

XVII WORLD CONGRESS OF THE INTERNATIONAL UNION OF PHLEBOLOGY

Boston, September 8-13, 2013



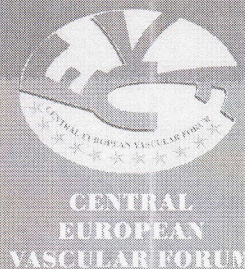
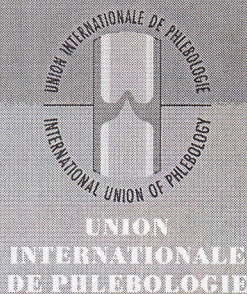
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E D I Z I O N I M I N E R V A M E D I C A

and radial or slim radial fibers. All procedures were performed under local anesthesia. Endovenous laser ablation (EVLA) was performed using continuous pullback mode with a power of 8 W. Linear endovenous energy density (LEED) was decided as 50 J/cm regardless of the vein diameter. At the patients that do not have reflux in saphenofemoral junction but reflux in Hunter perforators, the GSV was in normal diameter excluding the segment in connection with perforator veins. In this situation we only ablated the distorted segment of GSV. For the tributary veins and Giacomini veins, we only ablated the related vein and did not touch the GSV or small saphenous vein (SSV). Patients were followed on the 2nd, 7th days and 1st and 6th month post-operatively.

Results. The initial success rate was 100% in all patients. All treated veins remained closed after 1 month. No major complication such as deep vein thrombosis and pulmonary embolism was observed. At the beginning of the procedure, we hesitated about the propagation of the thrombus in the proximal or distal part of the ablated segment. However, due to the fibrotic occlusion caused by the 1470 nm diode laser, radial fiber, effective tumescent anesthesia administration and trendelenburg position, the thrombus did not propagate anywhere and only the ablated segment remained occluded. There was no bruising, local pain, induration, and paraesthesia.

Conclusions. Selective, segmental vein ablation strategy seems to be an effective method for sparing rest of GSV or SSV. Since GSV is the most important graft for all vascular procedures, ablation of only distorted segments and sparing the rest of it, may help us to preserve the valuable grafts. Although these are promising results, these findings must be confirmed by larger series.

Subcutaneous Nitroglycerin for Venodilation & Prevention of Venospasm in Endovenous Ablation Procedures

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Aim. 1) Assess incremental efficacy of subcutaneous nitroglycerin (SC NTG) after topical dosing for venodilation in endovenous ablations. 2) Assess safety of nitroglycerin. 3) Assess ability of nitroglycerin to prevent venospasm related access failure.

Methods. Non-randomized, prospective, single-arm, open label trial of SC NTG in consecutive reflux patients undergoing office endovenous ablation 3/2013. 0.4 mg SC NTG injected in 2 aliquots on each side of the accessed vein, 20-30 minutes after topical NTG applied (both unlabelled indications). Outcomes (inc. paired samples t tests, two-tailed): vein diameters, BP, HR before and after topical and SC NTG, toxicity, access failures, and venospasm.

Results. Vein diameters - Baseline: 3.1 mm (SD. 89) Post Topical NTG: 3.5 mm (increase + 0.4 mm, SD. 53, $p < .026$, two-tailed t test) 1 min. post SC NTG: 4.6 mm (increase + 1.1 mm compared with topical, SD. 54, $p < .001$) SC NTG produced a 2.8 fold increase in vein diameter beyond topical NTG. 1 patient (8%) had vasovagal presyncope, responding immediately to ammonia inhalant, venospasm & failed access. There were non significant effects of SC or topical NTG on HR or BP, and no morbid events.

Conclusions. Subcutaneous nitroglycerin provided robust incremental venodilation (2.8 fold) of truncal veins at endovenous ablation access sites, even after topical NTG pretreatment. Topical nitroglycerin, an accepted strategy, delivered meager venodilation, while subcutaneous nitroglycerin was

more potent. Safety was excellent; venospasm and failed access was rare in this small series. There was no significant affect on heart rate or blood pressure of even combination forms of nitroglycerin.

Effects of Micronised Purified Flavonoid Fraction on Symptoms and Quality of Life in Patients Suffering from Chronic Venous Disease

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Aim. The aim was to investigate the effect of Micronised Purified Flavonoid Fraction (MPFF; Dallon® 500mg) versus placebo, on pain and quality of life in patients with symptomatic Chronic Venous Disease (CVD).

Methods. A randomised, double-blind, placebo-controlled, parallel-group study was conducted from 2003/06 to evaluate treatment effects on vesperal oedema using water displacement volumetry (WDV). Other criteria were leg pain/heaviness assessed by visual analog scale (VAS) and quality of life (CIVIQ-20). Tolerability was also assessed. Study treatments were administered for 4 months. The analysis focuses on the subgroup of symptomatic patients having a baseline VAS >4 cm.

