patients are marked in 64.6% and 80% accordingly. Most frequent risk factors (RF) they had the prolonged (more than 7 days,) immobilization and malignant tumors. Efficiency of anticoagulant therapy (decreasing of the number of ascending thromboses, recurrent DVT, and episodes of pulmonary embolism (PE) was identical at enoxaparin and UFH groups and was achieved in 95.6% and 91.3% accordingly, however in cases of enoxaparin application regression of clinical signs in was rapid 67.4% cases, while if UFH used only in 55.1% cases of with enoxaparin as compared to UFH accompanied with reduced frequency of all hemorrhage complications in 1.2 times, serious in 2.4 times and moderate in 2.8 times.

**Conclusions.** Conclusions: Therapy of UFH and LMWH was effective (on the average a good result is got in more than in 86 % cases) enough. Enoxaparin treatment was related to considerably less of hemorrhage complications, than treatment of UFH (p<0.05), that concerned all of types of such complications.

**The Role of Lymphoscintigraphy in the Differential Diagnosis of Popliteal Cysts**

E. Sanchez2, M. Cook1
1Cardiovascular & Vein Center of Florida, Bradenton, FL, USA
2VA New Jersey Health Care System, East Orange, NJ, USA

**Aim.** Popliteal cystic structures that develop following arthroplasty could be related to the surgical procedure or due to unrelated pathology. Lymphoscintigraphy can be used to characterize post-operative popliteal cystic structures.

**Methods.** A 74 year old man who had right knee arthroplasty two months ago complained of right lower leg swelling. Vascular sonography revealed a right popliteal cystic structure. A bilateral lower extremity lymphoscintigram was performed. The images revealed a collection of tracer that corresponded with the right popliteal cystic structure.

**Conclusions.** This case is interesting because the sonographic appearance of the popliteal cystic structure did not allow for differentiation. In this case, the popliteal cystic structure was initially thought to represent a synovial cyst (Baker's cyst). Lymphoscintigraphy established that the popliteal cystic structure represented a lymphocele.
Results. Polidocanol sclerotherapy proved to be the best treatment for C1 cases. Foam sclerotherapy gave good long-term results in the treatment of large tributaries, perforator and recurrent varicosities. Tetradecyl sulphate foam sclerotherapy showed a good effect on stem varicosities for many years. In crural ulcer patients, the wound healed and remained closed in every case, even if varicosities reappeared. Usually there are some recurrences after a few years which can be easily treated again. Firm bandaging improved the results. Complications and adverse reactions are rare (pigmentation, phlebitis, minor superficial skin necrosis). We have not seen any serious complications.

Conclusions. This method is of outstanding importance in the treatment of varicosity. One of the main benefits is that varicosity is a progressive disease and sclerotherapy can be repeated unrestrictedly; the other is that sclerotherapy can be combined with surgical and conservative treatment modalities so that these together form a comprehensive treatment of lower limb varicosity.

Cava Filter or Surgical Removal of Floating Thrombi in Deep Venous Iliac-Femoral Segment - What to Choose?

G. Khubulava1, E. Gavrilov2, A. Shishkevich1, I. Verzhak1, I. Larin1
1Advanced Surgical Department of Military Medical Academy, Saint-Petersburg, Russian Federation
2Military Medical Academy, Cardiovascular Surgery Department, Saint-Petersburg, Russian Federation
3Advanced Surgical Department of Military Medical Academy, Saint-Petersburg, Russian Federation

Aim. To improve the results of surgical treatment of the embolic dangerous thrombi in main veins legs through timely diagnosis and surgical removal of floating thrombus and thrombolysis in case of embolism in cava filter.

Methods. We analyzed the results of treatment prostrate 87 patients with floating vein thrombosis of the lower limbs and pelvis, were treated in advanced surgical department and clinic of the Military Medical Academy for the period 2005-2012. Patients with verified flotation thrombotic masses venous ultrasonography or venography are divided into three groups: one group of 14 patients for surgical prevention of pulmonary embolism implanted cava filter (Opt easy, Cordis), group 2 - 67 patients also performed thrombectomy of the deep veins of the lower extremities, group 3 – 6 patients who only performed thrombectomy of the deep veins of the lower extremities. Choice of tactics with isolated vena cava filter implantation was determined by: the reluctance of the patient to be operated - 4, severe concomitant diseases (cancer status, heart failure, respiratory failure) - 6, the size of the floating element (up to 4 cm in length) - 4 cases. The evaluation criteria were: frequency of thromboembolism in cava filter, the frequency of pulmonary embolism, the degree of chronic venous insufficiency (CVI) class C of CEAP in the late (6 months or longer) period.

Results. Patients in the first group of 5 cases (36%), patients of the 2 group in 1 case thromboembolism occurred cava filter (1%), 3-th group – no cases. In 4 cases thromboembolism cava filter in a conservative treatment in 2 cases - catheter thrombolysis (alteplase 40 mg). In both cases, after catheter directed thrombolysis in thromboembolism cava filter after 6 and 12 months was observed C2 of CEAP. Cases of pulmonary embolism was not in any group. Among the patients of group 1 - CVI was C0-3 of CEAP was present in 6 patients (43%), grade C4-6 of CEAP - 8 patients (57%), 2 groups of patients CVI 0-3 CEAP degree was present in 63 patients (94%), grade C4-6 of CEAP - in 4 patients (6%), 3 group of patients – CVI C0-3 of CEAP degree was present in 6 patients (100%).