Results. The main study included 1137 patients classified C3 or C4 according to CEAP class, with 572 in the symptomatic subgroup: 296 randomised to MPFF and 296 to placebo. Patient demographics and medical history were well-balanced at baseline. The main study was inconclusive on WDV for methodological reasons. In the symptomatic subgroup, MPFF treatment was associated with a greater reduction in VAS score than on placebo treatment (between-group difference = -0.5 cm; $p = 0.031$) and greater improvement in CIVIQ score (between-group difference = 3.1%; $p = 0.040$).

Conclusions. A 4-month treatment with MPFF significantly reduced leg pain/heaviness and improved QOL when compared to placebo and was well tolerated based on spontaneously reported adverse events, coded using the MedDRA dictionary.

Sonothrombolysis – A Systematic Review of Thrombus Dissolution Using Microbubble Augmented Ultrasound

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Aim. Post thrombotic syndrome (PTS) develops in 25-50% of patients with DVT. Acute removal of venous obstruction may preserve valvular function and reduce the incidence of PTS. Anticoagulation does not achieve thrombus dissolution, therefore, novel percutaneous techniques such as catheter-directed thrombolysis and pharmacomechanical thrombectomy are being investigated as adjuncts in DVT therapy. This review examines the experimental evidence for sonothrombolysis, a non-invasive technique of microbubble augmented ultrasound for thrombus dissolution in the treatment of DVT.

Methods. Two reviewers independently performed a systematic review of Pubmed and OVID databases according to PRISMA guidelines for microbubble augmented sonothrombolysis studies both in-vitro and in-vivo to assess the feasibility and safety for use in the treatment of DVT.

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 an Endoluminal Laser with postoperative

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

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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: AU5 Esaote Ultrasound and Color Doppler 10 MHz linear transducer 47.26 cases negative rellux 133.74 ebbs cases (positive) unilateral. ... 59. 44% bilateral. 74. 56% Unilateral Reflux. around the shaft. ... right 10, left 16. Segmental reflux. right. ... Arch 6, 6 trunk thigh, leg 3 Left. Arch 8, 9 trunk thigh, leg 7 Bilateral Reflux. Axis. All right 37, left 33. Reflux. segmental arch right. ... 9, 10 trunk thigh, leg 8 left. ... crook. 10, 11 trunk thigh, leg 16.

Methods. Esaote doppler 10MHz Ultrasound and Color Doppler; linear transducer. This is to determine the limit of valvular incompetence. May go unnoticed if the review is not exhaustive Ecodoppler. Mainly involving the VSI. In lower incidence of major tributaries of the thigh, anterior accessory saphenous like and saphenous hamstring. They may have smaller diameter than the internal saphenous veins have valvular incompetence throughout its course. Sometimes it is not easy to determine the limit of valvular incompetence. Valvular involvement may depend saphenous axis genuine, most incidence, as well may correspond to ebb by tributaries of colateral.

Results. Type A: Asymptomatic, no varicose veins and Reflux by Duplex. Type B: Asymptomatic, with varicose veins and Reflux by Duplex. 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 infrapatelares segments of the internal saphenous veins. The goal of treatment here is to prevent the evolutionary development 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 refluxes 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 infrapate-

lares segments of internal saphenous veins. The goal here is to prevent the evolutionary development of the disease.

Conclusions. We know that these reflows Segmental can be a warning or the first step of the forward progression of superficial venous valvular disease. If these asymptomatic control other option would be evolutionary, and phlebotonics indication. No doubt in these cases is imposed phlebologist tracking handler.

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

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Aim. 1) Assess very low concentration lidocaine's efficacy in tumescant 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, prospective, 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 epinephrine). 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

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Aim. We use our expirience 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-

is preferred more and more by the patients. For us it is obvious that the future in varicose veins treatment is not for the surgery and we can see now very clear the winner of the race.

LASER versus Sclerotherapy for Telangiectasia and Reticular Veins

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Aim. 1. evaluate the efficacy of LASER treatment and sclerotherapy as a single treatment for telangiectasia and reticular veins 2. compare the results of LASER treatment and sclerotherapy as single treatment for telangiectasia and reticular veins 3. evaluate the efficacy of combined method of LASER and sclerotherapy for telangiectasia and reticular veins 4. compare the results of combined method versus single method

Methods. Since 1994 we utilized sclerotherapy with liquid (initially) or foam (in the last years) for treating reticular veins and telangiectasia. Since 2001 we began to use different types of lasers for the treatment of reticular veins and telangiectasia- Argon laser, Diode laser 810 nm and 980 nm (with or without cooling), Nd-YAG and IPL, as single treatment or associated with sclerotherapy. We analyzed retrospectively a group of 3620 patients which had at least one treatment for reticular veins or telangiectasia and we contacted them for a phone selfevaluation or for a consultation for reevaluation. We had in the final 3 subgroups, one of 2134 patients with at least one sclerotherapy, 1037 patients with at least one lasertherapy and the smallest group of 449 patients with both, sclerotherapy and lasertherapy.

Results. We obtained statistically significant ($P < 0.05$) better results, aesthetic and functional, with sclerotherapy for reticular veins and telangiectasia than with LASER- sclerotherapy was more effective than the vascular LASER in the majority of the cases, being also a less expensive treatment. The surprise was that better than the sclerotherapy alone were the results in the group with combined method-first sclerotherapy and after a while -LASER.

Conclusions. Sclerotherapy has better aesthetic and functional results than the LASER in the treatment of reticular veins and telangiectasia but we can obtain even better results combining the two methods- first sclerotherapy and then LASER.

Endovascular Treatment of May Thurner Syndrome

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Aim. Describe the clinical characteristics, presentation, treatment and follow up of group patients at the clinica cardiovascular with diagnosis of May Thurner syndrome.

Methods. review medical records of patients diagnosed with may Thurner between 2000 and 2011. Variables assessed: age, sex, clinical presentation, previous history of deep vein thrombosis, diagnosis, treatment, outcome and follow-up.

Results. We describe 38 cases, 100% female, aged between 20-60 years, the initial presentation: acute venous thrombosis 90% of patients with ilio femoral segment involvement and 10% patients, symptoms of venous hypertension: edema, pain and varicose veins. Of the latter group 1 patient had history of deep vein thrombosis and 2 infrapopliteal superficial venous thrombosis, and history of varicectomy. The diagnosis was performed in patients without thrombosis with ultrasound duplex which evidenced a decrease in vessel diameter greater than 70% and in all patients with measurement of gradients between the inferior cava vein and left common iliac. 100% patients with acute thrombosis underwent thrombolysis and

stent implantación. Technical success 100%. Following by anticoagulation according to protocols. Monitoring was done with color duplex and clinical symptoms in 70% of patients for period of 1 month to 72 months, with a mean of 14 months. During follow-up showed no recurrence of thrombosis or symptoms, which was ranked with score of Villata = 0. Average length of hospital stay of 5 days.

Conclusions. The clinical characteristics of patients described here are agree to reported in the literature, the main clinical manifestation was acute thrombosis ilio femoral segment. Short term follow-up showed no recurrence of thrombosis, there was preservation of valve apparatus competition and post-thrombotic syndrome wasn't presented.

Metronomes & Metric Devices for Endovenous Ablation

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Aim. 1) Review pullback rates' crucial role in endovenous ablation safety and efficacy. 2) Summarize metronomes available to time pullback rates. 3) Analyze the electronic metric devices that optimize pullback rates.

Methods. Literature search, technologic review, and observational comparison of various metronomes & metric devices. Challenges in timing pullback rates were identified, and several useful electronic and online metronomes were identified, tested, and features compared. Endovenous ablation procedures in our private practice in 2012 were included. In-range linear endovenous energy density rates without and with metronome devices, ease of use, individual features were reviewed.

Results. A technologic gap exists in providing optimal pullback rates in endovenous ablation procedures, which determines linear endovenous energy density (LEED). Operators often must find their own timing devices. Four electronic devices were identified, tested, and corroborated against laser console data. 2 devices are auditory: the M50 Meideal® metronome & the SilverDial® metronome online app. 2 are visual: the OsyPilot® running LED device and the EVLTraining® online app. All were found anecdotally to be equally very useful in standardizing and optimizing pullback rates in order to achieve target LEED values.

Conclusions. Digital physical and online metronomes and other devices are crucial to the safety and efficacy of endovenous ablation procedures. These cheap and easily operated devices, typically left to the practitioner to obtain, ensure accurate catheter / fiber pullback speed, which is uniquely vulnerable to operator error in their absence. Several indispensable devices are available to the resourceful operator determined to optimize endovenous ablation pullback rates. (requested disclaimer by a journal editor: "Full paper to be published in the Journal for Vascular Ultrasound")

Conservative and Surgical Treatment for Acute Varicose Thrombophlebitis: Comparative Evaluation of the Results (Three-Year Prospective Study)

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Aim. Therapeutic approach to acute varicose thrombophlebitis (AVTP) is not defined, although this condition can lead to deep-vein thrombosis (DVT) and pulmonary thromboembolism. The aim: to improve the short-long term treatment results in patients with AVTP

Methods. The study period was 2007 - 2012. 362 patients with AVTP were studied: 243 patients (67.1 %) with type 1 by F. Verrel; 70 patients (19.3%) with type 2; 31 patients (8.6%) with

differences were significant ($p < 0.0001$) for: Hyperpigmentation 23.3% (air) vs. 13.6% (CO₂-O₂), and hematoma 14.4% vs. 2.5%. The differences (air/CO₂-O₂) were not significant for: Migraine 0.1%/0% Matting 1.4%/0% Burning sensation 11.7%/5.5% Thrombosis 1.1%/1.6% Visual disturbance 0.2%/1.8% No group showed any permanent side effects on the central nervous system; all events of impaired vision were spontaneously reversible within 20 minutes without further treatment.