Conclusions. The timely removal of floating leg vein clots to avoid serious complications such as thromboembolism cava filter with the development of the NIP and the syndrome of severe chronic venous insufficiency in the long-term and is the method of choice. When embolism occurred in cava filter should be considered thrombolysis with the high efficiency of the latter in comparison with conventional conservative measures.

Femoral-Iliac Venous Graft Synthetic Bypass of the Unilateral Occlusion of the Iliac Vein in a Case of Postthrombotic Disease of Right Leg with Nonhealing Ulcer

G. Khubulava1, E. Gavrilov2, I. Verzhak1, I. Larin1
1Advanced Surgical Department of Military Medical Academy, Saint-Petersburg, Russian Federation
2Military Medical Academy, Cardiovascular Surgery Department, Saint-Petersburg, Russian Federation
3Advanced Surgical Department of Military Medical Academy, Saint-Petersburg, Russian Federation

Aim. Femoral-venous graft synthetic bypass of the unilateral occlusion of the iliac vein in a case of postthrombotic disease of right leg with nonhealing ulcer.

Methods. To demonstrate the impact of surgical treatment postthrombotic disease of the right lower limb veins with nonhealing trophic ulcer leg. Methods: Patient K., born in 1975 was treated for advanced surgical department and clinic of the Military Medical Academy from 22.05. to 02.06. 2012. Received routinely complained of the presence of nonhealing trophic ulcer right leg, lower leg and foot swelling, did not disappear during the night's rest, varicose veins of right leg and suprapubic area. The diagnosis: post-thrombotic disease of the right lower extremity. Occlusion of the right external iliac vein. Mixed form (varicose-sclerotic). Sanitized trophic ulcer of the right leg. Collateral: Viral Hepatitis “C” - carrier. In history - long (about 8-9 years) opioid addiction, repeatedly practicing the introduction of drugs in the inguinal folds. The patient finds himself in 5 years, when she became a mark of leg and foot swelling, varicose veins of right leg, and later appeared vein above the pubis, darkening of the skin seal right leg about 9 months ago a trophic ulcer of the right leg. She was treated with outpatient - took votonotics, used elastic compression, numerous external agents for the treatment of trophic ulcers. Local status: the right lower limb hyperpigmented, Lipodermatosclerosis phenomena in the lower third of the tibia. On the medial ankle trophic ulcer measuring 9 x 7 x 0.7 cm GSV trunk on the hip extended. GSV tributaries on the right lower leg varicose transformed. There varicose veins above the pubis (veepigastrica superficialis). Peripheral pulse distinct.Achieved ultrasound scanning of the veins of the lower extremities and pelvis: Visualize main surface (GSV, SSV) and deep (iliac, femoral, popliteal, tibialis) veins of right leg. When imaging: ultrasound signs of postthrombotic disease: segmental occlusion of the right external iliac vein with preservation of valvular deep vein below the inguinal folds, varicose transformation GSV trunk on the thigh. Functioning varicose transformed suprapubric shunt pool veepigastrica superficialis. GSV trunk on the left hip is consistent, with a maximum diameter of 4 mm. 05/23/2012, bilateral femoral ascending venography: occlusion of the right external iliac vein length of about 5.5 cm, varicose at the pool surface and exterior shameful epigastric veins, venous shunt suprapubic

Results. Given the indolent leg sores, failure of conservative therapy, there is a short external iliac vein occlusion, lack of suitability for autovenous bypass vein after preparation, was made the surgery 25/05/2012: linear femoral-iliac bypass right external iliac vein (reinforced PTFE graft 9 mm ) crosssectomy, short stripping GSV in the thigh, the upper third of the leg, separation ectatic suprapubic vein graft, removal of
Efficacy of Foam Ultrasound Guided Foam Sclerotherapy of Varicose Small Saphenous Veins, Mid- and Long-term Results

R. Murenna-Schmidt
1Medical Practice, Cologne, Germany

Aim. Occlusion rate after UGFS of the SSV found by duplex scan at 6, 12, 24, 36, 48 and 60 months documentation of side effects questionnaire about patients satisfaction

Methods. 100 consecutive patients with 103 previously untreated varicose SSV (reflux >0.5 sec extended at least to midcalf, mean SSV diameter was 0.61 cm ) were included. Patients were treated with UGFS between november 2005 and January 2012 followed up until april 2013 (mean follow-up was 48 months) A single injection of foam (Tesaris method 1+4)+3 % polidocanol 1 to 5 ml (mean 2.61 ml ) was given under ultrasound guidance. Retreatments were allowed and documented. The first clinical and complete duplex control was done after 1 week, then after 6, 12, 24, 36, 48 and 60 months

Results. Complete SSV occlusion was achieved in 90 % with the 1st and in further 9.8 % with the 2nd injection within the first month. Complete occlusion was observed in 75% of the patients at 6, in 77% at 12, in 83 % at 24, and 69% at 36 and 67.4 % at 60 months. 24 % of the patients needed a retreatment after 6 months, 14,3% after 12 months, 4 % after 24 months, 12% after 36 months, 11,1% after 48 months and 13 % after 60 months. Side effects were a local tenderness was found in 12 patients (12,2%), none requiring analgetics or further consultation. One patient experienced an episode of dizziness lasting 15 min and recovered completely, one thrombophilic patient had a thrombus extending into SP-junction which disappeared within 1 week under full anticoagulation, typical complaints were improved in 70 % of the cases and 80% of the patients would repeat the procedure if needed.

Conclusions. In previous studies SSV treatment with UGFS were reported to have worse results compared to GSV9,10. Other studies report good outcome after UGFS of SSV varicose veins up to 12 months follow up. In my experience UGFS of insufficient SSV is safe and effective with high patient's satisfaction, good longterm results and improvement in quality of life. UGFS can be used in all age groups. UGFS has the additional benefit that repeated treatments are easy to perform if needed and that this method is very cost effective. Treatment sessions last 20 to 30 minutes so that patients do not need significant time off work.

Heterogeneity of Clinical Outcome Measures in Chronic Cerebrovascular Venous Insufficiency

S. Onida1, A. Thapar2, T. Lane1, R. Nicholas3, A. Davies3
1Academic Section of Vascular Surgery, Imperial College London, London, United Kingdom
2Imperial College London, London, United Kingdom
3London, United Kingdom

Aim. The aim of this study was to review the published literature on intervention in Chronic Cerebrovascular Venous Insufficiency (CCSVI) and Multiple Sclerosis (MS), focussing on reported clinical outcome measures.

Methods. We performed a PubMed and EMBASE literature review using the terms Chronic Cerebrovascular Venous Insufficiency and Multiple Sclerosis. Articles describing endovascular intervention in CCSVI by means of percutaneous angioplasty (PTA) or stenting were reviewed and outcome measures noted. Of these, only papers reporting clinical outcome measures as primary or secondary endpoints were included.

Results. A total of 14 articles published between December 2009 and April 2013 fulfilled the entry criteria, including two case reports. Patient numbers were variable (1 – 259) and measures of disease severity were heterogeneous. Primary outcome measures were clinical in 50%, and included the Expanded Disability Status Scale (EDSS), Multiple Sclerosis Impact Scale (MSIS 29), Multiple Sclerosis Functional Composite (MSFC), relapse rate or separate functional measures. Secondary outcome measures were clinical in 71%, often in conjunction with radiological measures.

Conclusions. The published literature on the effect of intervention in CCSVI is extremely heterogeneous. There are differences in the recruited patient populations, diagnostic criteria for CCSVI and clinical outcome measure assessment, making direct comparison between articles difficult. In light of these conflicting results, it is important to interpret the literature on this controversial subject with caution. This study also highlights the need for uniform reporting standards.
larly well tolerated in both groups; mean pain-score was 1.6 for the procedure (VAS 0-10) and 1.4 for the 10 days following the procedure. Side effects were few with no difference between both groups, but rate of paraesthesia was higher when general anesthesia was used (7.5%) compared with TLA alone (0.9%). At 3 months, 100% of SV were occluded in group 1 (99.5% group 2), with high satisfaction score (9.3/10).

**Conclusions.** TA must be performed strictly under TLA to minimize side effects. It is safe and effective in elderly.

### Venous Paediatric Trauma: Systematic Review of Injuries and Management

**S. Rowland, B. Dharmarajah, H. Moore, A. Davies**

_Academic Section of Vascular Surgery, Imperial College London, London, United Kingdom_

**Aim.** 1. To investigate the prevalence of non-iatrogenic paediatric venous injuries 2. To identify clinical presentations and complications of paediatric venous trauma 3. To discuss management options in paediatric venous trauma

**Methods.** A systematic review of published literature (Medline) describing non-iatrogenic traumatic venous injury in the paediatric population (<17 years) was performed according to PRISMA guidelines. The prevalence of venous injury and affected vasculature was identified. Mechanisms of venous injury were summarized and prognostic factors identified. Evidence regarding the efficacy of diagnostic modalities available was summarised and surgical options for repair reviewed.

**Results.** More than 160 paediatric traumatic venous injuries were identified between 1989 and present day. Mechanisms of injury included blunt trauma from seatbelt related injury and fall from height, or penetrating trauma from gunshot and foreign object. Injuries were sustained throughout the venous tree, complicated by severe haemorrhage, aneurysm, thrombosis or venous infection with significant morbidity and mortality. Diagnostic investigations were inconsistent but included venography and CT venography and in some cases, laparotomy. Interventions included primary repair, venous ligation, saphenous vein interposition grafting, lateral suture, end-to-end anastomosis and deep venous bypass.

**Conclusions.** Traumatic venous injury in the paediatric population is uncommon but may be associated with significant morbidity and mortality. Diagnostic and therapeutic intervention is rarely evidence based. Paediatric trauma registries should be developed worldwide to record details of paediatric venous trauma in order that evidence based management plans can be developed.