Conclusions. The treatment with CO₂-O₂ FS is slightly more efficient than air FS, especially in larger varicose veins and high volumes of foam. Maybe it CO₂-O₂ foam produces less side effects. But our results do not prove that it is definitely safer.

Pregnancy Does not Influence Varicose Vein Laser Surgery Results

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Aim. To examine the influence of pregnancy on the results of laser surgery, knowing that following classic surgery about 50% recurrency is experienced (Fischer *et al.*).

Methods. 7 varicose saphenous stems of 5 patients were treated and followed. We used 1470 nm wavelength and higher laser energy than other colleagues (mean 158 J/cm). The tip of the fiber was 1 cm from the junction. Mean 7.6 months after surgery they became pregnant.

Results. None of the treated 7 saphenous stems recanalised during pregnancy. In 4 of them there were no clinical or US recurrences, in 3 limbs C1 recurrent varicosities were found. In 4 saphenous stems there were no stumps, in 3 cases there were stumps of 6, 8 and 14 mm. In 2 of them patent tributaries were found around the SFJ.

Conclusions. The laser technique described seems to be suitable for decreasing the recurrency rate of stem varicosity during pregnancy.

Case Report: Unique Sheath Tip Thrombosis During EVLA In Patient With Occult Thrombophilia

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Aim. 1) Describe a unique case of a sheath tip thrombosis during a patient's EVLA. 2) Diagnosed an occult thrombophilia. 3) Anticoagulated the patient; EVLA was performed later successfully under anticoagulation.

Methods. Case report of the clinical care of a patient with CEAP C3 superficial venous reflux disease treated in an office based phlebology practice from February through March 2013. The patient was treated with endovenous laser ablations (1 aborted + 2 completed) as well as anticoagulation and monitored with serial venous ultrasound and clinical examinations as well as one chest CT and Emergency Department visit.

Results. During GSV EVLA, the sheath was placed just distal to the SFJ. It could not be aspirated, but it could be flushed. A large thrombus was noted at the tip (extending briefly into the Common Femoral Vein), and through the thigh GSV. EVLA was aborted and LMWH was injected. The patient collapsed and was transported to the ED; pulmonary embolism was excluded. Heterozygous Factor V Leiden was diagnosed. Anticoagulation was continued for 6 weeks with enoxaparin, then rivaroxaban. SVT resolved by week 4; EVLA was performed without incident on rivaroxaban.

Conclusions. This unique case urges new caution for EVLA operators. Prompt sheath positioning, guidewire and dilator removal, and sheath flushing should always be performed,

as well as close ultrasound inspection of the sheath tip. If sheath thrombosis is found, the procedure should be aborted, anticoagulation instituted, and the patient should be tested for thrombophilia. Subsequent vein ablations should be performed on anticoagulation, in the author's opinion.

Duplex Scan Aspect of the Sapheno-Femoral Junction 6 Years after Endovenous Laser Ablation

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Aim. Objectives : show that the presence of a stump left in place at the sapheno-femoral junction after endovenous laser ablation does not develop inguinal recurrence.

Methods. Among 1222 endovenous Laser procedures conducted since January 2002 in patients with incompetence of great saphenous vein, 220 patients with 6 years follow up were randomized and reviewed for a clinical and ultrasound examination. The Duplex studies were focused to evaluate the percentage of occlusion of the greater saphenous vein and the aspect of the stump at the sapho-femoral junction level.

Results. In 218 patients (99,1%), the GVS were closed from the groin to the knee. In only 2 patients (0,9%) the greater saphenous vein were incompletely closed without reflow. The stump length were ranged from 10 mm to 30 mm without reflow. No inguinal recurrence through tributaries of the junction, no incompetent dystrophic lympho-nodal venous network were found. The study of the junction with color doppler showed a Venturi effect of the blood coming from the tributaries of the junction to the femoral vein.

Conclusions. The sapheno-femoral junction seems to play an important hemodynamic. Unlike the concept accepted by all the ligation division does not seem necessary and the presence of a short stump left in place will not relapse over the ligation junction of the flush with the femoral vein.