### Nicolau's Livedoid Dermatitis Delayed Onset after Ultrasound Guided Liquid Polidocanol Injection

**C. Asbjornsen**

_The Vein Healthcare Center, South Portland, ME, USA_

**Aim.** Nicolau syndrome, livedoid dermatitis, or emboloma cutis medicamentosa, is a potentially devastating complication of sclerotherapy. It is characterized by acute pain at the site of injection followed by the occurrence of a livedoid plaque that ultimately results in skin and tissue necrosis. This report is the first account of delayed Nicolau's livoid dermatitis after liquid polidocanol. However, there has been one similar case report after polidocanol foam injections.

**Methods.** We report an otherwise healthy 39-year-old male who initially tolerated an injection of liquid polidocanol well. He was four days symptom-free, then suddenly developed the classic pain and pathognomonic skin changes associated with Nicolau's syndrome. He opted for conservative treatment including compression, heat and ambulation; no steroids, blood thinning agents or nitrates.

**Results.** After three months he healed without sequela. Previous reports have theorized that this phenomena is more common in hyper-vascularized areas, yet in this instance the injection was on the anterior shin.

**Conclusions.** The purpose of this report is to add to the world's knowledge base regarding this undesirable outcome.

### Endovenous Laser Ablation (1470 NM) of the Small Saphenous Vein: Outcomes and Assessment of Patient Satisfaction

**L. Narvaez1, J. Ferreira2, A. Reichelt3, M. Goldani4**

1Hospital São Lucas PUCRS, Porto Alegre, Rio Grande do Sul, Brazil 2Pontiácia Catholic University (PUCRS) - Instituto Brasileiro de Flebologia, Porto Alegre, Brazil 3PUCRS - IBF, Porto Alegre, Brazil, 4PUCRS, Porto Alegre, Brazil

**Aim.** Endovenous laser ablation (EVLA) for incompetent saphenous vein is a widely accepted form of treatment. Few data are available on small saphenous vein (SSV) laser ablation. This study aims to demonstrate the treatment outcomes of EVLA of incompetent SSV with a 1470nm diode laser in our single center experience.

**Methods.** Between January 2009 and December 2012, 150 patients (167 limbs) with varicose veins and reflux in the SSV on duplex ultrasound (US) examination were treated with a 1470nm diode laser and radial fibers under local anaesthesia (no tumescence). EVLA was performed using continuous mode and LEED appropriate to SSV closure under US guidance. Patients had clinical follow-up visits at 1 day, 1 week, 1 month, 6 months and every 12 months after treatment.

**Results.** Initial technical success rate was 100% in 167 limbs treated. SSV remained closed in all limbs after follow-up period. Major complications have not been detected and, in particular; there was no deep venous thrombosis (DVT). Ecchymosis were seen in 60% with median duration of 2 weeks. Temporary paresthesia was observed with a median duration of 4 weeks. No skin discoloration, superficial burn, thrombophlebitis or palpable induration was observed. Patient satisfaction (functional and aesthetics) was high.

**Conclusions.** EVLA of the incompetent SSV with 1470nm diode laser is highly effective and appears to be a safe technique, with low rates of complications and affording symptomatic relief and aesthetics satisfaction. Studies with larger samples are indicated to confirm these observations.

**To Evaluate the Efficacy of Adjunctive Treatment with Endovenous Thermal Ablation: A Comparative Study**

**T. King1, R. Gupta2**

1Vein Clinics of America, Oakbrook Terrace, IL, USA 2Vein Clinics of America, Downers Grove, IL, USA

**Aim.** Controversy exists as to when adjunctive treatment for residual symptomatic varicosity should be used after ETA. Insurers often mandate compression, only, for the first 6-12
Aesthetic Ambulatory Surgical Therapy of The Giant Varicose Veins

V. Ciuobotaru
Clinica Medicala FLEBESTET, Bucharest, Romania

Aim. The aim of this paper is to present VANST (Varices’ Ambulatory Non-stripping Surgical Therapy)- a particular minimally invasive surgical method of treatment of the large diameter varicose veins.

Methods. This retrospective study regards cases operated on between September 1998 - September 2012. Under local anesthesia the varicose veins are intercepted, sectioned and ligated. The same procedure is applied for pathologically dilated tributaries and veins aneurysms. In this manner both the venous flux and reflux are eliminated and the varices are taken out of the circuit and become just empty nonfunctional tubes.

Results. Veins of a diameter smaller than 40 mm, where excluded from the study. Number of cases in the study: 648 limbs (623 patients – 166 women and 457 men). The structure of the cases based on CEAP classification: C2-53 ; C3-127 ; C4a-224 ; C4b-184 ; C5-19 ; C6-41. Postoperative closing up of the varices takes place immediately in 100% of the cases. 5 years follow-up: recurrence after VANST occurs in 6.24% of the cases. Improvement of the patients’ quality of life takes place in 2-4 weeks.