Diagnosis and Management of Left Renal Vein Entrapment – Nutcracker Syndrome

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Aim. 1. Report the first case of Nutcracker syndrome (NCS) treated with renal autotransplantation in the UK 2. Describe the presentation and diagnosis of NCS 3. Highlight the complexities and controversies of managing NCS and analyze options for treatment

Methods. A 21 year old woman presented with left flank pain. Thirty hospital admissions were all treated as pyelonephritis. Multiple specialities "reassured" the symptoms were functional. Six years later imaging revealed left renal vein entrapment between the superior mesenteric artery and aorta (image 1). Renocaval pressure gradient of 7mmHg confirmed diagnosis of NCS (normal 0-2 mmHg). Renal autotransplantation was selected to prevent further clinical deterioration in 2011.

Results. Renal autotransplantation completely relieved all symptoms. However, three months post-operatively hypertension (220/110) developed. Angiography confirmed transplant renal artery stenosis which was stented, normalising blood pressure (image 2). Three months post-angiography hypertension returned; the stenosis had recurred. A second stent was placed (image 3). History repeated six months later. Autotransplant nephrectomy was selected to avoid hypertensive damage of the fully functional right native kidney.

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% ($n = 71$) $p > 0.05$, paresthesia: 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

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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, complaints 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 thromboembolic 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 Tumescence Local Anaesthesia (TLA) - 1000 Legs Treated

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Aim. Endovenous Laser Ablation (EVLA) is a well established technique to treat varicose veins due to Saphenous Veins Reflux. Traditionally this procedure is done under Tumescence 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 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 EVLA 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 E/1470 ©) delivered in continuous mode by radial fibres (ELVeS Radial ©-CeramOptec GmbH) without Tumescence Local Anesthesia. 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 2.4 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 Tumescence Local Anesthesia 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 Accessory Vein at the Saphenofemoral Junction

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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 anesthesia. Clinical and 2 month venous ultrasound follow up was conducted.

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.

Conclusions. Venous aneurysms are an area of emerging interest in phlebology. This is an instructive case as optimal therapy of large necked large superficial venous aneurysms near the junctions is undefined, with real risks of deep venous thrombosis with thermal ablation. The size of this successfully ablated type Va venous aneurysm approaches the diameter of the largest known thermally ablated truncal vein to date (29 mm).

Perforator Treatment with Percutaneous Laser, Control Eco Doppler

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Aim. The objective of this work is the treatment of insufficient perforating with Percutaneous Laser and control eco-doppler. His systematic methodology

Methods. We use a 980 laser, fiber laser of 400 or 600 microns. For 400 micron fiber we make the needle 18 G x 1 1/2 "and 600 micron fiber Abbocath use a 14G. 1 - The patient should be studied with precise topography of insufficient perforating with "x" and "y" indicating the exact location of the emergency aponeurotic (ostium aponeurotic) treat the perforator 2 - OR is located precisely in the insufficient perforating, supine patient with knee flexion slight downward leg inverted Trendelenburg angle of 45° downward. Indeed, look for the piercing with Doppler and its respective function respecting this angle is essential because many perforating decrease its flow and consequently its diameter in the supine position. That is why we do accurately diagnosing days or weeks earlier with the patient standing, but we again make the operating room marked with this angle. 3 - In the intraoperative Doppler image confirms the insufficient perforating and notes how it gets to that perforating needle under the guidance Color Doppler. 4 - carries the laser fiber through the lumen of the needle 18 G x 1 1/2 "Abbocath or 14 wherein G is used for puncture. 5 - Once the needle is in the laser discharge perforating shows the image of the "bubble" in the light of the perforator. 6 - Are downloads 3 "with power of 4 watts. Corresponds to 36 joules. 7 - The Eco Doppler image shows how close the perforating at that level. 8 - putting pressure on the calf muscle is found that the reflux is stopped in the perforating closed.

Results. We present the results of three years in each group of patients in the three periods that make up our sample. We believe that it is necessary for an accurate assessment of the results because in all series of other authors consulted confirmed that recurrences occur in the first 6 months post-treatment. Evaluated operated Relapses 1st series 2004-2005-2006 years 142 138 5% 2nd series Years 2007-2008-2009 128 115 4% 3rd series Years 2010 - until the end of June 2012 97 97 2% Up to December 2012 47 47 ----- Total: 414

Conclusions. 1 - High percentage of confirmed closure of the perforator 2 - Excellent aesthetic result. Only punctate leaves a scar that over a week to ten days tends to go unnoticed. 3 - minimally invasive 4 - The postoperative period is short, allowing comfortable and painless ambulation after tomorrow. 5 - We have not recorded or indurative inflammatory signs in the area of the puncture.

Voluntary Auditory Attenuation of Noxious Surgical Stimulation in Varicose Vein Procedures

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Aim. Analyze Auditory Isochronic Tone Entrainment (AITEE) versus Music of Patient Choice (MOPC) effect on nox-

ious patient perception of vein procedures under Tumescant Local Anesthesia (TLA) with or without oral Lorazepam.

Methods. Prospective office based vein procedure study with TLA with or without Ativan. PO comparing selective AITEE to MOPC. Consenting patients have one procedure with each modality (clinician is blinded to modality). The study measures Bispectral Analysis (BIS) levels of Prefrontal Cortex EEG activity, vital signs and patient reported anxiety level.

Results. Preliminary results of objective measures with the use of AITEE in n=9 patients have demonstrated lower BIS levels with use of AITEE. All patients reported a more pleasant experience than anticipated with less anxiety than expected. Further results pending completion of study.

Conclusions. Auditory and Visual Somatosensory Stimulation (SSS) converges in the Ventrolateral Prefrontal Cortex (VLPFC) where auditory and visual neurons combine to recognize objects. Mapping and monitoring of brain pathways allow objective measurement of procedure anxiety. The BIS monitor and Vital Signs are a reliable measures of anxiety and the benefit of AITEE in vein patients. Studies confirm that AITEE and TLA with or without Lorazepam is reversible and lowers the stress of vein procedures.

Case Report on Repeated Bleeding Caused by Pulsating Varicose Veins

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Aim. We report a case of an 83-year old woman with chronic venous insufficiency and repeated bleeding caused by pulsatile varicose veins related to severe tricuspid insufficiency.

Methods. Case report.

Results. She was suffering from pain in the legs with extensive varicose veins and had several episodes of varicose bleeding. Conservative treatment and attempts to perform ambulatory phlebectomy failed. Duplex ultrasound revealed the presence of pulsatile varicose veins and the relationship with underlying tricuspid insufficiency became obvious. Finally the patient could be treated successfully by the cardiologist and dermatologist.

Conclusions. In the rare case of pulsating varicose veins it is important to determine the underlying cause. If ultrasound investigation shows pulsating flow in multiple deep veins, the cause is most likely cardiac.

Fill & Aspirate Foam Sclerotherapy (FAFS): A New Approach for Sclerotherapy to the Large Superficial Varicosities at the Time of Endovenous Laser Ablation (ELA)

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Aim. 1. Implement the Fill & Aspirate Foam Sclerotherapy (FAFS) to the superficial varicosities instead of ambulatory phlebectomy, 2. Perform the FAFS to the superficial varicosities concomitant with Endovenous Laser Ablation (ELA) 3. Assess the feasibility of the FAFS to the superficial varicosities.

Methods. Thirteen patients who refused to have phlebectomies with saphenous vein reflux and large superficial varicosities were included in the study. Both ELA and FAFS were performed concomitantly. Bulging varicosities with the diameter of over 5 mm in supine position and extended to at least 10 cm area at the limb accepted as large superficial varicosity.

Results. No significant change in vital signs including BP, pulse, ECG, O₂ saturation was observed during or following the procedure in either series of patients. In the room air foam group, there were a total of 17 complications, including dizziness (5), scotoma (1), migraines (2), panic attack (1), ulceration (5), and transient dry cough (3). In the CO₂ foam group there were only 2 complications ($p < .0001$), both of transient dry cough (< 5 seconds). No neurological side effects were seen in the CO₂ foam group.

Conclusions. This retrospective review of CO₂ foam and room air foam in the treatment of venous insufficiency demonstrates that CO₂ foam is extremely safe and effective. The use of CO₂ foam should be the preferred method, given the reported complication rate in our series and that in the historical literature for room air foam, especially given the rare, but catastrophic neurological complications that have been reported.

Endovenous Laser Ablation: Damage of Venous Wall Treated *in Vivo* with Radial Fiber and 1470 NM Diode Laser

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Aim. Today the best model for evaluation of laser action on the venous wall is «*in vivo* model» with stripping of GSV after EVLA. Damage during stripping can't be good for study of adventitia (G.Spreafico, 2011). The number of such experiments is limited. We developed and used «*in vivo* model» for studies of endovenous.

Methods. We performed endovenous laser ablation in patients with S-type of incompetent GSV. After EVLT of intrafascial part of GSV we performed laser treatment short segment of extrafascial part on the thigh (length 2-4 cm) and then performed miniphlebectomy this segment for examination. We used the laser with wavelength 1470 nm, radial fibers, automatically pull-back, tumescent anesthesia with pump. Before each procedure we measured the power of laser energy with powermeter by «Ophir». In the study included 25 patients (F-19, M-6, mean age 42,1±12,1 y) with varicose disease with C2-C3 class CEAP without previous phlebitis or sclerotherapy. A total of 29 venous segments. In all cases incompetent GSV was determined by ultrasound. Mean diameter of extrafascial part was 6,3±1,0 mm (range 4,8-9,3). We used continuous mode with power range 2,9-10,5 Watts: 2,9-3,5W (n=3), 4-4,9W (n=6), 5-5,9 W (n=6), 6-7W (n=10), 9-10,5W (n=3, only with 2ring fiber), pull-back 0,7 mm/sec, LEED 41,8-150 J/cm, EFE 20,5-95,5 J/cm². After miniphlebectomy we performed macroscopic evaluation of inner and external layers. During evaluation we marked signs damage of vein: gummy consistency, thickened wall, reduced caliper, loss typical pink color and appearance grayish-white color (external layer) or white color (inner layer). In cases complete laser action, damage should be uniform, widespread and constant around the whole vein wall circumference. In case of insufficient severity of these signs, we considered that damage of venous wall was incomplete. In addition we performed microscopy.