Conclusions. VANST is an excellent alternative to stripping for treating large diameter varicose veins. The advantages of VANST are: minimally invasive procedure - ambulatory treatment (2-3 hours hospitalization) - no intraoperative bleeding, no postoperative ecchimosis or hematoma - postoperative evo-

Getting a Leg Up: Social Media that Works for Today’s Phlebotologists

S. Peek
Incredible Marketing, Irvine, CA, USA

Aim. Today, healthcare providers know that a social media presence is valuable, especially for specialized medical practices. The social sphere affords a venue for building and maintaining patient relationships, optimizing word of mouth exposure, profiling services and new technologies, generating disease awareness, and reinforcing brand identity. Creating ef-

Efficacy and Safety of Cutting Balloons for the Treat-

E. Ferracani Ristenpart
Instituto Privado de ecografia y Laser endovascular, Buenos Aires., Argentina

Aim. Balloon angioplasty remains the main therapeutic modality for the management of CCSVI. This method, however, was also reported to be associated with unacceptable rates of restenoses, even as high as 50%. Although early results of stent implantations in CCSVI patients were promising, long-

ectomy practically painless - aesthetic postoperative appear-

Internal Laser Valvuloplasty and Endovascular Ve-

E. Ferracani Ristenpart
Instituto Privado de ecografia y Laser endovascular, Buenos Aires., Argentina

Aim. #1 Investigate the efficacy of the use of laser 1470 nm for internal laser valvuloplasty of the saphenofemoral junction with an innovative approach (ILV) internal laser valvu-

E. Ferracani Ristenpart
Instituto Privado de ecografia y Laser endovascular, Buenos Aires., Argentina

Aim. #2 Investigate endovenous laser remodeling with 1470 nm emission, (evlar) endovenous venous laser remodeling. #3 Evaluate the absence of complication with this new approach.

Methods. Prospective study. Study conducted 2012. Our prospective initial experience comprised five patients done in three phases. Phase 1, reduction of diameter and area phase 2, reduction of diameter area and reduction of perioperative
Conclusions. Diagnosis of NCS is often delayed due to lack of knowledge or awareness of the condition. Autotransplantation completely relieved all symptoms of NCS but ultimately resulted in loss of a fully functional kidney. Surgery is recommended when conservative management fails, however the viability of autotransplantation is questionable when other surgical options exist such as renal vein stenting and reimplantation. Increased awareness of the condition is essential to avoid a repeat of this case.

Late Severe Infection on Leg after Endovenous Laser Procedure of the Great Saphenous Vein
A. ReichelI, J. Ferreira2, L. Barreneche3, M. Goldani4
1Pontificia Universidade Catolica - PUCRS, Porto Alegre, RS, Brazil
2Pontificia universidade catolica do rio grande do sul, porto alegre, Brazil
3Pontificia universidade catolica do rio grande do sul, porto alegre, Brazil
4Studio medico /flebologico, Figline Valdarno-Florence, Italy

Aim. Report a case of infection on leg after endovenous laser procedure of the great saphenous vein

Methods. A 56 year old with reflux of the great saphenous vein, history of varicose veins more than 20 years and CEAP classification 4, was treated with endovenous laser ablation. After thirtieth postoperative day start with intense pain on thigh and 38°C temperature

Results. Patient had a pos procedure until thirtieth day with no complaints. After started with intense pain on thigh and fever of 38°C. Ultrasound findings: Intermittent edema and blood analysis leukocyte counts 11000 cells per microliter. He was hospitalized and started with antibiotics. After 2 days appeared on thigh a large area of redness and continuous with fever. Ultrasound findings: Liquid collection. Surgical drainage was performed, with output 150 cm³ of pus, culture grew Staphylococcus aureus. After 15 days patient was discharged and three months later he was completely recovered

Conclusions. Endovenous laser is a well-established minimally invasive technique to treat reflux of the great saphenous vein, but all care must be taken like a surgery to minimize the risk of an infection.

Endothelial Protection by Aminaphtone: A New Method to Study Capillary-Like Structures Stability in Vitro
R. Di Stefano1, F. Felice2, R. Ferranti3, A. Frullini4
1Vascular and Cardiothoracic department University of Pisa, Pisa, Italy
2Vascular and Cardiothoracic department University of Pisa, Pisa, Italy
3Cardiovascular Research Laboratory, University of Pisa, Pisa, Italy
4Studio medico /flebologico, Figgino Valdarno-Florence, Italy

Aim. To test the capability of Aminaphtone to stabilize three-dimensional capillary-like structures formed by endothelial cells in vitro when plated on Matrigel

Methods. Human Umbilical Endothelial Cells (HUVECs), grown for 48 hours in complete growth medium (HCGM), were incubated for 24 hours separately with (1) HCGM, (2) a solution of Aminaphtone 6µg/mL (AMNA) in HCGM with 0.1% DMSO and (3) a solution of HCGM with 0.1% DMSO. Cells were then detached and seeded on Matrigel. Images were captured at different time-points with and morphometric analysis was performed with Angiogenesis Analyzer.

Results. HUVECs when seeded on Matrigel formed capillary-like structures. This process had a rapid onset, beginning within 1 hour and was completed by 8-12 hours; after this time the network started to rearrange and completely disappeared within 24-48 hours. In groups 1 and 2 capillary networks dissolved completely in 48 hours; cells pretreated with AMNA showed a significant improvement and stabilization at 48 hours as compared with controls both in number of meshes (p<0.01) and master segment lengths (p<0.01).

Conclusions. AMNA significantly improved stability of endothelial cells organized in endothelial cell cords on Matrigel; we are currently investigating if this effect might be related to an integrin-dependent drug-matrix interaction or to a paracrine cytokine signalling phenomena. The in vitro Matrigel assay is a suitable method to test the effect of drugs on capillary-like structures fragility, especially after sclerotherapy.

Bacterial Contamination Does Not Necessarily Mean Infection
C. Sanchez Fernandez de la Vega
Surgex, Lugo, Spain

Aim. When clinical course of a venous ulcer is unfavourable, physicians always ask for cell culture. Cell culture can reveal the presence of the bacteria and probably, the physician will prescribe antibiotics. This is an error frequently committed by physicians. They can identify fibrin as a sign of infection. Antibiotics only should be used, when we observe signs and symptoms of infection, such as cellulitis and/or fever

Methods. Based on my experience for treating venous leg ulcers, for over 15 years, using only a graduated external compression bandaging with focal compression on the surface of the ulcer, I never ask for a cell culture, whether clinical course of the ulcer is favourable

Results. My clinical practice over the past 15 years (58 patients by other colleagues) treating venous leg ulcers, I never used antibiotics. My explanation is: Focal compression over the ulcer, produces pressure gradients in the area for improving tissue perfusion, so we have non-pathogenic bacteria. As an example, I show a photographic sequence of the clinical course, with cell culture and antibiogram. As many patients, this patient there was treated, either orally or topically, with antimicrobial therapy. Bacteria have disappeared and we have resorted to the use of antibiotics.

Conclusions. This fact should be sufficient to reflect about the uselessness of antibiotic treatment in these cases. No antibiotics should be administered, by the fact that we detect bacteria in the wound. Focal compression over the ulcer, produces pressure gradients in the area for improving tissue perfusion and prevents the pathogenicity of the bacteria.

Distribution of 1259 Patients with Budd-Chiari Syndrome in Henan Province of China
W. Zhang, X. Han
The 1st affiliated hospital of Zhengzhou University, Zhengzhou, Henan, China

Aim. To research the etiology and pathogenesis of Budd-Chiari syndrome by analyzing the clinical epidemic of patients with Budd-Chiari syndrome in Henan province

Methods. The clinic data of 1259 patients with Budd-Chiari syndrome in Henan province from January 2003 to May 2010 were collected. The study of descriptive statistics was carried on.

Results. Mean age was 41.14±11.88 years; the occupation proportions of farmers took up 82.13%; there were more
failures related to an inability to washout thrombi in subacute stage of disease. Positive correlation was observed between duration of SVT and feasibility of EVLA (p<0.01, p=0.51). No statistically significant differences were seen between groups for complications (ecchymoses: 67.6% (n=69) and 69.6% (n=71) p<0.05, parethesia: 25.5% (n=26) and 21.6% (n=22) p<0.05, wound infections; 6.9% (n=7) and 4.9% (n=5) p<0.05). At the 1 year follow-up both groups demonstrated comparable improvement in CIVIQ scores (p>0.05). Duplex ultrasonography revealed 14 cases (13.7%) of recanalisation in group I, and 15 cases (14.7%) in group II (p>0.05).

Conclusions. High ligation of saphenous veins combined with thrombi washout can enable EVLA in patients with acute SVT (less than 14 days)

Prevalence of Chronic Venous Disease among Czech Primary Care Patients
D. Karetova, B. Seifert, J. Vojtiskova
Charles University, Prague, Czech Republic

Aim. Background: The management of chronic venous disease (CVD) in primary care varies according to the competence and engagement of general practitioners. An internationally conducted Vein Consult Program is the global effort to raise awareness of CVD in different areas and to compare the management of the disease between countries.

Methods. Methods: As an adaptation of the Vein Consult Program, a prospective observational survey was conducted in 80 general practices in the Czech Republic in 2012. 20 consecutive patients aged over 40 years were included in a survey in each practice. Risk factors; complications of venous origin and objective findings were registered.

Results. Results. A total of 1,562 patients (mean age 61 yrs), mostly women (61.2%) were screened. Reported symptoms in order of frequency were: heaviness in legs, pain, sensation of swelling, cramps and burning or tingling sensations. Eight out of 10 patients had a minimum 1 subjective complaint. Six out of 10 patients had at least one objective finding of chronic venous disease. 22% of the patients with CVD reported a personal history of venous thrombembolic disease, while only 3% of the patients without CVD. Symptoms significantly increased with age and with severity of disease.

Conclusions. Conclusions: The results of the survey in the Czech Republic are consistent with the results of the Vein Consult Program internationally. Results indicate the need for an active approach to patients with symptoms of CVD in a general practice.

Endovenous Laser Ablation without Tumescent Local Anaesthesia (TLa) - 1000 Legs Treated
J. Ferreira1, A. Reichelt1, L. Narvaes3, M. Goldani3
1Pontiac Catholic University (PUCRS) - Instituto Brasileiro de Flebologia, Porto Alegre, Brazil
2PUCRS - IFB, Porto Alegre, Brazil
3PUCRS, Porto Alegre, Brazil

Aim. Endovenous Laser Ablation (ELA) is an established technique to treat varicose veins due to Saphenous Veins Reflux. Traditionally this procedure is done under Tumescent Local Anesthesia (TLa) which provides excellent anaesthesia, a buffer to prevent injuries in the surrounding tissues and to get full contact between the fiber and the vein wall. On the other hand, because of the large amount of liquid injected around the vein, TLA difficult to follow the closure process in real time with Ultrasound. Recently new wavelength (1470nm) and delivery system (Radial fibers) were introduced which allows to perform ELA without TLA. The objectives of this paper are: 1) Analyze closure rates. 2) Analyze amount of energy used (parameters). 3) Identify major complications.