Results. Incomplete damage of venous wall was in 8 cases. Power in this cases was 2,9-5,0 W (mean 3,9±0,67), LEED 41,8-71,8 J/cm (mean 55,68±10,17), EFE 20,52-32,5 J/cm² (27,73±3,99). In 21 cases damage was complete: power 4,2-10,5 W (mean 6,28±1,63), LEED 59,93-150,00 J/cm (mean 89,79±23,35), EFE 26,83-95,54 J/cm² (47,43±15,20).

Conclusions. When applying 1470 nm laser and radial fiber complete damage of venous wall occurs when LEED is more 72 J/cm, EFE – more 32,5 J/cm².

Excision of Spontaneous Palma and Other Secondary Varicose Veins in the Absence of Patent Deep Axial Veins

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Aim. To show that in some deep vein occlusion cases, removal of secondary varicose veins improves the venous circulation of the limb.

Methods. Since 1981 in 92 patients both the spontaneous Palma venous arch (19 cases) and lower limb varicosity (73 cases) were removed. In 7 of them, deep vein aplasia was the reason for the absence of deep vein circulation. In 11 cases, crural ulcer was the main complaint. To select patients, duplex ultrasound examination, venous pressure measurement, compression test and phlebography were performed. Radical varicectomy (crossectomy, stripping, phlebectomy, laser ablation) was carried out in every post-thrombotic and aplasia case.

Results. Patients' complaints decreased or disappeared, crural ulcers healed (11 cases), in 86 cases there was significant pain relief, venous clinical severity score decreased by mean 43 %, and did not increase in any case. There were no circulatory complications during or after the operation. Recurrent varicosity could be observed in 58 cases (63.0 %) within 3 years, without ulcer recurrence. This means that these tests proved to be reliable in the detection of the presence of an additional drainage system of the limb, the subfascial collaterals in the muscles.

Conclusions. Traditionally the veins of the lower limbs are classified as superficial and axial veins. We prefer to say epifascial and subfascial vascular beds. In these cases there was no axial venous circulation, but a subfascial collateral system had developed which could maintain the venous drainage of the limb.

Case Report: Successful EVLA Occlusion of Both Channels of a Great Saphenous Vein Bisected Longitudinally by Chronic Superficial Venous Thrombosis

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Aim. 1) describe a case of chronic superficial venous thrombosis synechia bisecting the proximal GSV 2) describe occlusion of both GSV channels with EVLA 3) describe occlusion at short term follow up

Methods. Case report - patient with superficial reflux treated in private practice 3/2013. Patient had superficial venous thrombosis of varicose GSV tributaries that propagated to common femoral vein, treated with warfarin. Thromboses retracted, leaving synechia bisecting the GSV longitudinally. EVLA performed after 5 months of anticoagulation to prevent recurrent propagation. Cold saline without lidocaine for tumescent anesthesia. Clinical and 65 day venous ultrasound follow up conducted.

Results. The patient had a treacherous SVT, arising within calf varicose GSV / accessory GSV tributaries. After several weeks of conservative therapy, sudden propagation to SVT of the thigh GSV and DVT of the common femoral vein ensued, requiring enoxaparin and warfarin. DVT & SVT retracted, leaving a synechia type chronic SVT bisecting the thigh GSV longitudinally. EVLA was performed, accessing one GSV channel, with successful ablation of both channels at 65 day followup. Cold saline without lidocaine used for tumescent anesthesia due to use of medication inhibiting cytochrome P450 3A4.

Conclusions. This instructive case illustrates the feasi-

bility of occluding via EVLA both lumina of a truncal vein bisected longitudinally by a chronic SVT. Despite the presence of a stiff immobile synechia bisecting the vein, thermal energy was able to be transmitted by convection and/or conduction to close both channels effectively, at least by short term followup. Objective was to prevent recurrence of SVT propagation to DVT.

Experiences of Balloon Dilatation and Thrombus Extraction for the Treatment of Cerebral Venous Sinus Thrombosis

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Aim. This study aimed to investigate the efficacy and safety of balloon dilatation and thrombus extraction for the treatment of cerebral venous sinus thrombosis (CVST).