Methods. Observational, Cross-sectional, Retrospective case series of 885 patients with varicose veins of (1077 lower extremities) due to saphenous insufficiency of 910 GSV and 167 SSV consecutively treated at the Phlebology Unit of the Pontificia Universidade Católica do Rio Grande do Sul from January 2009 to December 2012 by 3 different surgeons by Endovenous Laser Ablation using a 1470nm 15W laser source (Ceralas E1470 ©) delivered in continuous mode by radial fibres (ELVeS Radial ©-CeramOptec GmbH) without Tumescent Local Anaesthesia. The amount of energy criteria used was not following a mathematical model but five ultrasound markers of venous closure ("White line", Pearl Sign, Bubbles going backwards, Incompressibility and no flux with color doppler). Patients were evaluated to access results major complications and parameters.

Results. Great Saphenous Vein. 735 patients - 910 Veins Bilateral 175 patients (23.8%) Age: Min: 24 Max: 86 Avg: 51 Gender: Female 537 (73.06%) Male: 198 (27.93%) Side: Right 436 (47.91%) Left 474 (52.08%) Diameter: (mm): Min: 2.4 Max: 19.5 Avg 6.46 Leed (J/cm) Min: 7.47 Max: 269.13 Avg 59.38 Closure rate: 100% Small Saphenous Vein 150 Patients - 167 Veins Bilateral 17 patients (11.33%) AGE: Min: 22 Max: 82 Avg: 54 Gender: Female 119 (79.33%) Male 31 (20.66%) Side: Right: 86 (51.49%) Left 81 (48.50%) Diameter: (mm): Min: 24 Max 5.6 Avg 3.9 Leed (J/cm) Min 19.88 Max 98.27 Avg 46.52 Closure rate: 100% Major Complications Deep Venous Thrombosis: 2 Pulmonary Embolism: 0 Lymphatic damage (Lymphorrhea): 1 Infection: 1 Persistent Pain: 1 (Needed Neurolysis) Hyperpigmentation: 2 Hypopigmentation: 0 phlebitis/periphlebitis: 0 induration 6 Burns: 0 Death: 0

Conclusions. This series showed that Endovenous Laser Ablation performed with a 1470 nm laser delivered with Radial Fibers, without use Tumescent Local Anaesthesia following not mathematical models, but Ultrasound Criteria is a safe procedure with excellent results and low index of major complications (1.2%) to treat both GSV and SSV insufficiency.

Case Report: Successful EVLA Treatment of 28 mm Diameter Type Va Venous Aneurysm of GSV Acessory Vein at the Saphenofemoral Junction
R. Mueller, J. Mueller
Cosmetic Vein Solutions, New York, NY, USA

Aim. 1) Describe a case: 28 mm diameter type Va GSV accessory vein aneurysm (18 mm diameter neck to SFJ). 2) Performed EVLA (with cold saline tumescent). 3) No DVT occurred.

Methods. Case report - patient with symptomatic superficial venous reflux disease treated in private phlebology practice 12/2012. Patient refused surgery, requested EVLA treatment of 28 mm type Va GSV accessory vein aneurysm connecting to SFJ via 18 mm diameter wide neck. Treated with EVLA of aneurysm & GSV, with cold saline without lidocaine for tumescent treatment. 1) Describe a case: 28 mm diameter type Va GSV accessory vein aneurysm (18 mm diameter neck to SFJ). 2) Performed EVLA (with cold saline tumescent). 3) No DVT occurred.

Results. Cold saline tumescent without lidocaine was used for tumescent anesthesia due to the patient’s use of medications that inhibit cytochrome P450 3A4. EVLA was performed of the GSV accessory vein aneurysm as well as the GSV using separate fibers, sequentially, with acute occlusion of the distal 3/4 of the aneurysm sac. Follow up ultrasound at day 5 revealed total occlusion of the sac and the 18 mm diameter neck, with partial occlusion at the saphenofemoral junction, resolving at day 63. GSV ablation has been free of reflux and clinical improvement has been ‘miraculous’ by patient report.
saphenous veins, we verified the presence of arteries within the previously occluded vessels such as either by DVT or laser ablation therapy.

**Results.** The angiogenic phenomenon detected by doppler color consists in finding blood in the light signal of a venous vessel where it naturally should not be. Was detected the phenomenon of angiogenesis in 10 patients, 7 with diagnosis of thrombosis, 4 surface 3 deep, and CVI, a diagnosis of TPS with evidence of angiogenesis in 10 patients, 7 with diagnosis of DVT and SSV, and 3 with diagnosis of superficial tributaries.

**Conclusions.** We are facing a new situation Ecodoppler detected by color; that current knowledge of venous hemodynamic could correspond to a form of recanalization.

---

**Segmental Reflux in Lower Limbs**

J. Segura
Colegio Argentino de Cirugia Venosa y Linfatica, Buenos Aires, Argentina

**Aim.** Take a sample population of 180 patients for the detection of reflux. Adult patients of both sexes. Purpose of the study: clinical examination, signs and / or symptoms of disease phlebology. Lower limbs. Equipment used: ATUS Esaote doppler 10 MHz ultrasound and Color Doppler linear transducer 47.26 cases negative reflux 133.74 ebb cases (positive) unilateral. 

**Results.** Type A: Asymptomatic, no varicose veins and Reflux by Duplex. Type B: Asymptomatic, with varicose veins and Reflux by Dopplex. Type C: Symptomatic, no varicose veins and Reflux by Duplex. Type D: Symptomatic, with varicose veins and Reflux by Duplex. Type E: Symptomatic, with varicose veins, trophy disorders and Duplex reflux. Type F: Syndrome Piercing pure or associated with the above types Type A: (S+v + Dx) In general, these young patients under 35 years. Heredity Tenard - here is vital. Reflows found are rarely severe, <4 seconds. Reflows found exceptionally superficial and deep. May be affected entire valve apparatus, as well as a single shell - Reflux univalvar. It is noted with some frequency overcirculation Phenomenon. The sizes of the internal and external saphenous vessels are often less than 4 mm. The saphenous axis is not always entirely affected. Predominantly infrapatellar segments of the internal saphenous veins. The goal of treatment here is to prevent the evolution of the disease. There is also the possibility of not treating the patient with the first finding, but should be taken to Clinical follow-Ecodoppler. Type B: (S+v + Dx +) In general, these young patients under 35 years. Heredity is also of importance. The most frequently encountered reflux are severe. The superficial reflaxes found are exceptionally deep. May be affected entire valve apparatus, as well as a single shell. The phenomenon is observed overcirculation. The caliber of the affected vessels are 4 mm or greater. The saphenous axis may not always be fully affected. Predominantly infrapatellar segments of internal saphenous veins. The goal here is to prevent the evolutionary development of the disease.

**Conclusions.** We know that these reflows may correspond to either option would be evolutionary, and phlebotonics indication. No doubt in these cases is imposed phlebologist tracking handler.

---

**Micro-Dose Lidocaine Tumescent Anesthesia for EVLA in the Drug Shortage Era**

R. Mueller
Cosmetic Vein Solutions, New York, NY, USA

**Aim.** 1) Assess very low concentration lidocaine's efficacy in tumescent anesthesia (TA) for endovenous laser ablation (EVLA). 2) Document this regimen's pain during EVLA. 3) Consider TA's necessity for local anesthetics.

**Methods.** Non randomized, single arm, open label trial of consecutive uncomplicated patients undergoing EVLA for venous reflux in office setting 1-3/13. All received 0.025% lidocaine for TA with 8.4% sodium bicarbonate (1 ml bicarbonate / 10 ml 1% lidocaine; no epi). Outcomes measured & independent variables are standard intra-EVLA parameters, including pain visual analog score (VAS) during EVLA.

**Results.** Patients: 11 (6 male, 5 female) Veins treated: 20 (9 Great Saphenous Vein, 7 GSV Accessory Vein, 2 Small Saphenous Vein, 2 SSV Thigh Extension) Mean Values: Diameter: 5.0 mm LEED: 79 Joules/cm Length: 23 cm TA Volume: 645 cc VAS: 0.15/10 In 95% of cases, laser treatment proceeded without interruption or need to administer additional TA. One patient had 3/10 pain during the last 4 cm of treatment, which responded to additional TA at same concentration. 95% of patients had VAS of 0 during EVLA. Acute occlusion rate 100%.

**Conclusions.** Micro-Dose Lidocaine (0.025%) can be used successfully in TA for EVLA. VAS pain score during EVLA was 0.15/10, with 95% of patients in this small series having a score of 0. The lowest effective concentration of lidocaine for TA in EVLA remains unknown and it appears likely that local anesthetics are not essential ingredients in TA; more investigation is needed.

---

**“Laser crossectomy”, a State of Art in EVLA. Single Center Experience using Radial Fiber in more than 3000 EVLA Performed**

P. Dragic
Private Clinic “Dr Dragic”, Belgrade, Serbia

**Aim.** We use our experience of 3000 EVLA to improve procedure. Technological development of new generation of endovenous fibers with radial laser beam has led to the improvement of endovenous laser ablation technique (EVLA). Now it is possible to place fiber top at the level of junction of vena safena magna (VSM) and femoralis communis vein (VFC), which enables laser crossectomy - a total ablation of saphenous trunk and saphenous junction branches. The effect of this technique could be compared to surgical crossectomy evading at the same time surgical trauma complications. The aim of the paper is defined as evaluation of safety and efficiency of endothermal ablation of saphenofemoral junction and saphenous trunk.

**Methods.** We treated 100 incompetent VSM using EVLA (radial fiber) procedure. All the treated veins showed total occlusion during the first as well as other ultrasound examinations. We observed no significant differences in relation to clot extension into the deep vein in the monitored groups. In 3 pa-

---

**INTERNATIONAL ANGIOLOGY**

October 2013