Methods. Twenty-six cases of DSA-confirmed CVST were treated with balloon dilatation and thrombus extraction. Active treatment of primary disease was carried out after cerebral venous sinus recanalization, and subsequent anticoagulant therapy lasted for 6 months.

Results. Recanalization of the cerebral venous sinus was achieved in all 26 patients, and no endovascular treatment related complications occurred during or after the procedure. At discharge the Glasgow Coma Scale (GCS) of the patients had improved from an average of 12.3 points to 15 points, and clinical symptoms were improved in 100% of the patients. Follow-up times ranged from 12–62 months (mean follow-up time of 42.3 months) and no thrombus re-formation or new neurological deficits occurred during that time.

Conclusions. Based on our small study population, balloon dilatation and thrombus extraction appears to be a safe and effective treatment for cerebral venous sinus thrombosis. However, further research is needed to confirm this.

Validity of B-Mode Ultrasound in Assessment of Acute Lower Limb Pain

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Aim. Acute lower limb pain represents one of the most common presentations at emergency department. Its rapid diagnosis is needed for rapid and proper treatment. The availability of B-mode US machines should help in their diagnosis. 1) clearing up of most common causes that lead to acute lower limb pain, 2) assess the role and accuracy of B-mode US in diagnosis of acute limb pain with absence of CFD units at ED, primary health care units and urban areas 3) Applying a diagnostic protocol for acute limb pain including physical examination, B-mode U/S and D-dimer assessment.

Methods. Subjects: 200 patients were presented by acute lower limb pain at emergency department. Methods: A prospective study from January 2011 to February 2012, 200 patients presented by acute LL pain to ED were subjected to clinical examination, B-mode U/S by a radiologist and further specific assessment according to US Results.

Results. 86 patients had thrombosed veins, 32 had cellulitis, 14 had acute ischemia, 20 had acute leg hematoma, 8 had ruptured Baker's cyst, 6 had leg abscess, 4 had acute tenosynovitis of peronei and tibialis posterior tendons, 4 had knee

arthritis, 6 had ankle joint arthritis, and 20 had unexplained findings.

Conclusions. B-mode US can replace CFD in rapid assessment of most cases presented by acute lower limb pain and save time for the physician in decision-making.

The Pathophysiology of Chronic Venous Ulceration

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Aim. Chronic venous ulceration (CVU) remains a scourge of developed healthcare systems consuming approximately 1–2% of the healthcare budget and generates significant physical and psychological morbidity. Our understanding of the relationship between chronic venous insufficiency and the microcirculatory changes underpinning CVU is incomplete. Objectives 1. Identify methods of assessing CVU pathophysiology. 2. Identify specific factors implicated in the genesis or progression of CVU.

Methods. A literature review undertaken in April 2013. A Search undertaken of the PubMed database with the following MeSH terms; 1 "Varicose Ulcer/enzymology" 2 "Varicose Ulcer/etiology" 3 "Varicose Ulcer/immunology" 4 "Varicose Ulcer/metabolism" 5 "Varicose Ulcer/pathology" 6 "Varicose Ulcer/physiology" 7 "Varicose Ulcer/physiopathology" Titles and abstracts of studies were reviewed. Articles needed to report findings in English to be included. After review of titles and abstracts, studies were included if they demonstrated primary evidence in the biological mechanisms of chronic venous ulceration.

Results. Searching PubMed obtained 530 studies. After review of titles and abstracts, 108 relevant articles were identified. Sampling and selection of substrate were found to be heterogeneous such as sampling of wound fluid directly or by filter disc absorption, tissue biopsy and blood from the affected limb or distant sites. Studies have examined the role of cytokines, protein synthesis, proteases and their inhibitors, cellular function and coagulation cascade.

Conclusions. There is significant heterogeneity in the sampling, assaying and targeting in the bid to understand the pathophysiology of CVU. In addition, there appears to be no standard animal model representative of CVU. Prior approaches have tended to examine single factors in isolation. It may be useful to examine the process of CVU from a different perspective such as a top-down systems biological approach in order to develop a more global view. We have recently commenced a study in which CVU fluid shall be obtained and a multivariate metabolic profile will be generated. The global view of metabolism has the potential to deepen our understanding of CVU pathophysiology.

Single Center Initial Experience in Endovascular Treatment for Obstructive Venous Pathology

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Aim. Several studies have demonstrated the benefits of thrombus removal in decreasing severity of post thrombotic syndrome, and venous stenting has proved excellent in maintaining patency. This article presents our initial experience establishing outflow in patients with severe obstructive venous disease.

Methods. Retrospective, observational, single center study in a two year period in 29 patients with venous obstructive disease of several etiologies and chronicity: five patients with subclavian venous obstruction and 24 patients with iliofemoral